

Adolescent

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Internet Helps in Psychological Development of the Adolescent (Med India: 28.9.2011)

The Internet helps in the psychological development of the adolescents, says a Tel Aviv University researcher

Prof. Moshe Israelashvili of TAU's Jaime and Joan Constantiner School of Education, with his M.A. student Taejin Kim and colleague Dr. Gabriel Bukobza, studied 278 teens, male and female, from schools throughout Israel. They found that many teens were using the Internet as a tool for exploring questions of personal identity, successfully building their own future lives using what they discover on the Web.

Prof. Israelashvili's research, which was published in the Journal of Adolescence, encourages parents and educators to look at engagement with the online world as beneficial for teens. Social networking, he says, is a positive example of Internet use: "Facebook use is not in the same category as gambling or gaming." As a result, Prof. Israelashvili says, researchers should redefine the characteristics of the disorder called "Internet addiction" in adolescents.

Redefining internet addiction

The TAU researchers asked the teens to rate themselves in terms of Internet use, ego clarification, and self-understanding, and how well they related to their peer group. The researchers discovered that there was a negative correlation between Internet overuse and the teens' levels of ego development and clarity of self-perception. Prof. Israelashvili refers to it as an indication that some Internet use is destructive and isolating while some is informative and serves a socializing function.

These results show that the current understanding of adolescent Internet addiction demands redefinition. Psychiatrists now classify an "Internet addict" as a person who spends more than 38 hours on the Internet every week. But it's the quality, not the quantity that matters, argues Prof. Israelashvili. The researchers determined that many teens who participated in the study met the psychiatric standard of "Internet addiction," but were actually using the Internet as a tool to aid in their journey of self-discovery.

Aging

Poor people age

Why poor people age faster than their better-off counterparts (The Tribune: 3.8.2011)

A new Scottish study has found that poor people age faster than their well-to-do counterparts because they have shorter telomeres.

Telomeres are the cap-like molecular structures on the tips of the chromosomes that scientists say are closely linked to biological age. “We know that people who are born with shorter telomeres than normal also have a shorter lifespan,” CBS News quoted Dr. Maria Blasco of the Spanish National Cancer Research Center in Madrid as telling The Independent. She created a 700-dollar test that supposedly predicts aging by measuring telomeres. In the new study, which took 10 years, researchers from the University of Glasgow compared telomere length in 382 local residents.

Middle-age vices

‘Middle-age vices can shrink your brain’ (The Asian Age: 5.8.2011)

An expanding waistline along with other middle-age vices such as smoking and drinking not just harm your heart, they could also cause your brain to shrink, a new study has claimed. Conditions such as diabetes and high blood pressure also take their toll on the grey matter, having an effect on brainpower just 10 years later, the researchers found. Doctors could use the information to pick out patients at a higher risk of dementia and encourage them to improve their lifestyles while there was still time, they said.

“Identifying these risk factors early could be useful in screening people for dementia and encouraging people to make changes to their lifestyle before it’s too late,” study author Charles DeCarli, from the University of California at Davis, was quoted as saying by the Daily Mail.

For their study, published in the journal Neurology, the researchers measured weight and height of more than 1,300 men and women in their 50s and 60s. Their blood pressure, cholesterol and diabetes were also examined. Scans to measure brain volume were carried out over the next ten years and mental tests were also run on participants.

The brain shrinks with age, even in the healthiest of people. But in those with diabetes, the hippocampus — the brain's "memory hub" — shrank more quickly than in those without the condition, the researchers found.

The hippocampus also shrivelled faster in smokers. And those with high blood pressure were more prone to small lesions or areas of brain damage, known as "white matter hyper-intensities", they said.

High blood pressure was also linked to a more rapid worsening of scores on mental tests, effectively ageing the brain by up to eight years, the researchers said.

Those who were obese in their 50s tended to fare poorly on the mental tests in the study. A previous study of American pensioners found that obesity ages the brain by up to 16 years. It is thought that high levels of fat raise the odds of the arteries clogging up, cutting the flow of blood and oxygen.

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Age and Severity

Age and Severity of Heart Failure Associated With Impairment in Verbal Memory (Science Daily: 9.8.2011)

Older patients with lower rates of left ventricular ejection fraction (a measure of how well the left ventricle of the heart pumps with each contraction) appear more likely than younger patients to have significantly reduced verbal memory function, according to a report in the August issue of Archives of Neurology, one of the JAMA/Archives journals. Three decades ago, researchers began investigating the association of heart failure with cognitive decline, according to background information in the article. Thirty to 80 percent of patients with heart failure may experience some cognitive deficits. However, research seeking to clarify the correlation of cognitive impairment with decreased left ventricular ejection fraction (EF), a measurement of the severity of heart failure, has generated inconsistent results. "Conflicting evidence about the association of EF with cognitive function suggests a complex relationship between patient variables and the cardiovascular factors that influence cognition," write the authors.

Joanne R. Festa, Ph.D., from St. Luke's--Roosevelt Hospital Center, New York, and colleagues conducted a cross-sectional study to investigate the relationship between age, EF and memory among patients with heart failure. The participants, all adult patients with heart failure, underwent neurocognitive assessment while being evaluated for potential heart transplantation candidacy between September 2006 and September 2008. The testing included verbal and visual memory, attention, executive functioning and self-reported depressive symptoms. Researchers also recorded participants' EF, heart failure cause, medical history, current medications and demographic information. Echocardiography was used to measure EF, which was scored at less than 30 percent or

at 30 percent or greater. Age quartiles used by the researchers were 45 years or younger, 46 to 55 years, 56 to 62 years and 63 years or older.

A total of 207 participants were included in the final analysis of the study; 38 had an EF of 30 or greater, and 169 had an EF of less than 30. Stable memory function was maintained across EF levels in patients younger than 63 years, but in older patients a significant association with worse memory performance was noticed when EF was less than 30 percent. Analysis of the results demonstrated that the components of memory with which low EF had the greatest association were verbal delayed recall and recognition.

"In summary, an interaction exists between the age and EF such that older patients with low EF had significantly reduced memory, particularly verbal delayed recall and recognition," write the researchers. However, the association of low EF with "memory in these patients is not entirely explained by EF." The authors suggest further research into additional mechanisms of cognitive dysfunction in patients with heart failure.

Anti-Aging Techniques

Anti-Aging Techniques Not Yet Viewed as Acceptable, Study Suggests Science Daily: 25.2011)

Studies from the University of Toronto's psychology department show that people who use more invasive anti-aging methods such as Botox injections or surgery are viewed more negatively than those who use milder techniques such as sun-avoidance and facial creams and younger adults are more negative about using anti-aging methods than older adults.

These results suggest that despite the rapid growth of the anti-aging cosmetic industry, age concealment has not yet become universally accepted," said lead author and associate professor, Alison Chasteen. "This is important because it shows that despite the emphasis on looking younger in society, there are possible negative social consequences to fighting the signs of aging by engaging in cosmetic age concealment."

The first study assessed the reactions of 122 younger (mean age 19) and 123 older adults (mean age 70) to middle aged (50-years-old) or older (60- to 70-years-old) people who used mild (facial creams) or major (Botox) anti-aging methods. They also assessed the participants' perceptions of the middle aged or older adults' vanity and typicality to their age group.

The study found that older adults had more positive feelings towards those who used any type of anti-aging techniques than the younger adults did. Both groups viewed mild methods more favourably than major methods and both groups considered middle aged people to be more "typical" of those using anti-aging techniques.

The second study broadened the age range of the age concealment users as well as the types of anti-aging methods used. A total of 51 younger (mean age 19) and 49 older adults (mean age 70) were randomly assigned to read about either four middle-aged adults (40s) or four older adults (60s) who used either natural (avoiding the sun), mild (facial creams), major (Botox) or extreme (brow lift) anti-aging methods. Participants again indicated their overall reaction, how vain they thought the individuals were, and also how typical they felt the adults were of their age group.

The study found similar results to the first, but also that younger adults considered those using the natural and mild methods to be vainer than older adults did. Older adult participants viewed older users of anti-aging methods as more typical than middle-aged users, but young adult participants viewed the middle-aged and older users as equally typical.

The paper is entitled, "Age and Antiaging Technique Influence Reactions to Age Concealment." It was authored by Chasteen and co-authored by graduate student Nadia Bashir and undergraduate students Christina Gallucci and Anja Visekruna. It was published in the Journal of Gerontology: Psychological Sciences on July 12.

Anti-ageing

Anti-ageing wonder shots (The Indian Express: 7.9.2011)

Facial wrinkles and lines can be reduced with cosmetic injections into the skin. The two main types of injectable substances generally used are botulinum toxin (Type A) and dermal fillers. These injections weaken the supporting muscles or plump up the skin, and this lessens the appearance of wrinkles.

Facial wrinkles and lines can be reduced with cosmetic injections into the skin. The two main types of injectable substances used are botulinum toxin (Type A) and dermal fillers. To treat deep lines, a certified dermatologist may decide to use both types of injectables to get the best result.

Botulinum toxin (Type A)

Doctors use botulinum toxin (Type A) to treat medical conditions such as facial tics, muscle spasms and excessive sweating.

Types of wrinkles treated with botulinum toxin (Type A)

Botulinum toxin (Type A) is injected into certain muscles of the face to soften facial lines, including the following:

Frown lines between the eyebrows

Lines across the bridge of the nose

‘Crow’s feet’ wrinkles extending from the outside corners of the eyes

Forehead lines

Lines on the throat (‘turkey neck’).

A very fine needle is used to inject the botulinum toxin (Type A) into selected facial muscles. Discomfort is minimal and brief — most patients describe it as an ant-bite sting for a few seconds. The wrinkle-smoothing effects of the injection may last for up to six months.

Things to consider

Before you opt for any cosmetic treatment, there are some important issues to keep in mind:

Choose an appropriately qualified specialist.

Inform yourself fully of the possible risks, side-effects and complications of the procedure.

Think carefully about your expectations. Cosmetic treatment may improve your appearance and self-confidence, but it won’t necessarily deliver your “ideal” body image or change your life.

Medical issues

Botulinum toxin (Type A) injection must not be used if the following factors are there:

You are allergic to any of the ingredients listed in the formulation.

You have an infection in the muscles where it would normally be injected.

You have any muscle disorders in other parts of your body, including myasthenia gravis, Eaton Lambert syndrome or amyotrophic lateral sclerosis.

Dermal fillers

A very fine needle is used to ‘fill’ the wrinkle, line or skin depression with the product. The wrinkle-smoothing effects of most dermal fillers are temporary, and regular treatments are needed to maintain the effect.

Dermal fillers may not be suitable if you have the following:

Certain medical conditions such as an autoimmune disease

A history of keloid scarring

Inflamed or infected skin

Severe allergies such as asthma

Food allergies

Ever had a life-threatening allergic reaction (anaphylaxis).

Self-care suggestions

Be guided by your doctor. General self-care suggestions for the first few days following cosmetic injections:

Avoid exposing the treated skin to extremes of temperature (such as saunas).

Keep the treated skin areas clean.

Avoid touching or rubbing the treated areas.

Use paracetamol if you need pain relief.

See your doctor if you experience unusual symptoms or if you have any concerns.

The effect

The wrinkle-smoothing effects of most cosmetic injectables are temporary, and regular treatments are needed to maintain the effect.

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Ageing

Ageing, not menopause, ups heart disease risk in women (New Kerala: 7.9.2011)

Ageing, not hormonal impact of menopause, increases the risk of cardiovascular death for women, a new study led by an Indian-origin scientist has found.

The findings could have implications for how heart health is assessed in pre-menopausal women, who were previously believed to be at negligible risk of death from heart attack.

“Our data show there is no big shift toward higher fatal heart attack rates after menopause,” says Dhananjay Vaidya, Ph.D., an assistant professor of medicine at the Johns Hopkins University School of Medicine and the study’s leader.

“What we believe is going on is that the cells of the heart and arteries are aging like every other tissue in the body, and that is why we see more and more heart attacks every year as women age.

“Aging itself is an adequate explanation and the arrival of menopause with its altered hormonal impact does not seem to play a role,” he added.

To reach its conclusions, Vaidya’s team analyzed mortality statistics for people born in England, Wales and the United States between 1916 and 1945. They followed similar groups of people as they aged and found that, at the time of menopause in each cohort, there were no increases in female mortality rates above and beyond the steady curve that is expected from aging, he says.

Ageing

Ageing Horse Mimics Owner’s Yoga Stretches; Gets Stronger Joints! (Med India: 12.9.2011)

A 17-year-old Egyptian Arabian horse has mastered a string of yoga moves after copying his owner, to help him continue competing in old age and beat stiffness on his joints.

Linda Guanti was doing stretching exercises to strengthen her own bad back after a fall, and was stunned to see Lewis mimicking her.

She has now taught him complex moves such as the "bow", in which he kneels forward and pushes his head into the ground, and the "neck side stretch" to improve suppleness.

Lewis has even mastered an awkward pose where he kneels forward to push his nose into the ground and stretch his back while Linda stands beside him and reaches to the sky.

Their joint yoga sessions have cured Linda's lifelong back pain and eased Lewis' stiff joints so much that he can carry on competing.

"I was amazed when he began to do yoga. He really adores the stretches and it's great that we can both combine our hobby and spend time together," the Daily Mail quoted Linda as saying.

"Lewis has learned how to remain calm in vulnerable positions that would frighten most horses," she added.

Age-related hearing problems

Musicians less likely to suffer age-related hearing problems (World Newspapers: 15.9.2011)

Lifelong musicians experience less hearing problems in old age than non-musicians, Canadian researchers have found.

The study led by Baycrest's Rotman Research Institute in Toronto sought to see if lifelong musicians were less prone to the hearing problems prevalent in the elderly, who often report having difficulty understanding speech through background noise, what scientists have dubbed the "cocktail party problem."

Part of this difficulty is due to an age-related decrease in the ability to detect and discriminate acoustic information from the environment.

"What we found was that being a musician may contribute to better hearing in old age by delaying some of the age-related changes in central auditory processing," said lead investigator Benjamin Rich Zendel at Baycrest's Rotman Research Institute.

"This advantage widened considerably for musicians as they got older when compared to similar-aged non-musicians," he added.

The study suggests that lifelong musicianship mitigates age-related changes in the brains of musicians, which is probably due to musicians using their auditory systems at a high level on a regular basis.

The study was recently published in the journal *Psychology and Aging*.

Age-related hearing problems

Lifelong musicians have less age-related hearing problems (The Hindu: 15.9.2011)

While hearing studies have already shown that trained musicians have highly developed auditory abilities compared to non-musicians, a study led by Canadian researchers has

found the first evidence that lifelong musicians experience less age-related hearing problems than non-musicians.

Background noise

The study was led by Baycrest's Rotman Research Institute in Toronto and is published online in the journal *Psychology and Aging*. Hearing problems are prevalent in the elderly, who often report having difficulty understanding speech in the presence of background noise.

Scientists describe this as the “cocktail party problem.” Part of this difficulty is due to an age-related decrease in the ability to detect and discriminate acoustic information from the environment.

Investigators wanted to determine if lifelong musicianship protects against normal hearing decline in later years, specifically for central auditory processing associated with understanding speech, according to a Rotman Research Institute press release

“What we found was that being a musician may contribute to better hearing in old age by delaying some of the age-related changes in central auditory processing.

This advantage widened considerably for musicians as they got older when compared to similar-aged non-musicians,” said lead investigator Benjamin Rich Zendel at Baycrest's Rotman Research Institute.

In the study, 74 musicians (ages 19-91) and 89 non-musicians (ages 18-86) participated in a series of auditory assessments. A musician was defined as someone who started musical training by the age of 16, continued practicing music until the day of testing, and had an equivalent of at least six years of formal music lessons. Non-musicians in the study did not play any musical instrument.

Wearing insert earphones, participants sat in a soundproof room and completed four auditory tasks. These tasks assessed four parameters — pure tone thresholds, gap detection, mistuned harmonic detection and speech-in-noise.

Pure tone threshold is the ability to detect sounds that grew increasingly quieter. Gap detection is the ability to detect a short silent gap in an otherwise continuous sound, which is important for perceiving common speech sounds such as the words that contain ‘aga’ or ‘ata’. Mistuned harmonic detection is the ability to detect the relationship between different sound frequencies, which is important for separating sounds that are occurring simultaneously in a noisy environment. Speech-in-noise is the ability to hear a spoken sentence in the presence of background noise. Scientists found that being a musician did not offer any advantage in the pure-tone thresholds test, across the age span. However, in the three other auditory tasks — mistuned harmonic detection, gap detection and speech-in-noise — musicians showed a clear advantage over non-musicians and this advantage gap widened as both groups got older. By age 70, the average musician was

able to understand speech in a noisy environment as well as an average 50 year old non-musician, suggesting that lifelong musicianship can delay this age-related decline by 20 years.

Most importantly, the three assessments where musicians demonstrated an advantage all rely on auditory processing in the brain, while pure-tone thresholds do not.

This suggests that lifelong musicianship mitigates age-related changes in the brains of musicians, which is probably due to musicians using their auditory systems at a high level on a regular basis.

Alcohol Dependence

Beer and Wine

Red Wine: Exercise in a Bottle? (Science Daily: 4-7-2011)

As strange as it sounds, a new research study published in the FASEB Journal, suggests that the "healthy" ingredient in red wine, resveratrol, may prevent the negative effects that spaceflight and sedentary lifestyles have on people. The report describes experiments in rats that simulated the weightlessness of spaceflight, during which the group fed resveratrol did not develop insulin resistance or a loss of bone mineral density, as did those who were not fed resveratrol.

According to Gerald Weissmann, M.D., Editor-in-Chief of the FASEB Journal, "There are overwhelming data showing that the human body needs physical activity, but for some of us, getting that activity isn't easy. A low gravity environment makes it nearly impossible for astronauts. For the earthbound, barriers to physical activity are equally challenging, whether they be disease, injury, or a desk job. Resveratrol may not be a substitute for exercise, but it could slow deterioration until someone can get moving again."

Scientists studied rats that underwent simulated weightlessness by hindlimb tail suspension and were given a daily oral load of resveratrol. The control group showed a decrease in soleus muscle mass and strength, the development of insulin resistance, and a loss of bone mineral density and resistance to breakage. The group receiving resveratrol showed none of these complications. Study results further demonstrated some of the underlying mechanisms by which resveratrol acts to prevent the wasting adaptations to disuse-induced mechanical unloading. This study also suggests that resveratrol may be able to prevent the deleterious consequences of sedentary behaviors in humans.

"If resveratrol supplements are not your cup of tea," Weissmann added, "then there's good news. You can find it naturally in red wine, making it the toast of the Milky Way."

Alcohol abuse

Alcohol abuse not a social concern: Govt The Times of India: 9.8.2011)

The government on Monday said there was no "authentic data to conclusively indicate" that drug and alcohol abuse has become a major social concern in the country.

"There is no authentic data to conclusively indicate that drug and alcohol abuse has become a major social concern in the country," minister of state for social justice and empowerment D Napoleon told the Lok Sabha.

However, the government is aware of the "harm" caused by drinking and other drugs, he said.

Citing a national survey carried out this year by the ministry in collaboration with United Nations office on drugs and crime, Napoleon said there were an estimated 62.2 million alcohol users in the country out of which 16.8 per cent were dependent users.

During the survey, 40,697 males within the age group of 12-60 years were interviewed. "However, looking into the country's population, the sample size is considered very small and therefore, these figures are only indicative," he said.

Napoleon said the Ministry was running 122 de-addiction centres in government hospitals under drug de-addiction programme. "Efforts are also made to generate awareness about the harmful effects of drugs and substance abuse," he said.

Alcohol

Alcohol may be depriving you of sleep (New Kerala: 17.8.2011)

Taking alcohol before bedtime has long been viewed by many as one of the ways to sleep. But a new study has found that alcohol in fact causes insomnia and deprives a night's rest of its -restorative powers.

For the study, students were given a series of alcoholic drinks of varying strengths an hour and 40 minutes before going to bed. Each time readings were taken that recorded activity in their heart and brain, Daily Express reported.

Researchers found that alcohol resulted in sleeplessness and the disturbed nights left the students exhausted.

The alcohol suppressed parasympathetic nerve activity - the part of the "autonomic", or non-voluntary, nervous system that slows heart rate and aids -digestion, it was found.

The findings were published Tuesday in the journal *Alcoholism: Clinical & Experimental Research*.

Study leader Yohei Sagawa, of Akita University, Japan, said: "Although the first half of sleep after alcohol looks good, drinking leads to insomnia rather than good sleep."

Sagawa's US colleague Seiji Nishino said: "It is generally believed a nightcap may aid sleep, especially sleep initiation.

"This may be true for some who have small amounts of alcohol. However, large amounts interfere with sleep quality and the restorative role of sleep.

"These negative consequences may be much larger during chronic alcohol intake."

Red wine

Red wine has no special protective qualities (The Tribune: 21.9.2011)

The myth that red wine is good for preventing heart attacks has come under question from health experts, who have said that any type of alcoholic drink can only do a drinker damage. The Alcohol Policy Coalition has challenged the red wine "myth" with recent international research showing that light drinkers are at less risk of heart disease than abstainers. The coalition cites studies finding that the harms from alcohol are likely to outweigh any benefits. "Every drinking occasion contributes to the lifetime risk of harm from alcohol," the Sydney Morning Herald quoted the report as saying. The coalition, whose members include the Australian Drug Foundation, the Heart Foundation and the Cancer Council of Victoria, has released the report to coincide with the United Nations meeting to promote international efforts to counter non-communicable diseases.

Arthritis

Leg Pain

Never ignore leg pain if you are obese (Tribune: 8-6-2011)

Leg pain is one of the most common problems all over the world and causes a lot of distress to the sufferer. The patient has normally been to a lot of doctors and has been prescribed a host of pain killers, still he/she continues to suffer.

There are multiple causes responsible for this condition, but the common ones are mostly diagnosed and treated successfully. However, there are fairly common causes that are mostly missed by the doctor due to lack of knowledge or some other reason. These are mostly vascular causes related to the arteries or the veins.

The commonest venous cause is due to venous hypertension, mostly secondary to varicose veins. As we know, varicose veins are easy to diagnose as they are obvious to the patient and the doctor. However, in obese legs these veins are not visible and so missed for years. The patient continues to suffer from severe leg pain and later develops colour changes at the ankle (stasis dermatitis). If still not diagnosed, he or she starts to develop an ulcer at the site of the previous discolouration. This only adds to his misery. The easiest way to diagnose it is by doing a colour Doppler study. The normal vein which is 2 mm in size may have increased to over 10 mm in size causing venous hypertension and is responsible for the severe leg pain followed by colour changes at the ankle and ulcer.

Once the diagnosis has been made, the treatment is fairly simple. Initially, we start with elevation and stockings. At night we elevate the legs (toes above the level of the nose) while during the day we wear stockings before getting out of bed in the morning and doing normal activity. Remove them when we take a bath and put them on again. Normal activity is recommended all day. The stockings are removed at night when we get into bed.

This surely gives relief but is, by no means, curative. You will still develop the complications of varicose veins — dermatitis, ulcers, bleeding, inflammation (phlebitis) and DVT. However, they may take longer to develop.

Then there is surgery which today is done by an endovenous technique where a laser fiber or radio-frequency catheter is inserted into the vein through a needle puncture and the diseased vein is obliterated. This is a minimally invasive, scarless surgery easy to perform and is very patient-friendly. It is a day-care surgery where the patient does not stay in the hospital overnight and returns to work in a couple of days. The painful obese legs are no problem as the pain disappears.

Spinal Disc

Predicting Spinal Disc Degeneration (Science daily: 5.8.2011)

About 80% of the active population suffers from low back pain at some point in their lives. In a paper published on August 4th 2011 in PLoS Computational Biology, researchers at the Institute for Bioengineering of Catalonia (IBEC) show that overloading on already degenerated discs is less damaging than on discs which are still healthy -- and that changes in cell density in discs are fundamental to the process of disc degeneration

Back pain is closely related to aging of the discs in the spine, a process characterized by a series of changes in their structure and function, but until now the chain of events that converts normal disc aging into degenerative disease has not been properly understood. Using a computational model of the lumbar spine that takes into account nutritional and mechanical effects, the scientists looked at the effect of external "loading" on two important cell solutes related to disc metabolism: oxygen and lactate.

Degenerative changes are believed to be linked to a failure in the transport of nutrients from the peripheral blood vessels to the discs, which affects solute concentration within the disc and depends on tissue composition and the disc's response to mechanical loads. Overloading can be damaging; however, normal loading allows healthy transportation of nutrients and solutes. They found that the effect of loading was greater when compressing a healthy disc than a degenerated one, and promoted fluctuations of the concentration of the solutes.

"It's essential for the healthy function of the spine that disc cells are provided with the nutrients necessary for tissue maintenance," explains Damien Lacroix, head of the Biomechanics and Mechanobiology group which carried out the research. "In a healthy disc, we see that sustained mechanical stress -- which alters solute concentration -- affects the transport of nutrients more drastically than in already degenerated ones, suggesting that loading in the healthy disc is important for maintaining proper metabolic balance. It's safe to say that an alteration of cell number caused by this disturbance to the metabolic transport could result in the possible onset of disc degeneration."

These findings open up new avenues of research and development in the field of disc regenerative medicine.

Low back pain

HOW TO RELAX YOUR BACK (The Tribune: 10.8.2011)

Low back pain can be caused due to various factors. One of the most common causes for back stiffness can be prolonged periods of sitting, a wrong posture, sudden forward bending, etc. Posture-related back problems have become exceedingly common. At the click of a button one keeps sitting and performing varied tasks leading to a sedentary lifestyle. Here come a lot of problems related to such a lifestyle. Pain and stiffness could lead to disability and limitation of day-to-day activities. Pain is usually more intense when sitting/standing as compared to when lying down (due to a decrease in pressure). The range of motion is diminished and difficulty experienced during walking/bending.

Lifting a heavy object by not bending in a proper way or bending sideways to pick up even a light object can cause low back pain. The proper way of lifting is to squat with straight back, holding the object close to the body and standing with the help of thigh and buttock muscles.

Treatment in an acute stage is aimed at pain relief. Whenever one suffers from sudden low back pain the treatment given includes medicines, bed rest, etc. If spinal manipulation and exercises are added to analgesics/bed rest, then quick relief is obtained with immediate effect.

1 Standing: Hold some bar or an object with both hands with the feet near the wall. Lean back to relax the back.

1 In standing position, hold some bar or an object with both hands. Place the ankle of one leg on the knee of the other leg. With straight back, bend downwards and feel the stretch at the lower back.

1 Sitting: Move both arms towards one side to hold the chair, stay for a count of five. Then move towards the other side.

1 Both knees to chest: Lying on the back with bent knees and keeping the feet flat on the floor. Pull both knees towards the chest. Hold for a count of 10. Slowly return to the starting position.

1 Side stretch: Lying on the back, cross the left knee over the right knee. With the right hand, pull the left knee downwards with the face moving towards the other side.

A stretch shall be felt at the lower back. Repeat at other side.

1 Dog stretch: Start on your hands and knees like a four-leg animal position. Move back on the heels and stretch arms in front as far as possible. Stay for a count of 10 and return.

Apart from the above exercises, pain can be decreased by the following methods:

Manipulation, if undertaken correctly, can bring instant relief.

It is advisable to sit straight using a cushion to keep the spine in alignment as hunching can put undue pressure on the lower back, especially the discs.

It is important to take frequent breaks throughout the day. This helps in decreasing the fatigue and improves circulation to the muscles of the back. Therefore, stand up every half an hour for a walk of five minutes.

Ice could be applied for the first 24 hours to reduce inflammation followed by hot fomentation.

In cases of severe agonizing pain, bed rest is recommended only for a day or two. Resting for a prolonged period can weaken the muscles and increase the pain. Activities aggravating pain like manual labour, prolonged sitting and driving should be avoided.

Arthritis

More than half of women and 40 pc of men with arthritis are couch potatoes (New Kerala: 12.8.2011)

Being physically active is one of best ways people with arthritis can improve their health, but researchers from Northwestern University Feinberg School of Medicine have found that more than half of women and 40 percent of men with arthritis are virtually couch potatoes.

They asked more than 1000 people with radiographic knee osteoarthritis to wear an accelerometer– a small, sophisticated device that looks like a pedometer – to measure their physical activity for one week during waking hours.

"We had assumed that people might be overstating physical activity in past self-reported data, but were surprised to find that the physical activity rates were much, much lower than what was previously reported," said Dorothy Dunlop, associate professor of medicine at Feinberg and lead author of the study.

Physical activity can help people with arthritis better control and lower pain and improve general function. Some studies indicate exercise may delay or even prevent disability in people with arthritis, Dunlop said.

The federal guidelines recommend that adults with arthritis participate in 150 minutes per week of moderate-intensity, low-impact activity. That amounts to an average of slightly more than 20 minutes per day.

Previous studies estimated that a quarter of people with arthritis met those guidelines.

"This study found that fewer than one in seven men and one in 12 women met those guidelines when we had this objective measure, using the accelerometer," said Dunlop.

"The more alarming finding is that so many people actually qualified as being inactive," he added.

The study was published in Arthritis and Rheumatism, August 2011.

Arthritis

New hope for arthritis affected: 3rd generation joint replacement (New Kerala: 23.8.2011)

The third generation joint replacement device, using two moving surfaces, provides life long and lasting solution to those suffering from advanced arthritis.

Talking to reporters after performing a complex live surgery to correct a deformity in knee, using the new prosthesis during a workshop at the Global Hospitals and Health City at Perumbakkam on the city outskirts, US-based joint replacement experts Dr Michael J Pappas and Dr Fredrick Buechel said this offers a better and faster solution for patients with joint problems.

"It has a success rate of 98.5 per cent and would last long for 30 to 40 years, offering a life time solution," they said.

The two moving surfaces made of cobalt, nickel and chromium alloy, has high temperature and corrosion resistance and the cause of debris was practically nil.

"With excellent mechanical engineering characteristics, it exerts minimum pressure on the knee and moves very freely even upto 150 to 162 deg angle," they said, adding this FDA approved prosthesis, which has been in use for more than 25 years in US, would be very beneficial for Indians especially those suffering from arthritis in the knee in the age group of above 45 or 55.

As there has been an increase in the rate of arthritis among young people due to change in demographic profile of patients, this prosthesis was the apt choice and it would help them recover very fast and resume their normal activities.

This was being manufactured in India by the TTK Group of Companies and was available at a cost of Rs 50,000.

Orthopaedic surgeon Dr Ajith Yadav of Global Hospitals said the two moving surfaces, instead of having a joint with one moving surface, would divide the stresses between the two surfaces, reduce wear, result in increased life of the joint.

"This is the world famous New Jersey LCS Total Knee system which is recognised as a forerunner for similar systems currently in vogue and has demonstrated unmatched long term results for more than 30 years," he added.

Apart from live surgeries, during the one-day workshop showcasing the latest advances in Total Knee replacement, more than 35 surgeons from across the country participated.

"Glomore", a Global Initiative for Movement Restoration for patients suffering from arthritis was launched on the occasion.

Glomore offers patient support groups formed by people who successfully underwent orthopaedic treatments and surgeries, to educate new patients, make them understand their problems and guide them for the right kind of treatment.

Wisdom Teeth

Wisdom about wisdom teeth (The Tribune: 24.8.2011)

Wisdom teeth are the last to come in the mouth when you are 17-25 years of age, but they may come even later in your life. It is common for an old person to ridicule a dental surgeon that "I have become a grandfather and you are telling that my teeth are coming!"

Adults can have 32 teeth at the maximum, but the jaw sizes are very small in today's generation. This is the basic reason for the wisdom teeth causing trouble to our generation as there is no space for the whole set of 32 teeth in our jaws. Some lucky people have just a set of 28 teeth and they do not suffer from wisdom teeth troubles.

Wisdom teeth may try to come in the mouth but may strike against the tooth in front of it and some part of that tooth may be visible in the mouth. Sometimes the tooth may be completely embedded in the bone and may not be visible in the mouth at all.

Problems that wisdom teeth may cause include soreness, swelling and food collection in the adjoining gums. Your dental surgeon will tell you whether these are the temporary problems that can be treated by special cleaning methods and the use of mouthwashes, or wisdom tooth needs removal.

When the aforementioned problems persist and the wisdom teeth cannot come to a useful position in the mouth, it needs removal. Sometimes these teeth may be placed in so deep a position in the jaw bone or in such a position that these teeth may require a minor surgical procedure for their removal. When it is known that they require removal, one should get it done as soon as possible and must not delay its removal.

Delay in the removal of these teeth may damage the adjoining teeth due to food lodgement. Pain and persistent swelling may cause infection. Wisdom teeth are known to put pressure on the adjoining teeth and may cause resorption in the adjacent teeth. Cysts may form around these teeth and may cause complications if removal is delayed.

Wisdom tooth removal requires a small cut in the gums and some bone cutting/wisdom tooth cutting to help removal. Two-three stitches are placed in the gums to help the gum heal up. It is always better not to speak more and do not spit 24 hours after the operation. Removal of a wisdom tooth may cause swelling and pain for a few days, usually two-three days, depending on the amount of bone removed. Pain killers and some antibiotics can take care of the pain and swelling. Usually, stitches are removed after one week.

Always be wise to keep a check on your wisdom teeth.

The writer is a Patiala-based dental consultant

Osteoporosis

Eating dried plums can help prevent fractures, osteoporosis (The Tribune: 24.8.2011)

Washington: Dried plums have been found to have a positive effect on bone health, and a Florida State University researcher has said that eating them could help prevent fractures and osteoporosis. Bahram H. Arjmandi, Florida State's Margaret A. Sitton Professor and Chairman of the Department of Nutrition, Food and Exercise Sciences in the College of Human Sciences, and a group of researchers from Florida State and Oklahoma State University conducted the research. "Over my career, I have tested numerous fruits, including figs, dates, strawberries and raisins, and none of them come anywhere close to having the effect on bone density that dried plums, or prunes, have," Arjmandi, said

Mitigate pain

How to mitigate pain (World Newspapers: 5.9.2011)

These women got relief from pain clinics in the city. 'Pain is not a part of your body...get rid of it' announces a booklet outside one clinic.

From headaches, backaches to neck and leg aches, pain manifests in different parts of the body because of some medical condition.

These clinics, there are just a handful in the city, manage pain with intervention that is minimally invasive. The idea is to avoid surgery as far as possible.

Pain management is a relatively unknown speciality in Ahmedabad. "Many people are scared to have surgery especially for spinal conditions.

Most of the patients I treat suffer from back or neck pain due to slip disc or spondylosis. Around 20% of my practice is cancer patients. I also get patients with facial neuralgia and sciatica," says Dr Hitesh Patel who runs a pain clinic on Drive-in Road.

He is an anaesthesiologist who has trained in US in pain intervention. Most of his patients are over 40. The treatment yields instant results in some cases and takes a few days in others.

There may be a single sitting or two to three. Usually the treatment costs between Rs10,000-Rs15,000. All procedures are performed under local anaesthesia and take around half an hour.

The World Pain Association is planning to introduce pain as a fifth vital sign. The other four are temperature, pulse, blood pressure and respiratory rate, says Dr Hitesh Patel.

Another pain physician, Dr Ashok Patel, who has a clinic in Navrangpur says that there are two types of pain - acute (for instance, post-operative pain) and chronic. It is the latter cases that come to pain clinics.

He says that in US most patients suffer from back pain. In fact, in that country there are pain specialists who only treat spinal pain.

The second most common type of pain is cervical. People also come to pain clinics with cervicogenic headaches or headaches caused by cervical problems.

Trigeminal neuralgia, or acute pain in the face, is often mistaken for a dental problem. Surgery is risky but this pain can be alleviated in a pain clinic. Amputation cases, where the patient suffers from 'phantom limb pain', also come to pain clinics, he says.

"One common treatment is radio frequency ablation while another is using the spinal chord stimulator," says Dr Ashok Patel.

Knee replacement

Knee replacement: When to opt for surgery (The Tribune: 7.9.2011)

With the per capita income going north-ward and an overall increase in the spending power of Indians, especially Punjabis, the routinely hard working community is gradually falling into slumber. As a result of this, certain diseases are creeping into society insidiously. Not uncommonly we see a fat child munching a burger, etc, at MNC outlets. This gives rise to many thoughts as to where the problem is and where we are heading.

Similarly, due to the somewhat same reasons, we have osteoarthritis [OA] of the knee creeping in a relatively younger age group and becoming more and more common. One can easily record that about 30 per cent of any orthopaedic surgeon's OPD relates to OA of the knees.

An inactive or relatively sedentary lifestyle and lack of exercises are the main reasons for this. TV soaps, burgers, computer games, Internet browsing, etc, have all taken a toll on our children as well as on the old generation. Dietary habits definitely increase the risk of having OA-obesity being the major factor.

Heredity and stressful overuse of the knee (wrestlers, contact sports, combat soldiers) also contribute to the development of OA. Any previous ligament injury or trauma, including fractures, also raises the risk.

There is no diet recommendation to retard the progression of OA or to prevent it. However, having foods rich in antioxidants saves the cartilage to some extent. So, have fruits and vegetables more often.

Is it age-related problem?

Not at all. No age is barred for OA to show up. Now even youngsters are getting affected. It is not a rare sight to see a person of 35-40 years having a limp with pain in one of his knees. Most commonly a person would get a knee problem after 52 years of age.

Treatment

Can it be managed by any physician? Yes, it may be. Treatment includes exercise, physiotherapy, walking, cycling, anti-inflammatory drugs off and on, maintaining good health. Fat-free, low sugar diets and cycling are the best preventive measures.

These days, due to commercialisation, it is difficult to really believe what kind of treatment one might require. Commercial compulsions of hospitals sometimes compel doctors to suggest costly treatment which may have ill-effects on the patient in the long run.

The simple formula to decide the course of action is: if there is unbearable pain, search for a surgeon; if tolerable pain, look for a physician. Drugs definitely should not be used for a longer time.

The other modes of treatment like the knee injection of steroid or hyaluronidase have shown good results but may cause irreversible damage if the injection gets septic. The role of diacerin, glucosamine and chondroisin remains doubtful.

Surgery

Surgery can be contemplated anytime, depending upon the pain tolerance level of the person concerned and his/her nature of work. But it should definitely be the last option — when drugs, etc, have failed. If one is fed up with his/her ailment and wants to live life on a fast track, he should opt for surgery soon.

Remember that the original can never be had again. Then why change the whole when only a little part is damaged.

One has to be careful about the hospital where one has to get the surgery done. These days doctors do not refer the patient to experts; rather they admit the patient suffering from any ailment.

The writer is a senior orthopaedic surgeon associated with Orthonova Hospital, Jalandhar.

Arthritis

This drug for brittle bones can combat arthritis too (The Times of India: 23.9.2011)

A drug commonly used to strengthen brittle bones could also help keep arthritis at bay, researchers claim.

There is currently no cure for arthritis, which causes inflammation of the joints and bones, and treatments are aimed at simply easing the pain it causes. But, researchers at the the University of Rochester Medical Centre in New York found that the osteoporosis drug, teriparatide, thickened damaged knee joints by almost a third in laboratory tests.

This has raised hopes that it could also be used to treat osteoarthritis, the most common form of arthritis. Osteoarthritis is caused by the breakdown of cartilage that helps our joints take the strain of bending, lifting, gripping and kneeling, and affects millions of people worldwide. Dr Michael Zuscik, who co-authored the study, said: “Our experimental findings make a compelling case for further clinical study of this drug in the context of arthritis.”

Back pain

Do not ignore that back pain (World Newspapers: 30.9.2011)

That backache of yours, if you think is only making your life hell then give it a second thought. It is a common problem found amongst senior citizens.

And ignoring this pain may lead to complications as it is considered to be one of the symptoms of Multiple Myeloma.

It is a form of cancer caused by the malignant plasma cells. Normal plasma cells which are found in the bone marrow form a vital part of the immune system. And in case of Multiple Myeloma, these plasma cells grow out of control and become cancerous. This can even result into formation of a tumor.

Patient suffering from Multiple Myeloma has symptoms which are similar to that of backache , anemia and kidney-related problems. Pain in the bones, hips and skull is a peculiar symptom of this disease.

Dr Sandip Shah, consultant oncologist and haematologist at Vedanta Hemato-Oncology Clinic says, “Out of 100 cases of cancer, 2 to 3 cases are of Multiple Myeloma or say out of 1000 patients, 5 patients are diagnosed with Multiple Myeloma. Backache, anaemia and kidney problem or proteinuria are common symptoms of this disease. There is also high ESR and M band on protein Electrophoresis which is a diagnostic of Multiple Myeloma.”

The overgrowth of plasma cells in the bone marrow can crowd out the normal blood-forming cells, thus leading to low blood count. It can thus cause anaemia. Anaemia can lead to fatigue and weakness. Multiple Myeloma can also cause weakness, reduced ability to exercise, shortness of breath, and dizziness.

There are ways to detect Multiple Myeloma and the growth can be prevented at an early stage by undertaking bone marrow biopsy, bone X-rays, and blood tests. Few of the major and initial treatments include chemotherapy, surgery and stem cell transplant.

Dr Shah who also heads the Bone Marrow Transplant Unit at GCRI says, “There is a standard treatment for Multiple Myeloma called 'Autologous Stem Cell Transplant'. Patients till the age of 70 should go for this treatment as after that the procedure becomes risky.”

Bio-Medical

Nervous System Disorders

It's Not an Apple a Day After All -- It's Strawberries: Flavonoids Could Represent Two-Fisted Assault on Diabetes and Nervous System Disorders (Science Daily: 28-6-2011)

A recent study from scientists at the Salk Institute for Biological Studies suggests that a strawberry a day (or more accurately, 37 of them) could keep not just one doctor away, but an entire fleet of them, including the neurologist, the endocrinologist, and maybe even the oncologist.

Investigations conducted in the Salk Institute's Cellular Neurobiology Laboratory (CNL) will appear in the June 27, 2011, issue of PLoS ONE. The report explains that fisetin, a naturally-occurring flavonoid found most abundantly in strawberries and to a lesser extent in other fruits and vegetables, lessens complications of diabetes. Previously, the lab showed that fisetin promoted survival of neurons grown in culture and enhanced memory in healthy mice. That fisetin can target multiple organs strongly suggests that a single drug could be used to mitigate numerous medical complications.

"This manuscript describes for the first time a drug that prevents both kidney and brain complications in a type 1 diabetes mouse model," says David Schubert, Ph.D., professor and head of the Cellular Neurobiology Laboratory and one of the manuscript's co-authors. "Moreover, it demonstrates the probable molecular basis of how the therapeutic is working."

Pam Maher, Ph.D., a senior staff scientist in the CNL, is the study's corresponding author. Maher initially identified fisetin as a neuroprotective flavonoid ten years ago. "In plants, flavonoids act as sunscreens and protect leaves and fruit from insects," she explains. "As foods they are implicated in the protective effect of the 'Mediterranean Diet.'"

Other celebrity flavonoids include polyphenolic compounds in blueberries and red wine. Although her group's focus is neurobiology, Maher and colleagues reasoned that, like other flavonoids, fisetin might ameliorate a spectrum of disorders seen in diabetic patients. To test this, they evaluated effects of fisetin supplementation in Akita mice, a very robust model of type 1 diabetes, also called childhood onset diabetes.

Akita mice exhibit increased blood sugar typical of type 1 diabetes and display pathologies seen in serious human complications of both type 1 and 2 diabetes. Those include diabetic nephropathy or kidney disease, retinopathy, and neuropathies in which patients lose touch or heat sensations.

Mice fed a fisetin-enriched diet remained diabetic, but acute kidney enlargement-or hypertrophy-seen in untreated mice was reversed, and high urine protein levels, a sure sign of kidney disease, fell. Moreover, fisetin ingestion ameliorated anxiety-related behaviors seen in diabetic mice. "Most mice put in a large area become exploratory," says Maher. "But anxious mice tend not to move around. Akita mice showed enhanced anxiety behavior, but fisetin feeding restored their locomotion to more normal levels."

The study also defines a likely molecular mechanism underlying these effects. Researchers observed that blood and brain levels of sugars affixed to proteins known as advanced glycation end-products-or AGEs-were reduced in fisetin-treated compared to untreated Akita mice. These decreases were accompanied by increased activity of the enzyme glyoxalase 1, which promotes removal of toxic AGE precursors.

The discovery of an AGE-antagonizing enzyme upregulated by fisetin is very intriguing, because substantial evidence implicates high blood AGE levels with many if not most diabetic complications. "We know that fisetin increases activity of the glyoxalase enzyme and may increase its expression," says Maher. "But what is important is that ours is the first report that any compound can enhance glyoxalase 1 activity."

Interestingly, excessively high AGE levels also correlate with inflammatory activity thought to promote some cancers. In fact, studies published by others confirm that fisetin decreases tumorigenicity of prostate cancer cells both in culture and in animal models, which if supported would represent a major added incentive to eat your strawberries.

To ingest fisetin levels equivalent to those fed Akita mice, Maher estimates that humans would have to eat 37 strawberries a day, assuming that strawberry fisetin is as readily metabolizable by humans as fisetin-spiked lab chow is by mice. Rather than through diet, Maher envisions that fisetin-like drugs could be taken as a supplement.

Schubert notes that fisetin is also effective in mouse models of Alzheimer's disease. "We and others have shown that diabetes may be a risk factor for Alzheimer's disease, making identification of a safe prophylactic like fisetin highly significant," he says.

Maher acknowledges that the public may be suffering from flavonoid-fatigue, given media coverage of the promises of these compounds. "Polyphenolics like fisetin and those in blueberry extracts are found in fruits and vegetables and are related to each other chemically," she says. "There is increasing evidence that they all work in multiple diseases. Hopefully some combination of these compounds will eventually get to the clinic."

Schubert concurs that their findings only reinforce what common sense and our mothers told us was a healthy lifestyle. "Eat a balanced diet and as much freshly prepared organic food as possible, get some exercise, keep socially and mentally active and avoid sodas with sugar and highly processed foods since they can contain high levels of AGEs," he advises.

But he also worries that hoops that must be jumped through to bring a natural product like fisetin, as opposed to a totally synthetic drug, to clinical trials are daunting because it is difficult to protect patents on natural products. "We will never know if a compound like fisetin works in humans until someone is willing to support a clinical trial."

Also contributing to this study were Richard Dargusch and Jennifer L. Ehren, Ph.D., of the Cellular Neurobiology Laboratory, and Kumar Sharma, M.D., and Shinichi Okada, M.D., Ph.D., of the Department of Medicine at University of California, San Diego. Funding for the study came from the Fritz B. Burns Foundation, the Juvenile Diabetes Research Foundation, the Hewitt Foundation, and the National Institutes of Health. The above story is reprinted (with editorial adaptations by ScienceDaily staff) from materials provided by Salk Institute.

Surgery

13 cm. stone removed from woman's kidney (Hindustan Times: 4-7-2011)

Even urine infection can be a reason for stones that can damage your kidney.

D R A N S H U M A N A G A R W A L senior consultant, Fortis

Even a simple urinary tract infection, if ignored, can give you a kidney stone capable of damaging the organ beyond repair.

Pushplata Guliani, 41, learnt it the hard way.

Doctors at the Fortis Hospital in Vasant Kunj removed a 13cm stone -as large as the size of a normal kidney itself -from her right kidney last month.

The stone, called staghorn stone due to its irregular shape, filled the entire kidney.

"Stones of such large sizes do not develop overnight; they take a few years to form. In her case, the stone was undetected because she was completely asymptomatic," said Dr Anshuman Agarwal, senior consultant, department of urology, Fortis. It was during a routine x-ray last month that the kidney stone was detected.

"I thought of undergoing preventive tests after I crossed 40.

I was surprised to see such a big stone in the x-ray, as I had no sensation whatsoever," said Guliani.

Due to the abnormally large size of the stone, doctors advised her to undergo immediate surgery. The technique that was used is called percutaneous nephrostolithotomy (PCNL), which is used for removal of large stones using a keyhole approach.

Four holes of about a centimetre in size were made in her lower back. The holes were used to insert a telescope, laser equipment, equipment to drill hole inside the kidney and

drain tubes. The surgery was done in two stages, with a gap of one day in between because of the size of stone and to reduce infection load.

After drilling the hole in the kidney, the stone was crushed using a laser.

“Sixty per cent of the crushed stone was taken out in the first stage and the remaining removed in the final stage. We had to wait for the infection to settle down,” said Dr Agarwal. Earlier, people would get a nine-inch cut for a surgery like this, but with advancement in surgical technology, the operation is possible through small incisions.

One-cm holes do not even require stitches and heal gradually over a period of time. The four-day hospital stay and surgery cost Guliani ₹1.2 lakh.

“Even a simple urine infection can be a reason for stone that can damage your kidney. Symptoms such as pain, blood in urine, heaviness at the back, burning sensation while passing urine should not be ignored,” added Dr Agarwal.

Bio-medical Waste

20 hospitals found violating waste disposal rules (The Tribune: 4-7-2011)

The Punjab Pollution Control Board (PPCB) conducted surprise checks at 108 hospitals and health-care facilities across the state yesterday evening to check violations of the Bio-Medical Waste (Management and Handling) Rules, 1998.

During checking which continued till late in the evening, eight government hospitals and 12 private hospitals were found violating various provisions of BMW Rules.

Notably, according to the provision of BMW Rules, all the hospitals/health-care centres have to segregate bio-medical waste into different containers/bags as per the prescribed colour code. The containers are to be transported from the premises of the hospital to the Common Bio-Medical Waste Treatment Facility, located at Mohali, Ludhiana, Pathankot, Amritsar and Bathinda.

However, as per information, there were reports that some hospitals and health-care centres in the state are not complying with the norms laid down in the BMW Rules. PPCB functionaries received information that some hospitals and health-care centres are either dumping their bio-medical waste along with municipal solid waste or throwing it away in an unhygienic manner.

PPCB chairman KS Pannu said that 22 teams headed by Senior Environmental Engineers and Environmental Engineers of the board were constituted to conduct the raids.

“Each team was directed to visit a minimum of five hospitals - at least one government civil hospital, one big private hospital and three small private hospitals,” he said.

He said that total of 108 hospitals and health-care centres were inspected, which included 19 government hospitals, 19 big private hospitals and the rest were small health-care centres.

“It is really sad that highly qualified members of society like doctors are not adhering to the rules related to the disposal of material dangerous to human health.

Erring private hospitals

22 teams of the pollution board inspected 108 hospitals. Eight government and 12 private hospitals were found dumping bio-medical waste along with municipal solid waste

- ☐ Tagore Hospital, Jalandhar
- ☐ Amandeep Hospital, Amritsar
- ☐ Mohan Dai Oswal Cancer Research Foundation, Ludhiana
- ☐ Adesh Institute of Medical Sciences and Research, Bathinda
- ☐ Aastha Hospital, Moga
- ☐ Amar Hospital, Patiala
- ☐ Guru Nanak Hospital, Dhahan Kaleran
- ☐ Dashmesh Hospital, Faridkot
- ☐ Adesh Hospital, Muktsar
- ☐ Frances Newton Hospital, Ferozepur
- ☐ Chauhan Hospital, Sarna, Gurdaspur
- ☐ The PPCB authorities didn't disclose the names of erring govt hospitals

Anesthesia

Anaesthetists in OTs may soon be replaced by machines (The Tribune: 4-7-2011)

Administration of anaesthesia to patients undergoing surgery would soon be a highly automated process, relieving medical specialists to the task to continually monitoring the patient's vital signs and estimating doses accordingly.

An Anaesthesia Delivery Workstation (ADW) is being developed by the Central Scientific Instruments Organisation (CSIO) here that will take over most of the anaesthetist's role in operation theatres (OTs).

The purpose of the ADW is to predict the anaesthetic dose to the patient throughout the surgery. The development project involves testing of the existing anaesthesia ventilator in the hospital, monitoring the depth of anaesthesia based upon EEG, monitoring the transfer characteristics between the dose administered and the anaesthesia index, and calculating the dose based upon the transfer data.

During the development process, scientists recorded EEG data of normal healthy persons from different locations of the brain under normal conditions and then during pain stimulus given by ice cube cold pressure.

The area of the brain giving pain signature in the EEG was identified and the parameters of EEG giving clear relation with pain stimulus were extracted.

“The prevailing practice of occasionally looking at the clinical signs and administering the anaesthetic drug by the anaesthetic’s experience is hardly convincing,” a scientist said.

“Awareness of explicit recall of pain, though rare, still occurs and is often reported by the victims as the worst experience of their life. Obviously there is need to provide technical assistance for better management,” he added.

The Government Medical College and Hospital, Chandigarh, Central Drug Research Institute, Lucknow and the All-India Institute of Medical Sciences, New Delhi, are among institutes associated with the project for data collection.

DNA

Protein Structure of Key Molecule in DNA Transcription System Deciphered (Science Daily: 4-7-2011)

Scientists have deciphered the structure of an essential part of Mediator, a complex molecular machine that plays a vital role in regulating the transcription of DNA.

The research adds an important link to discoveries that have enabled scientists to gain a deeper understanding of how cells translate genetic information into the proteins and processes of life. The findings, published in the July 3 advance online issue of the journal *Nature*, were reported by a research team led by Yuichiro Takagi, Ph.D., assistant professor of biochemistry and molecular biology at Indiana University School of Medicine.

The fundamental operations of all cells are controlled by the genetic information -- the genes -stored in each cell's DNA, a long double-stranded chain. Information copied from sections of the DNA -- through a process called transcription -- leads to synthesis of messenger RNA, eventually enabling the production of proteins necessary for cellular function. Transcription is undertaken by the enzyme called RNA polymerase II.

As cellular operations proceed, signals are sent to the DNA asking that some genes be activated and others be shut down. The Mediator transcription regulator accepts and interprets those instructions, telling RNA polymerase II where and when to begin the transcription process.

Mediator is a gigantic molecular machine composed of 25 proteins organized into three modules known as the head, the middle, and the tail. Using X-ray crystallography, the Takagi team was able to describe in detail the structure of the Mediator Head module, the most important for interactions with RNA polymerase II.

"It's turned out to be extremely novel, revealing how a molecular machine is built from multiple proteins," said Takagi.

"As a molecular machine, the Mediator head module needs to have elements of both stability and flexibility in order to accommodate numerous interactions. A portion of the head we named the neck domain provides the stability by arranging the five proteins in a polymer-like structure," he said.

"We call it the alpha helical bundle," said Dr. Takagi. "People have seen structures of alpha helical bundles before but not coming from five different proteins."

"This is a completely noble structure," he said.

One immediate benefit of the research will be to provide detailed mapping of previously known mutations that affect the regulation of the transcription process, he said.

Liver Transplant

Govt hospitals fail to treat liver transplant cases (Hindustan Times: 5-7-2011)

Government hospitals should take a lead in offering liver transplant. SK SARIN director, ILBS

I: All India Institute of refused liver transplant treatment to a lady, forcing her to appeal to the Delhi high court last week. Following the appeal, Aiims re-admitted Manju Devi (40) but her fate still hangs fire.

In the last one year, Aiims haven't done any liver transplant. Ever since the inception of the programme in 1994, Aiims has done 12 liver transplants. In the last 17 years, Aiims hasn't been able to start a live donor transplant. In sharp contrast, private hospitals like Apollo and Sir Ganga Ram have performed over 300 liver transplantation surgeries, which make up for 75% of all liver transplants performed.

Liver transplant surgeries at Aiims are being done at the rate of roughly 0.7 a year, when every year at least 60,000 persons in the country are in the waiting.

"It is sad that our liver transplant programme hasn't succeeded. We have the doctors as well as a great set-up but the transplant programme is still in its experimental phase," said an administrative official at Aiims.

HT tried contacting Dr TK Chattopadhyay, head of the liver transplantation at Aiims but received no response, both from his office and home.

GB Pant Hospital -a Delhi government run super specialty hospital -near Delhi Gate has also been talking of starting liver transplant surgeries for last two years. "We were waiting for the sanction from the health ministry. We have got a go-ahead for cadaver transplants this month and we should do our first surgery in August," said an administrative official, unwilling to be quoted.

The only government set-up offering the procedure in Delhi is Institute of Liver and Biliary Sciences (ILBS) in Vasant Kunj which started its liver transplant programme in 2010 have done 15 transplants so far. The surgery cost at ILBS is about R10 lakh. "We've had about 70% success rate. We had about 250 people in the list but because of constraints like donor unavailability, monetary problems and physical unfit, several patients did not qualify for transplant," said SK Sarin, director, ILBS.

Novel Gene

Novel Gene Associated with Asthma in African-Americans Confirmed (Science daily: 1.8.2011)

A new national collaboration of asthma genetics researchers has revealed a novel gene associated with the disease in African-Americans, according to a new scientific report. By pooling data from nine independent research groups looking for genes associated with asthma, the newly-created EVE Consortium identified a novel gene association specific to populations of African descent. In addition, the new study confirmed the significance of four gene associations recently reported by a European asthma genetics study.

The findings, published in Nature Genetics, are a promising first step for a new national scientific effort to hunt for the genetic roots of asthma.

"We now have a really good handle on at least five genes that anyone would be comfortable saying are asthma risk loci," said Carole Ober, PhD, co-chair of the EVE Consortium, senior author of the study, and Blum-Riese Professor of human genetics and obstetrics/gynecology at the University of Chicago. "I think it's an exciting time in asthma genetics."

"Asthma rates have been on the rise in recent years, with the greatest rise among African Americans," said Susan B. Shurin, M.D., acting director of the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health, which co-funded the study. "Understanding these genetic links is an important first step towards our goal of relieving the increased burden of asthma in this population."

Genome-wide association studies, or GWAS, are a popular method used by geneticists to find genetic variants associated with elevated risk for a particular disease. Genetic data from a group of patients with the target disease are compared to data from a control group

without the disease, and researchers look for variants that appear significantly more often in the disease group.

But the ability, or power, of GWAS to find disease-associated variants is dependent on the number of participants enrolled in a study. To find variants involved in complex diseases, thousands of participants may be necessary -- a logistical and financial demand often beyond the capacity of an individual research team.

"It has become clear to geneticists studying nearly every common disease that GWAS are often under-powered, and unless you pull together many researchers doing the same thing you're just not going to have the power to find genes," said Dan Nicolae, PhD, associate professor of medicine, statistics, and human genetics at University of Chicago, co-chair of the consortium and another senior author of the study. "That was the motivation for nine groups of investigators coming together to form EVE."

Spurred by support from the NHLBI and the National Institutes of Health, research groups from the nine institutions discussed pooling their GWAS data to create a larger, shared dataset. But it wasn't until they received a \$5.6 million grant from the American Recovery and Reinvestment Act of 2009 that the EVE Consortium could officially form and hire the necessary personnel to execute the collaboration.

"It would never have been possible without the grant, this was a huge amount of work," said Nicolae, "The key was the ARRA funding that allowed us to move it faster."

In addition to increased power to find variants associated with asthma risk, the EVE dataset comprised a more ethnically diverse population than similar efforts in other countries by including European Americans, African Americans/African Caribbeans, and Latinos.

"We believe that this heterogeneity is important," Ober said. "There are differences in asthma prevalence in these three groups, so it's important to understand whether these are caused by environmental exposures or by differences in genetic risk factors."

The diverse sample enabled the researchers to discover a novel genetic association with asthma observed exclusively in African-Americans and African-Caribbeans. The polymorphism, located in a gene called PYHIN1, was not present in European-Americans and may be the first asthma susceptibility gene variant specific to populations of African descent.

Four more gene variants were found significant for asthma risk by the meta-analysis: the 17q21 locus, and IL1RL1, TSLP, and IL33 genes. All four of these sites were concurrently identified in a separate dataset by the GABRIEL Study of more than 40,000 European asthma cases published last year in the New England Journal of Medicine. Confirming these associations in the more diverse EVE population offers additional evidence that the gene variants are significant across ethnicities, the researchers reported.

"We were able to show that almost all of the genes other than PYHIN1 are trans-ethnic and important in all of the groups," Ober said.

The Nature Genetics study is only the first fruit of the EVE Consortium mission to understand the genetics of asthma. A deeper meta-analysis looking at a longer list of gene variants is currently underway, and individual groups within the consortium are using the pooled dataset to answer additional questions. Topics of interest include gene-environment interactions, genetic associations with asthma-associated phenotypes such as allergies and lung function, and the role of tissue-specific gene expression.

"What you see here in this paper is only the beginning," Nicolae said. "The foundation was to make people work together, share the data, and share research ideas, and that will generate a lot of research down the road."

Brain

Has our brain reached full capacity? (The Times of India: 2.8.2011)

‘People May Not Get Smarter Since Grey Matter Has Stopped Evolving’

Scientists have claimed that the human brain may have reached its full capacity and can’t get cleverer.

A team at Cambridge University, led by Professor Simon Laughlin, says this is because the people are unable to provide the amount of extra energy and oxygen needed to become more intelligent.

The scientists have based their findings after analysing the structure of the brain and worked out how much energy its cells use up.

Professor Simon Laughlin was quoted by the British media as saying, “We have demonstrated that brains must consume energy to function and that these requirements are sufficiently demanding to limit our performance and determine design. Far-reaching powers of deduction demand a lot of energy because for the brain to search out new relationships it must constantly correlate information from different sources.

“Such demands mean there is a limit to the information we can process.”

The scientists say that the wiring inside the brain would need vast amounts of extra energy to become more efficient. As it’s impossible for humans to provide this, they can’t become any smarter.

In their research, the team measured the efficiency with which different parts of the brain communicated with each other and found impulses travelled fastest in smarter people and slower in those who were less intelligent.

“High integration of brain networks seems to be associated with high IQ. You pay a price for intelligence. Becoming smarter means improving connections between different brain areas but this runs into tight limits on energy, along with space for the wiring,” Ed Bullmore, team member, said.

Scientists have said that even the cleverest people might not get any brighter since our grey matter has stopped evolving. And it is all down to physics.

One part of the theory is that scientists reckon brain cells cannot get much smaller than they are at present — meaning there will not be any further space for more of them.

It is also thought the number of connections between brain cells cannot rise much more due to the amount of energy they consume.

Research has shown that the better connected the parts of the brain, the higher a person’s IQ. It means if we turned any smarter the impact on our body’s power supply would be immense.

According to Ed Bullmore, professor of psychiatry at Cambridge, all of us have “to pay a price for our intelligence”.

Laughlin also feels the brain evolution could go into reverse if human circumstances change - for instance if there were a shortage of food. He said, “The fact that brains both expand and contract during evolution shows that the optimum balance changes with circumstances. AGENCIES

Human brain

Has Human brain reached its full capacity (The Asian Age: 2.8.2011)

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Becoming smarter means improving connections between different brain areas but this runs into tight limits on energy, along with space for the wiring,” Ed Bullmore, team member, said.

Gene

Gene discovered that raises asthma risk in blacks (World Newspapers: 2.8.2011)

US researchers have discovered a genetic mutation unique to African Americans that could help explain why blacks are so susceptible to asthma.

Prior studies looking for asthma genes have turned up several, but most of the studies have been too small to confirm these genes or to detect genetic changes unique to different races.

The new study, published on Sunday in the journal Nature Genetics, pools research from nine different research groups looking for genes associated with asthma among ethnically diverse North American populations.

It confirmed four genes that had been seen in previous studies and a fifth that shows up only in people of African descent.

"This is the first discovery of a gene where we see a signal in African Americans only," Dan Nicolae of the University of Chicago, a study author and co-chair of a national research consortium called EVE that identified the gene, said in a telephone interview.

"The rates of asthma in different ethnic groups are different. African Americans have shown increasing asthma rates. We don't know why. It can be due to changing environmental risk factors," Nicolae said.

But, he said, the new findings suggest genetics also play a significant role.

"Understanding these genetic links is an important first step towards our goal of relieving the increased burden of asthma in this population," said Dr. Susan Shurin, acting director of the National Heart, Lung, and Blood Institute, one of the National Institutes of Health, which co-funded the study.

The group also received a major grant from the American Recovery and Reinvestment Act of 2009.

Asthma affects more than 300 million people globally, but effects vary widely. According to the researchers, US asthma rates in 2001 to 2003 ranged from 7.7 per cent among European Americans to 12.5 percent among African Americans.

Carole Ober of the University of Chicago, who co-leads the EVE consortium, said the findings confirm the significance of four genes identified in a large European asthma genetics study published last year called GABRIEL, offering strong evidence that these genes are important across ethnic groups.

But because the study was so large and ethnically diverse -- including data on European Americans, African Americans, African Caribbeans and Latinos -- it enabled the researchers to find this new gene variant that exists only in African Americans and African Caribbeans.

This new variant, located in a gene called PYHIN1, is part of a family of genes linked with the body's response to viral infections, Ober said.

"We were very excited when we realised it doesn't exist in Europe," she said.

The team stressed that each gene variant on its own plays only a small role in increasing asthma risk, but that risk could be multiplied when combined with other risk genes and with environmental factors, such as smoking, that also increase asthma risk.

"It's been extraordinarily challenging to try to find variation in genes that are associated with risk for developing asthma that can be replicated among populations. It's a very complex disease with a lot of genes and a lot of environmental factors influencing risk," Ober said.

The findings now give researchers new areas to explore in understanding the interplay of genetics and the environment in asthma risk, and may lead to better treatments.

"What you see here in this paper is only the beginning," Nicolae said.

Skin rejuvenation

Skin rejuvenation mantras (The Tribune: 3.8.2011)

As life expectancy has increased and “baby boomers” have begun to enter middle age, interest has increased in slowing the aging process. There are two main processes of skin aging, intrinsic and extrinsic. Extrinsic aging reflects the genetic background of an individual and results from the passage of time. It is inevitable and thus beyond voluntary control. Extrinsic aging is engendered by external factors such as smoking, excessive use of alcohol, poor nutrition and sun exposure. Since this aging is not inevitable, it can be reduced with effort in many cases. That is why this is often referred to as premature skin aging.

The desire to maintain or restore a youthful appearance has become a significant concern for many people in today’s world. Evidently, “wrinkles” are considered one of the major obstacles in this arena. Cutaneous wrinkles, defined as furrows or ridges on the skin surface, appear to be multifactorial in etiology and occur as a consequence of intrinsic and extrinsic aging. Aging is a process that occurs in all organs but is most visible in the skin. The skin may very well reflect or act as an outward sign of processes occurring in the internal organs. Let us discuss some recent skin rejuvenation procedures.

Fat graft

Isolated fat cells when re-injected as droplets survive in living tissue. It is now believed that fat is a rich source of stem cells and this stem cell component acts as a natural rejuvenant. Fat grafted under the skin helps erase the creases and wrinkles and thus is a procedure most sought after for the hands, neck and face. The fat is also used to augment breasts and even buttocks, and the procedure may have to be repeated every year or so to maintain the desired shape. The added or double benefit of fat grafting is the reduced contour of the donor site. Thus, “robbing Peter to pay Paul” helps sculpt the outline better and that too in a single surgical exercise.

Fractional laser

Fractional laser treatment helps to restore skin and return it to its original beautiful glow. Each fractional laser treatment targets between 20 and 25 per cent of the skin’s surface, leaving the remaining 75-80 per cent available to heal the treated areas quickly and thoroughly. Since this treatment is so precise, it is effective in delicate skin areas like the neck, chest and hands. Simply put, fractional treatment promotes skin’s own healing process resulting in natural rejuvenation that removes years from the appearance.

Radiofrequency

As we age, the collagen in our skin breaks down resulting in wrinkles, creepiness and even sagging skin. Non-ablative radiofrequency procedures righten and renew the skin's collagen deep down, through all the three skin layers. This advanced technique safely heats the deeper layer of the skin, stimulating the existing collagen and promoting new collagen growth. The result is the skin that looks and feels noticeably smoother and tighter.

Injectables

The very fact that our faces are so expressive leads to expression lines, which become wrinkles past 30. Since we continue ignoring them they take the form of deeper static lines, that become permanent on our face. The treatment of expression lines in botox, which when injected softens the facial expression. It has dramatic result in treating crow's feet at the outer corners of the eyes and frown lines between the eyebrows. This makes the two vertical lines between the brows, often referred to as '11', to temporarily diminish for a smoother appearance. The treatment of static lines, which are due to volume loss, lies in the injection of fillers. These are injected below the outer skin layer especially for the correction of perioral lines and nasolabial folds (lines around mouth and nose). Skin rejuvenation has now assumed worldwide importance.

The writer is Chief Dermatologist, Mohan Dai Oswal Multispeciality & Cancer Hospital, Ludhiana.

Nerve Cells

How Nerve Cells Are Kept Up to Speed (Science Daily: 4.8.2011)

Scientists from the Freie Universität Berlin have identified mechanisms regulating chemical neurotransmission in the nervous system.

Scientists from the Freie Universität Berlin and the NeuroCure Cluster of Excellence, led by Volker Haucke in collaboration with colleagues from the Leibniz Institute for Molecular Pharmacology (FMP) in Berlin, have unravelled a mechanism involved in the reformation of neurotransmitter containing membrane vesicles in the brain. Perturbations of this reformation process, because of mutations in key proteins such as CALM and AP180, are a possible cause for the development of neurodegenerative disorders such as Alzheimer's disease.

These results were published in the latest online issue of the *Proceedings of the National Academy of Sciences* (PNAS).

Signal transmission in the nervous system is mediated by the exocytic release of chemical messengers from synaptic vesicles, small 40 nm sized membrane blebs (a nanometer equals as little as 1/billion of a meter) that are localized to nerve endings at special contact sites between nerve cells termed synapses. In order to maintain neurotransmission over extended periods of time these synaptic vesicles need to be reformed within seconds and with the correct composition.

How synaptobrevin, a key factor in exocytic neurotransmitter release and a target for neurotoxins such as tetanus toxin or the anti-aging compound Botox, is sorted to synaptic vesicles is unknown. Scientists Volker Haucke and his graduate student Seong Joo Koo now have identified two proteins, AP180 and CALM, that recognize a "postal code" within synaptobrevin, thereby guiding its sorting to synaptic vesicles. With the aid of nuclear magnetic resonance spectroscopy and biochemical approaches the scientists were able to decode the molecular details of the recognition process and to visualize synaptobrevin sorting in living neurons.

"Our results not only allow us to gain novel fundamental insights into the mechanisms that allow nerve cells to sustain high-frequency signaling without fatiguing, but they may also open new therapeutic avenues for the treatment of neurodegenerative disorders," explains NeuroCure scientist Volker Haucke. Human mutations within the protein CALM, a crucial factor mediating sorting of synaptobrevin to synaptic vesicles is implicated in neurodegenerative disorders such as Alzheimer's disease.

Adult Blood Stem Cells

Researchers Find Way to Help Donor Adult Blood Stem Cells Overcome Transplant Rejection (Science Daily: 5.8.2011)

Findings by UT Southwestern Medical Center researchers may suggest new strategies for successful donor adult stem cell transplants in patients with blood cancers such as leukemia, lymphoma and myeloma.

The study, published Aug. 5 in *Cell Stem Cell*, showed for the first time that adult blood stem cells can be regulated to overcome an immune response that leads to transplant rejection. It also opens up further studies in stem cell immunology, said Dr. Chengcheng "Alec" Zhang, assistant professor of physiology and developmental biology at UT Southwestern and senior author of the study.

"We speculate that a common mechanism exists to regulate immune inhibitors in different types of stem cells," he said.

Nearly 1 million people in the U.S. are living with or in remission from blood cancers; more than 135,000 are expected to be diagnosed this year. Blood and bone marrow stem cell transplants are needed when a patient's body stops making enough healthy blood cells.

In this current study, UT researchers developed a culture "cocktail" that successfully supported adult blood stem cells from humans and from mice, and found that they express immune inhibitors on their surfaces that protect them from immune attack. Using the increased number of cultured blood stem cells, the scientists were able to overcome the protein barrier that alerts the immune system to foreign material and significantly repopulated healthy cells in the rodent transplantation recipients.

"We revealed that the expansion of adult blood stem cells through culture and an increase in cell surface expression of an immune molecule are the keys for this to happen," Dr. Zhang said.

Drug Therapy

Aggressive Drug Therapy Aids Superbug Evolution, Research Finds (Science Daily 5.8.2011)

New research raises troubling concerns about the use of aggressive drug therapies to treat a wide range of diseases such as MRSA, C. difficile, malaria, and even cancer.

The universally accepted strategy of aggressive medication to kill all targeted disease pathogens has the problematic consequence of giving any drug-resistant disease pathogens that are present the greatest possible evolutionary advantage," says Troy Day, one of the paper's co-authors and Canada Research Chair in Mathematical Biology at Queen's.

The researchers note that while the first aim of a drug treatment program should be to make and keep a patient healthy, the patient's immune system also has to be allowed to work.

They suggest several strategies to address the challenge of drug-resistant pathogens including improving the current knowledge base, discovering effective ways for slowing the spread of drug-resistant pathogens from person-to-person, and developing strategies for preventing drug-resistant mutations from occurring in the first place.

Last century's malaria wonder drug, chloroquine, is a perfect example of aggressive medication leading to the growth of drug-resistant pathogens. Since drug-resistant malarial parasites didn't have to compete with parasites that were killed off by an aggressive chloroquine treatment plan, the resistant parasites were given an evolutionary advantage. As a treatment for malaria, chloroquine is now useless across most of Africa.

"As things currently stand, no research exists that can tell us what the optimal drug delivery strategy would be for maintaining treatment effectiveness and mitigating the

evolution of resistance," says Dr. Day. "While overwhelming medicinal force may sometimes be required, we need to be clear about when and why this strategy should be chosen since it brings with it some very clear problems with respect to resistance evolution."

This research was conducted in collaboration with Andrew Read and Silvie Huijben at Pennsylvania State University and was published in a recent issue of the Proceedings of the National Academy of Sciences.

Menstruation, genes

Menstruation, genes and a sudden stress relief behind migraine (New Kerala: 9.8.2011)

Most migraine sufferers blame the onset of debilitating headaches on thunderstorms, rain and a sudden change in temperature.

But it turns out that they have got it wrong.

Volunteers in Austria were asked to keep diaries on their conditions and meteorologists then compared their notes with changes in the weather to see if they could find any evidence to back up the claims.

Experts at the University Clinic for Neurology in Vienna concluded that more down to earth factors were behind the onset of most headaches.

They said that menstruation, genetic aspects and a sudden relief from stress mattered more than changes in the weather like temperatures, the strength of the wind, atmospheric pressure levels and the amount of rain.

The combined study with Vienna's Central Agency for Meteorology and Geodynamics based its findings on diaries kept by 238 people.

It was just the latest shot in the back and forth argument over how much influence the weather plays in causing headaches.

There is conflicting evidence in medical research. In one study involving 7,000 patients published by doctors in the US, investigators found that higher ambient temperatures increased the risk of headaches.

For every five degrees Celsius rise in temperature, there was a 7.5 per cent increased risk of an emergency department visit for severe headache.

Protein

Protein Unmasks Pathogenic Fungi to Activate Immune Response (Science Daily: 9.8.2011)

The first step in defending against a hostile attack is identifying the enemy. It's how a healthy immune system mounts a response to invading pathogens. In the case of certain fungi, however, the attacking cells may be so cleverly disguised that they're able to slip past our cellular guardians undetected and wreak havoc through infection. Such infections are a rising source of morbidity and mortality in healthy individuals, as well as in patients suffering from chronic diseases, such as cancer or AIDS.

In this week's issue of the journal *Proceedings of the National Academies of Sciences (PNAS)*, Whitehead Institute scientists describe a mechanism by which immune cells can distinguish between pathogenic and non-pathogenic fungi and modulate the immune response accordingly.

The work builds on earlier research that identified how certain immune cells, called macrophages, determine whether a foreign cell is a fungus. The protein dectin-1, which resides in the macrophage cell membrane, recognizes beta-glucan, a sugar molecule that supports the cell walls of fungi. Once dectin-1 detects beta-glucan, indicating the presence of a fungal threat, it can trigger many responses in its macrophage, including engulfment of the fungal cell; production of reactive oxygen species (ROS) that are toxic to the fungal cell; and secretion of inflammatory cytokines and chemokines that recruit other immune cells to the fight.

To observe dectin-1's activity in living cells, researchers in the labs of Whitehead Founding Member Gerald Fink and Member Hidde Ploegh collaborated to tag the protein while integrated into the cell membranes of macrophages. Maximilian Popp, a former graduate student in the Ploegh lab, had refined this tagging method, which does not interfere with normal cell functions. Earlier tagging methods had relied on attaching a bulky green fluorescent protein (GFP) to the protein of interest. Although GFP tagging is a valuable research method, it can induce unwanted changes in protein and cellular behavior.

"For a lot of proteins, GFP tagging is incompatible with their function because the GFP is so big, about 25 kilodaltons," says Popp. "We were trying to avoid this by attaching a very, very small, about 2 kilodalton tag that is very bright. They're so small that they don't have the negative effects that GFP does. And the tags attach to dectin at the exclusion of all of the other cell surface molecules of the same cell."

Using Popp's method, called sortagging, Alexandre Esteban, a postdoctoral researcher in the Fink lab and first author of the *PNAS* paper, determined that dectin-1 associates with

the protein galectin-3 in macrophages. Although known to recognize pathogenic fungi, galectin-3's specific role in the immune response to fungi had yet to be identified.

According to Esteban's work on established cell lines and mouse macrophages, galectin-3 supplements a major weakness of dectin-1. The dectin-1-dependent immune response hinges on dectin-1's ability to recognize beta-glucan. But over the millennia of human/fungal interactions, pathogenic fungi have evolved to mask their beta-glucan with something of a "shag carpet" of proteins and other sugar molecules on their cell surfaces.

Galectin-3 recognizes and then binds to specific sugar molecules from this outer layer that are only present in the pathogen *Candida albicans*. Such recognition flags the fungal cells as pathogens and modulates dectin-1's immune responses.

"Until now, we didn't know that dectin-1 requires a partner to modulate its response, depending on if the fungi are pathogenic or non-pathogenic," says Esteban. "With this work, we determined the way that immune cells discriminate between pathogenic and non-pathogenic fungi."

Esteban notes that research studying galectin-3 and its role in the immune system should enhance our understanding of invasive fungal infections and may one day lead to discovery of novel targets for antifungal drugs.

This research was supported by the National Institutes of Health (NIH), the National Institute of Allergy and Infectious Diseases (NIAID), the Fulbright/Spanish Ministry of Education and Science Visiting Scholar Program, and the Margaret and Herman Sokol Fellowship in Biomedical Research.

Gerald Fink and Hidde Ploegh's primary affiliations are with Whitehead Institute for Biomedical Research, where their laboratories are located and all their research is conducted. Fink and Ploegh are also professors of biology at Massachusetts Institute of Technology.

Heart muscle cells

Stimulating heart muscle cells can lead to light-controlled pacemaker in future (New Kerala: 10.8.2011)

Researchers have indicated that a new technique that stimulates heart muscle cells with low-energy light raises the possibility of a future light-controlled pacemaker.

Electronic cardiac pacemakers and defibrillators are well established and successful technologies, but they are not without problems, including the breakage of metal leads, limited battery life and interference from strong magnetic fields," said Emilia Entcheva, Ph.D., senior author of the study and associate professor of biomedical engineering at Stony Brook University in Stony Brook, New York.

"Eventually, optical stimulation may overcome some of these problems and offer a new way of controlling heart function," added Entcheva.

The research is part of a new field called optogenetics that introduces light-sensitive proteins into "excitable" cells, making it possible to control specific activities within cells. Excitable cells can actively generate electrical signals such as nerve cells and muscle cells.

The main appeal of control by light is the unprecedented ability to remotely, without contact, turn on/off a single cell or a cell type, not possible by electrical or other means of stimulation.

In the new study, researchers created cells expressing the channelrhodopsin 2 (ChR2) protein and coupled them with heart muscle cells from animals, creating heart tissue stimulated by light. They found light-triggered heart muscle contractions and electrical waves were indistinguishable from electrically-triggered waves.

"Our method of non-viral cell delivery may overcome some hurdles toward potential clinical use by harvesting cells from the patient, making them light-responsive and using them as donor cells in the same patient," Entcheva said.

The approach may someday improve pacemakers and defibrillators. Instead of metal leads, a light-controlled pacemaker would use biocompatible, flexible plastic optic fibers.

The study has been published in *Circulation: Arrhythmia and Electrophysiology*, a journal of the American Heart Association.

New 'biomarker' blood test

New 'biomarker' blood test could improve prostate cancer detection (New Kerala: 10.8.2011)

A new DNA-based "biomarker" blood test that complements the currently offered prostate-specific antigen (PSA) test, could greatly improve the accuracy of prostate cancer detection before recommending patients for an invasive biopsy, according to a new study.

University of Cincinnati (UC) researchers conducted a meta-analysis of existing published data related to DNA methylation in bodily fluids. The goal was to evaluate a specific cancer biomarker—known as GSTP1—as a screening tool for prostate cancer.

Lead author of the study and assistant professor of environmental health at the University of Cincinnati, Tianying Wu merged epidemiologic and molecular data from 22 studies conducted in the United States and Europe between 2000 and 2009.

More than 2000 human biologic samples (1,635 prostate cancer cases and 573 controls) were analyzed for the current study, including whole blood, plasma, urine, ejaculates and other secretions.

Wu determined that GSTP1 was a statistically significant biomarker for prostate cancer and could increase the specificity of prostate cancer diagnosis by up to 70 percent as compared to using the PSA test alone.

"The PSA test is highly sensitive, but it cannot differentiate between prostate cancer and benign prostatic conditions such as benign prostatic hyperplasia, leading many men to have unnecessary biopsies," says Wu.

"Measuring GSTP1 in plasma or urine is an easy and non-invasive test. This biomarker will give physicians reassurance regards to whether to conduct biopsies in selected patients," she added.

Antibody

An antibody that fights 30 strains of flu discovered (The Times of India: 10.8.2011)

US scientists have found an antibody that acts against 30 of 36 strains of influenza, the latest discovery in the hunt for a universal treatment and a vaccine, said a study published on Monday. The new broadly neutralizing antibody, called CH65, can stick to the surface part of the flu virus known as hemagglutinin which mutates every season, forcing medical experts to regularly come up with a new vaccine.

It was found in cells from a human volunteer who was given the flu vaccine for 2007, said the study in the Proceedings of the National academy of Sciences. “What this tells us is that the human immune system can fine-tune its response to the flu and actually produce, albeit at a low frequency, antibodies that neutralize a whole series of strains,” said lead author Stephen Harrison of Children’s Hospital Boston.

“Our goal is to understand how the immune system selects for antibodies and use that information to get better at making a vaccine that will take you in a direction that favours breadth over specificity.” Last week, researchers reported they had found the first human antibody that can knock out all influenza A viruses. AFP

No specific gene

No specific gene tied to intelligence: Study (The Times of India: 10.8.2011)

Los Angeles: Scientists who hunt for “intelligence genes” used to think there were fewer than half a dozen of them. In recent years, they determined there may be at least 1,000 — each with just a tiny effect on the differences in people’s IQ. A study found new evidence that many genes play a role in intelligence, but scientists still couldn’t pinpoint the specific genes involved.

“It’s been kind of a shock to the system that it hasn’t worked,” said psychologist Eric Turkheimer at the University of Virginia, who had no role in the study. “We can’t find the effects of any individual genes that are large enough to seem worth worrying about.”

Previous work involving twins and adopted children has found that genes have a significant influence on differences in IQ scores, producing about half the difference between adults in general. The influence of genes on IQ appears to grow from childhood to adulthood. Scientists have come to realize that, as with height, differences in intelligence come not from a few genes, but rather the overall effect of many genes. That makes them hard to tease out. The new DNA study came to similar conclusions.

Gene therapy

Gene therapy to get a boost with genetically engineered spider silk (New Kerala: 12.8.2011)

A new study has suggested that genetically engineered spider silk might boost the therapeutic usage of genes in everyday medicine.

David Kaplan and colleagues found that the use of beneficial genes to prevent or treat disease in the therapy requires safe and efficient carriers or 'vectors', which are counterparts to pills and capsules, transporting therapeutic genes into the diseased cells of the body.

They found that silk proteins could be a promising prospect in the therapy, as these are biocompatible and have been used in everyday medicine and medical research for decades.

The scientists discussed about modifying the spider silk proteins so that they only attach to the diseased cells and not the healthy ones.

They also engineered the silk to contain a gene that codes for the protein, which in turn makes fireflies glow as a visual signal whenever the gene reaches its intended target.

Experimenting with mice containing human breast cancer cells, the researchers attached spider-silk proteins to the affected cells and injected the DNA material into them without harming the mice.

The results showed that the genetically-engineered spider-silk proteins represent 'a versatile and useful new platform polymer for nonviral gene delivery'.

The study appeared in ACS' journal Bioconjugate Chemistry.

Enzyme Deficiency

An Enzyme Deficiency could be Behind Emotional Inflexibility (Med India: 12.8.2011)

Deficiency of an enzyme due to genetic mutation can be the reason behind emotional inflexibility, reveals a new research.

Scientists at the University of Southern California showed that enzyme-deficient mice were unable to properly assess threat. The mice exhibited defensive behaviors (such as biting or tail rattling) in the presence of neutral stimuli, such as plastic bottles.

Conversely, in the presence of true danger cues such as predator urine or an anesthetized rat, the mice with the enzyme mutation were less cautious and defensive than their littermates, even climbing on the unconscious rat.

Mice without the enzyme also took longer to leave an open chamber, indicating reduction in exploratory and escape tendencies, the researchers said.

"Taken together, our findings suggest that monoamine oxidase A deficiency leads to a general inability to appropriately assess contextual risk, as indicated by the inappropriateness of their defensive behaviors," said senior author Jean C. Shih, University Professor and Boyd and Elsie Welin Professor of pharmacology and pharmaceutical sciences in the USC School of Pharmacy.

Monoamine oxidase A is the main enzyme in the brain that breaks down serotonin, norepinephrine and dopamine, which have been shown to contribute to the "fight or flight" impulse by raising heart rates and increasing blood and oxygen flow.

"Mice without monoamine oxidase A exhibited a distinct inability to attune their response to the situation," said Sean Godar, a post-doctoral research associate at the USC School of Pharmacy and co-lead author of the study.

"The paradoxical responses to neutral and fear-inducing stimuli are markedly reminiscent of deficits in facial affect processing in schizophrenia and autism," he added.

The study will be published in the International Journal of Neuropsychopharmacology.

Hi-tech cardio machines

Hi-tech cardio machines offer the attraction of distraction (Med India: 16.8.2011)

Modern cardio machines come with so many bells and whistles that it's routine to watch a favorite movie, scale a virtual mountain, or share gossip with Facebook friends while getting fit at the gym.

But what do you push to maximize your workout?

Josh Lyon, of the chain of national gyms 24 Hour Fitness, advises his new clients to focus on the fundamentals.

"Learn the arithmetic before tackling the calculus," he said. "For the treadmill, it is generally incline and speed. For the elliptical, it is generally ramp and resistance."

Lyon, who is based in San Ramon, California, said more resistance or speed make muscles work harder, while with ramp and incline changes the emphasis is on specific muscles.

"Once clients grasp how these two work together, they are ready to begin experimenting with the pre-set workouts, intervals and shorter high-intensity workouts. There's a learning curve," he explained.

Education was not an issue for the beasts of burden who worked the earliest treadmills, which were built to harness the power of animals to churn butter or grind grain.

More than 50 million Americans used treadmills for fitness in 2009, according to the Sporting Goods Manufacturers Association. More than 26 million used elliptical trainers.

Slow and steady might work for grinding grain, but it does not win the cardio race, according to Lyon.

"There's something called EPOC (Excess Post-exercise Oxygen Consumption), or the afterburn," Lyons explained. "We know that shorter, higher-intensity exercises continue to burn calories for longer periods afterwards."

Alice Burrton a Wyoming-based spokesperson for the American Council on Exercise, said cardio machines, like the rest of the fitness industry, tend to reflect the trend of the moment. So pick a machine that suits you, she advises, then add others.

"The body likes change. It will adapt," she said. "In an ideal world you would have one routine for a month or six weeks, and then when your body gets strong you'd switch to something else."

But within that weekly routine, Burron said, people should incorporate lower and higher intensity workouts.

"Use the talk test," Burron said. "Are you out of breath? If you can hold a conversation but it's pretty gaspy, that's where you want to be."

The American College of Sports Medicine recommends moderate aerobic exercise for 30 minutes a day, five days a week or vigorous aerobic activity for 20 minutes on three days each week.

Boredom, Burron said, is a good sign that it's time to mix it up again.

Deborah Plitt, personal training specialist for Life Fitness, which manufactures cardio equipment, said the many features of the latest machines aim to keep things interesting.

"We're keeping our exercisers engaged by giving them variety," she said. "Cardiovascular exercise is cardiovascular exercise whether you're on a cross trainer or a treadmill."

So a touch of the console can change the scene on the screen as well as the workout and the virtual trainer control will prod people with motivating tips and instructions.

"Everything's moving in the technology world," Plitt said. "I'm in graduate school and I'm actually able to watch power point presentations while I exercise, as well as read a book or play solitaire."

Access brain's landmark

A new way to access brain's landmark (The Asian Age: 16.8.2011)

Scientists claim to have developed a new technique which provides rapid access to brain landmarks formerly only available at autopsy.

A team at Washington University says getting through the intricacies of the human brain will give a better insight into how the mind works and aide in future diagnosis and treatment of brain disorders, the Journal of Neuroscience reported.

The technique will also make it possible for researchers to map myelination, or the degree to which branches of brain cells are covered by a white sheath known as myelin to speed up long-distance signalling.

“The brain is among the most complex structures known, with approximately 90 billion neurons transmitting information across 150 trillion connections,” said team leader David Van Essen of Washington University.

He added: “New perspectives are very helpful for

understanding this complexity, and myelin maps will give us important insights into where certain parts of the brain end and others begin.” Easy access to detailed maps of myelination in humans and animals also will aid efforts to understand how the brain evolved and how it works, according to Van Essen.

Neuroscientists have known for more than a century that myelination levels differ throughout the cerebral cortex, the grey outer layer of the brain where most higher mental functions take place.

Until now, though, the only way they could map

these differences in detail was to remove the brain after death, slice it and stain it for myelin. The new technique combines data from two types of magnetic resonance imaging scans.

“These are standard ways of imaging brain anatomy that scientists and clinicians have used for a long time.

After developing the new technique, we applied it in a detailed analysis of archived brain scans from healthy adults,” the scientists said.

Magic ingredient

Magic ingredient can keep food fresh for years (The Asian Age: 16.8.2011)

Scientists claim to have discovered a natural preservative that could spell the end of rotting food.

Researchers at the University of Minnesota identified the substance, called bisin, which destroys the bacteria that make meat, fish, eggs and dairy products decompose. The preservative could extend the food’s life for several years, and even work for opened bottles of wine

and salad dressing, the researchers said.

The discovery, they said, is set to revolutionise the way people shop and can also reduce the tonnes of food waste thrown out every year, the Daily Mail reported.

According to the researchers, bisin occurs naturally in some types of harmless bacteria. It prevents the growth of lethal bacteria including E-Coli, salmonella and listeria. The sub

stance could extend the life of a variety of everyday foods which have strict use-by dates including seafood, cheese and canned goods, they said. In some cases these foods could last for years and may not even need to be kept in the fridge, they claimed.

The scientists, who have patented the substance, are already in talks with food manufacturers. The first products containing bisin are expected to be on the market within three years.

Dr Dan O'Sullivan, a microbiologist at the university who accidentally found bisin while examining a culture of bacteria found in human intestine, said: "It seems to be much better than anything which has gone before."

"It doesn't compromise nutrient quality, we are not adding a chemical, we are adding a natural ingredient.

It's aimed at protecting foods from a broad range of bugs that cause disease," he said. According to the researcher, bisin will not prevent fruit and vegetables rotting as they decompose in a different way. Sandwiches, takeaways and ready meals have now become a staple part of diet, but mass production has increased the risks of food poisoning.

Salmonella was one of the biggest culprits, accounting for around one in eight of those.

Bold or timid

Bold or timid? It's all in genes (The Times of India: 17.8.2011)

Study Says Fear Is Regulated By RNAs, Could Help Cure Phobias

Scientists claim to have found a previously unrecognized layer of gene regulation associated with fear extinction, a finding which may have implications in conditions such as phobias and post-traumatic stress disorder.

A team, led by University of Queensland, says that this is an inhibitory learning process thought to be critical for controlling fear-related behaviour when the fear response is no longer required.

Lead researcher Dr Timothy Bredy said the findings shed new light on the processes involved in loosening the grip of fear-related memories. The research explores how fear-related memories are formed, updated and extinguished at the molecular level.

It also provides fresh understanding of the actual function of genes expressed at the time of retrieval of fear memories, and how they are regulated to facilitate fear extinction. "This is the first demonstration of how small non-coding RNAs contribute to the formation of fear extinction memory, and highlights the adaptive significance of activity dependent microRNA expression in the adult brain," Dr Bredy said.

He also said that the extinction of fear-related memories occurred in the face of a competing memory process called reconsolidation, which saw memories potentially undergo modification every time they were retrieved.

“Contrary to popular belief, fear-related memories are not set in stone. Extinction learning involves retrieval and expression of the original fear memory, which naturally permits either the restabilization of the original trace, or new extinction learning.

“And in order for new memories to be firmly established, the genes associated with the original fear memory trace must be transiently inhibited,” he said.

FEAR IS THE KEY: The finding may help in relieving fear-related memories

Brain disorder

Addiction: Brain disorder, not a behavior issue (The Times of India; 17.8.2011)

Addiction is not just a simple behaviour problem involving alcohol, drugs, gambling or sex — it is a chronic brain disorder, scientists have now defined.

The American Society of Addiction Medicine has released this new definition of addiction after a four-year process involving more than 80 experts.

“At its core, addiction isn’t just a social problem or a moral problem or a criminal problem. It’s a brain problem whose behaviours manifest in all these other areas,” Dr Michael Miller, former president of ASAM who oversaw the development of the new definition, said.

“Many behaviours driven by addiction are real problems and sometimes criminal acts. But the disease is about brains, not drugs. It is about underlying neurology, not outward actions, ” Dr Miller was quoted as saying by LiveScience.

The new definition also describes addiction as a primary disease, meaning that it’s not the result of other causes, such as emotional or psychiatric problems.

And like cardiovascular disease and diabetes, addiction is recognized as a chronic disease; so it must be treated, managed and monitored over a person’s lifetime, the researchers said.

Research has shown that addiction affects the brain's reward circuitry, such that memories of previous experiences with food, sex, alcohol and other drugs trigger cravings and more addictive behaviours.

Brain circuitry that governs impulse control and judgment is also altered in the brains of addicts.

Addiction

Addiction is chronic brain disease, not just bad behavior (The Tribune: 17.8.2011)

A new definition of addiction released by the American Society of Addiction Medicine (ASAM) has highlighted that addiction is a chronic brain disorder and not simply a behavioural problem involving too much alcohol, drugs, gambling or sex. This is the first time ASAM has taken an official position that addiction is not solely related to problematic substance use. When people see compulsive and damaging behaviours in friends or family members-or public figures such as celebrities or politicians-they often focus only on the substance use or behaviours as the problem.

Immune System

Possibility of Temporarily Reversing Aging in the Immune System (Science Daily: 17.8.2011)

Researchers have discovered a new mechanism controlling aging in white blood cells. The research, published in the September issue of the Journal of Immunology, opens up the possibility of temporarily reversing the effects of aging on immunity and could, in the future, allow for the short-term boosting of the immune systems of older people.

Weakened immunity is a serious issue for older people. Because our immune systems become less effective as we age we suffer from more infections and these are often more severe. This takes a serious toll on health and quality of life.

Professor Arne Akbar of UCL (University College London), who led this research, explains "Our immune systems get progressively weaker as we age because each time we recover from an infection a proportion of our white blood cells become deactivated. This is an important process that has probably evolved to prevent certain cancers, but as the proportion of inactive cells builds up over time our defenses become weakened.

"What this research shows is that some of these cells are being actively switched off in our bodies by a mechanism which hadn't been identified before as important in aging in the immune system. Whilst we wouldn't want to reactivate these cells permanently, we

have an idea now of how to wake them from their slumber temporarily, just to give the immune system a little boost."

Until now, aging in immune cells was thought to be largely determined by the length of special caps on the ends of our DNA. These caps, called telomeres, get shorter each time a white blood cell multiplies until, when they get too short, the cell gets permanently deactivated. This means that our immune cells have a built-in lifespan of effectiveness and, as we live longer, this no longer long enough to provide us protection into old age.

However when Professor Akbar's team took some blood samples and looked closely at the white blood cells they saw that some were inactive and yet had long telomeres. This told the researchers that there must be another mechanism in the immune system causing cells to become deactivated that was independent of telomere length.

Professor Akbar continues "Finding that these inactive cells had long telomeres was really exciting as it meant that they might not be permanently deactivated. It was like a football manager finding out that some star players who everyone thought had retired for good could be coaxed back to play in one last important game."

When the researchers blocked this newly identified pathway in the lab they found that the white blood cells appeared to be reactivated. Medicines which block this pathway are already being developed and tested for use in other treatments so the next step in this research is to explore further whether white blood cells could be reactivated in older people, and what benefits this could bring.

Professor Akbar continues "This research opens up the exciting possibility of giving older people's immune systems a temporary boost to help them fight off infections, but this is not a fountain of eternal youth. It is perfectly normal for our immune systems to become less effective and there are good evolutionary reasons for this. We're a long way from having enough understanding of aging to consider permanently rejuvenating white blood cells, if it is even possible."

Professor Douglas Kell, Chief Executive of the Biotechnology and Biological Sciences Research Council, said: "This is a fantastic example of the value of deepening our understanding of fundamental cell biology. This work has discovered a new and unforeseen process controlling how our immune systems change as we get older. Also, by exploring in detail how our cells work, it has opened up the prospect of helping older people's immune systems using medicines that are already being tested and developed. By increasing the incidence and severity of infection, weakened immunity seriously damages the health and quality of life of older people so this research is very valuable."

This research was funded by the Biotechnology and Biological Sciences Research Council (BBSRC).

Biomarker

Biomarker that could help spot early signs of ovarian cancer discovered (New Kerala: 18.8.2011)

Researchers at Rush University Medical Center have identified a molecule in the bloodstream of infertile women that could one day be used to screen for those at high risk for the disease - or even those with early-stage ovarian cancer and prevent thousands of deaths.

The molecule, an antibody that the human body manufactures, is an autoimmune response to mesothelin. This well-studied protein is found in abundance on the surface of ovarian cancer cells but present only in limited amounts in normal human tissue.

"The finding is extremely important because at present medical tests are unable to detect ovarian cancer in its early stages, which is why death rates from this disease are so high," said Judith Luborsky, PhD, professor of pharmacology, obstetrics and gynecology and preventive medicine at Rush and lead author of the study.

"Our approach to discovering cancer biomarkers was unique in this study. Instead of investigating molecules specific to ovarian cancer alone, we asked what molecules women with a risk of ovarian cancer and those with ovarian cancer had in common," she added.

The study enabled the researchers to explain the link between infertility and ovarian cancer that has been established in numerous epidemiological surveys.

"More important, with the discovery of the mesothelin antibody, we now have what appears to be a biomarker that can potentially be used in screening tests to help us conquer ovarian cancer," said Luborsky.

The study has been detailed in the online version issue of Cancer Epidemiology, Biomarkers and Prevention.

Brain Function

Scientists Identify New Piece to the Gigantic Puzzle of Brain Function (Med India: 23.8.2011)

A new detail about an important part of the brain's complex communication system has been identified by researchers at the Faculty of Pharmaceutical Sciences at the University of Copenhagen in collaboration the company NeuroSearch.

The discovery could form the basis for future development of better medicines for patients with psychiatric disorders. New knowledge challenges established scientific ideas about the function of the nicotinic acetylcholine receptors, which play an important role in the health of the brain.

As its name suggests, the class of receptors is significant for the effects of nicotine and is linked to addiction - however, life-threatening conditions such as Alzheimer's and Parkinson's disease are also linked to the electrical impulses that are mediated by nicotinic acetylcholine receptors.

"Brain function is a gigantic puzzle, and one could say that we have found and documented a new and important piece," said Thomas Balle, an associate professor at the Department of Medicinal Chemistry, University of Copenhagen.

"Within the family of nicotinic acetylcholine receptors exist various subtypes. We show - in short - that on the most common subtype there are no less than three binding sites instead of the two which science has hitherto known," he explained.

Balle has, in collaboration with Postdoctoral Fellow Kasper Harpsoe and researchers at the company NeuroSearch, discovered the previously unexplored corner of the otherwise well-known receptor.

The nicotinic acetylcholine receptors are structurally similar to the GABAA receptors, which also play an important role in pharmaceutical chemical brain research.

Man-made lifeforms

Man-made lifeforms may help colonize Mars? (The Times of India: 23.8.2011)

Synthetic Organisms Will Use Planet's CO₂ To Make Food, Fuel

Man-made lifeforms are already in the works. Now, scientists have claimed these synthetic organisms engineered to use carbon dioxide as a raw material could help humans settle Mars one day.

Craig Venter, an American biologist who made headlines last year by creating the world's first synthetic organism, claimed that his team is now trying to design cells that can use atmospheric carbon dioxide to make food, fuel, plastics and other products.

This ability would obviously have huge implications here on Earth, but it could also help make Mars — whose thin atmosphere is mostly carbon dioxide — a more livable place, Venter said at an event organized by Nasa recently.

“These kinds of processes will allow us to make almost anything needed there from that carbon dioxide environment,” Venter was quoted as saying by LiveScience.

In May 2010, Venter and his team announced that they had created the first living organism with a synthetic genome. The biologists constructed the genome of the bacterium *Mycoplasma mycoides* from many preassembled units of DNA. Then they transplanted the genome into the cell of a closely related species that had been emptied of its own genome. The “host” bacterium soon began to function and reproduce just as a naturally occurring *M. mycoides* would.

The feat was more than just a neat trick. It showed that customdesigning organisms to do all sorts of helpful tasks is eminently possible — and may not be that far off. Creating new lifeforms could help “solve some fundamental problems of providing sufficient energy, food, clean water and medicines,” Venter said. Venter, who also led a team that decoded the human genome a decade ago, said his priority is using synthetic life to help solve these big problems on Earth

Noting that the Earth is set to add its seven billionth person in just a few months, and population growth will not stop there, Venter said: “Obviously, food and fuel production are at the top of our list and society’s list” .

Proteins

Newfound Hijacked Proteins Linked to Salmonella Virulence (Science Daily: 24.8.2011)

Scientists have discovered that bacteria like *E. coli* and *Salmonella* have a sneaky way of making minor alterations to their genes to boost their chances for infection.

It's a fascinating discovery made at Ohio State University, which is featured in the Aug. 14 issue of *Nature Chemical Biology*. This discovery shows how bacteria make tweaks in their genes, and their proteins to gain strength.

The team includes research scientist Herve Roy, who joined the University of Central Florida faculty at the College of Medicine this month. He co-authored the paper after conducting research in OSU Professor Michael Ibbá's lab.

"Mother Nature tinkers a lot," Roy said from his new lab in Orlando. "Our recent findings illustrate that new proteins in living organisms often evolve from older pre-existing ones,

and that evolution updates biochemical mechanisms of living cells by tweaking them a little by applying molecular patches."

The precise role of one protein in bacteria, EF-P, remains a mystery, but this team found that it plays an essential role in the virulence of *Salmonella enterica typhimurium*, a common foodborne pathogen causing diarrhea, fever, and abdominal cramps, and occasionally lifetime chronic arthritis. *Salmonella* also accounts for about 400 deaths each year in the United States.

EF-P is known to play a role in protein biosynthesis, which is a keystone mechanism present in all organisms. This process is the chain assembly line that decodes the blue prints stored in the genomes of living organisms, to make all the proteins necessary to sustain life.

The team's research identified a modification born by EF-P that acts as a molecular patch on protein synthesis. The patch seems to increase the bacteria's prowess. Interestingly, the modification on EF-P is made by a hijacked protein, normally involved in the protein synthesis machinery itself.

In the Aug. 14 issue of *Nature Chemical Biology*, Roy and co-authors identified the chemical nature of the modification that occurs on EF-P. This is critical because in the team's experiments, when the modified version of EF-P is absent, *Salmonella* doesn't spread.

Because the mechanism by which the modification occurs is unique to bacteria and this system is involved in virulence it could be a potential drug target, Ibba said.

Roy's experience and interest in this area is what drew him to UCF. His lab in the Burnett School of Biomedical Sciences at UCF will use National Institutes of Health funding to explore how some other components of the protein synthesis machinery have been hijacked to accomplish alternate cellular processes. For instance, one process utilizes parts of the protein synthesis machinery to modify components of the bacterial membrane. This mechanism increases bacterial resistance to a large spectrum of antibiotics and presents a good avenue for new drugs that could potentially alleviate or cure many infectious diseases.

"That's why I came to UCF," Roy said. "There is a good team of scientists here working in infectious diseases. There is a good opportunity to collaborate and make a difference."

Other authors on the *Nature* paper include S. Betty Zou and William W. Navarre from the University of Toronto and Ibba, Tammy J. Bullwinkle, Marla S. Gilreath Benjamin S. Wolfe and Craig J. Forsyth from Ohio State University.

Roy received a Ph.D. in Structural Biochemistry and Molecular Biology from Louis Pasteur University in Strasbourg, France. He spent the past eight years as a post -doctoral

research associate and research scientist at The Ohio State University in the laboratory of Dr. Ibba.

Heart protein

Heart protein may be therapeutic target for halting colon cancer (New Kerala: 15.9.2011)

A study has found that a protein critical in heart development may also play a part in colon cancer progression.

Investigators from Vanderbilt-Ingram Cancer Center and the Vanderbilt Eye Institute suggests that the protein BVES (blood vessel endocardial substance), which also is key in regulating corneal cells, may be a therapeutic target for halting colon cancer metastasis.

The study further suggests that BVES may be important more broadly in many, or most, epithelial cancers.

Ophthalmologist Min Chang, M.D., studied the healing process in the cornea, which is perhaps the most highly regulated epithelium in the body.

From collaborative studies with David Bader, Ph.D., who discovered BVES and showed its importance in heart development, Chang found that BVES was highly expressed and regulated in corneal cells.

When BVES is disrupted in corneal cells, they become disorganized, almost "cancer-like," noted Chang, an assistant professor of Ophthalmology and Visual Sciences and co-author on the study.

Chang then brought these findings to the attention of colleague Christopher Williams, M.D., Ph.D., assistant professor of Medicine and Cancer Biology and co-author on the study.

"When he described these cells, it sounded a lot like the way cancer cells looked when they were undergoing metastasis. So it seemed reasonable to look in cancer for BVES-dependent phenotypes," Williams said.

Chang and Williams teamed up with the lab of Daniel Beauchamp, M.D., to assess BVES expression in human colorectal cancers. They found that BVES levels were very low in all stages of colon cancer.

They also noted decreased BVES levels in many other types of epithelial cancers (including breast) and in several colorectal cancer cell lines.

In cell experiments, the researchers showed that treating cells with a "demethylating" agent (the drug decitabine, which is currently used to treat myelodysplastic disorders) restored BVES expression.

When BVES was expressed in colorectal cancer cell lines, they became more epithelial in nature and their tumour-like characteristics (in cell experiments and in animal models) decreased.

These findings suggest that treatment with agents to increase BVES levels might provide a way to decrease aggressive behaviours of colorectal and other epithelial cancers.

Human Intestinal Stem Cell

Human Intestinal Stem Cell Breakthrough for Regenerative Medicine (Science Daily: 5.9.2011)

Human colon stem cells have been identified and grown in a petri dish in the lab for the first time. This achievement, made by researchers of the Colorectal Cancer Lab at the Institute for Research in Biomedicine (IRB Barcelona) and published in Nature Medicine, is a crucial advance towards regenerative medicine.

Throughout life, stem cells of the colon regenerate the inner layer of our large intestine in a weekly basis. For decades scientists had evidences of the existence of these cells yet their identity remained elusive. Scientists led by the ICREA Professor and researcher at the Institute for Research in Biomedicine (IRB Barcelona) Eduard Batlle discovered the precise location of the stem cells in the human colon and worked out a method that allows their isolation and in vitro expansion, that is their propagation in lab-plates (petri dishes).

Growing cells outside the body generally requires providing the cells in a petri dish with the right mix of nutrients, growth factors and hormones. But in the same way that each of the more than 200 types of cells in our body differs from the others so too do optimal growing conditions for them in the lab. Consequently, human adult stem cell culture in labs has been practically impossible until now.

Batlle's team has also established the conditions for maintain living human colon stem cells (CoSCs) outside of the human body: "This is the first time that it has been possible to grow single CoSCs in lab-plates and to derive human intestinal stem cell lines in defined conditions in a lab setting," explains the IRB Barcelona researcher Peter Jung, first author of the study together with Toshiro Sato, from the University Medical Center Utrecht in The Netherlands.

The development, published by Batlle's research group in the journal Nature Medicine, arrives after more than 10 years of intense research focused on the characterization of the

biology of the intestinal stem cells and its connection with cancer. The research has been made possible by close collaboration between Batlle's team and the group led by Hans Clevers at the Hubrecht Institute and University Medical Center Utrecht in The Netherlands, and María A. Blasco at the Spanish National Cancer Research Centre in Madrid (Spain).

"For years, scientists all over the world have been trying to grow intestinal tissue in lab-plates; testing different conditions; using different nutritive media. But because the vast majority of cells in this tissue are in a differentiated state in which they do not proliferate, they survived only for a few days," explains Jung. "The aim of this study was to find a way to identify and select individual CoSCs and to grow them while maintaining their undifferentiated and proliferative state in lab conditions. Thus, we would be able to model how they grow -- in number -- and differentiate into normal intestinal epithelial cells in lab-plates," continues Jung. The scientific community now has a defined 'recipe' for isolating CoSCs and deriving stable CoSCs lines, which have the capacity to grow undifferentiated for months. In fact, "now we can maintain stem cells in a plate up to 5 months or we can induce these cells to differentiate artificially, as they do inside our bodies."

"This achievement opens up an exciting new area of research with the potential to bring about a huge breakthrough in regenerative medicine," says Jung. Regenerative medicine - or the idea of repairing the body by developing new tissues and organs as the old ones wear out -- involves growing new cells from patients into tissues and organs in a lab. However, the main element for making regenerative medicine a reality, namely adult stem cells, are just starting to be understood. "Now that guidelines for growing and maintaining colon stem cells in the lab are in place, we have an ideal platform that could help the scientific community to determine the molecular bases of gastrointestinal cell proliferation and differentiation. It is also suspected that alterations in the biology of CoSCs are at origin of several diseases affecting the gastrointestinal tract, such as colorectal cancer or Crohn's disease, an autoimmune and inflammatory disorder. Our discovery also paves the way to start exploring this exciting field," finishes Jung.

Tumour cells

How Tumour cells withstand chemotherapy and radiotherapy (World Newspapers: 5.9.2011)

Researchers have discovered how tumour cells change their appearance to adapt to new environmental circumstances, protecting themselves against chemotherapy and radiotherapy and invade neighbouring organs, eventually causing metastasis.

Tumours “shed their skin” because some molecular switches called microRNAs - responsible for maintaining epithelial appearance of cells- turn off, they found.

“We have discovered that some microRNAs, a group called microRNA-200S, undergoes a chemical inactivation and inhibit their expression. When these cellular appearance drivers are not present, tumour cells change, stretch, stop their inhibition and thus the tumour progresses”, explains Dr. Esteller, adding that “the results from research show that this is a very dynamic process.”

Change involves from the appearance of the tumour to the onset of metastasis, but if we change the environmental circumstances that influence these cells, the process reverses.

Dr Esteller compares the process “with a small planet in Darwinian evolution but in an expedited manner.”

Besides serving to better understand the disease, the results are important because they predict that external intervention is possible in the process.

The study has been published in the online version of the international scientific journal Oncogene, Nature group.

Boffins

Boffins Make New Biochemical Discoveries into Developing Diseases(Med India: 5.9.2011)

Researchers have undertaken the most comprehensive investigation of genetic variance in human metabolism and discovered new insights into a range of common diseases. Their work has revealed 37 new variants that are associated with concentrations of metabolites in the blood. Many of these match variants associated with diseases such as chronic kidney disease, type 2 diabetes and blood clotting.

The team conducted the largest ever study of the human genome for genetic variants associated with metabolites - the biochemical compounds representing the start or end of metabolic reactions - using genome wide association analysis. They were searching for genetic influences on levels of more than 250 compounds in people's blood, including lipids, sugars, vitamins, amino acids and many others. They discovered variants that have a significant effect on the levels of these compounds, and hence on the underlying biological and disease processes.

"Our findings provide new insights for many disease-related associations that have been reported in previous studies, including cardiovascular and kidney disorders, type 2 diabetes, cancer, gout, thrombosis and Crohn's disease," says Dr Nicole Soranzo, one of the study's researchers from the Wellcome Trust Sanger Institute. "Often the effects of variants discovered in genome wide association analyses are modest and we perhaps have

a poor understanding of the biologic mechanism behind the association. Our approach can overcome these problems and possibly inform individualized therapy/treatment."

In previous studies, scientists have looked at the levels of one or a few metabolic traits; for example, cholesterol levels, or sugar in the blood, that is investigated in the doctor's surgery to help to diagnose disease. The new approach in this work was to assay a much wider range of smaller biochemical compounds, to give as complete a picture as possible of the molecules that are symptoms of disease and those that might contribute to disease.

Emotional Brain

More on the Emotional Brain in Youth (Med India: 6.9.2011)

However, whether bipolarity exists in children remains controversial despite numerous studies that have been conducted on this topic in the last fifteen years. Since the diagnosis of bipolar disorder in children has been rising for the past ten years, clinicians, researchers, parents, and others who care for children are left wondering what accounts for this dramatic increase in diagnosing paediatric bipolar disorder (Dickstein, 2010): is it better recognition of an important psychiatric disorder or is it due to overdiagnosis, misdiagnosis, or a diagnostic trend? In response to this increase, both clinical and research interest in paediatric bipolar disorders have surged, including a re-examination of the diagnostic criteria for this condition based on developmental and neurobiological findings.

Bipolar disorder is a clinically severe affective disorder, in which mood typically swings from the manic pole of euphoria and/or extreme irritability to depression and loss of interest or pleasure. Mixed illness episodes are characterized by both manic and depressive symptoms. Bipolar disorder can be divided into two major subtypes – bipolar type I and bipolar type II –, although further extension of the bipolar spectrum may be of clinical relevance.

- Bipolar type I disorder is characterized by a history of at least one manic episode, with or without depressive symptoms.
- Bipolar type II disorder is characterized by the presence of both depressive symptoms and a less severe form of mania ('hypomania').

'Bouncer' Protein

Research Identifies 'Bouncer' Protein That Halts Rheumatoid Arthritis (Med India: 8.9.2011)

The reason why the immune cells of people with rheumatoid arthritis become hyperactive and attack joints and bones has been discovered by researchers at Northwestern University Feinberg School of Medicine. The immune cells have lost their 'bouncer', the burly protein that keeps them in line the same way a bouncer in a nightclub controls unruly patrons.

The Feinberg School team has identified this bouncer, a protein called P21, which prevents immune cells from launching into their destructive rampage through the cartilage and bone. When the scientists developed and injected an imitation of the protein into an animal model of rheumatoid arthritis, the disease process was halted.

"The bouncer molecule stopped the immune cells from going crazy," said lead author Harris Perlman, associate professor of rheumatology at Northwestern's Feinberg School. "Imagine destructive customers in a bar, and the bouncer says, 'You are going to behave!' That's P21. This discovery opens up a new avenue for future therapies, which are greatly needed for rheumatoid arthritis."

Previous research by the Feinberg team showed people with rheumatoid arthritis were low in P21, but the protein's role was unknown. The new study, which will be published in the journal *Arthritis & Rheumatism*, reveals the protein's vital role in keeping the immune cells in check.

Currently, there is no effective, nontoxic way to stop the hyperactive immune cells, Perlman said.

To develop the new approach, Perlman and his team tested five different parts, called peptides, of P21. He slipped each peptide into a "ghostlike" molecule that he injected into mice with a rheumatoid arthritis-like disease. The molecule secretly infiltrated the immune cells. After the seven-day trial, one of the tested peptides had calmed the overactive immune cells without toxic effects. Next, Perlman plans a 30-day study with the same peptide to monitor efficacy and toxicity over a longer period of time.

Brain surgery

Brain surgery on awake patient (The Tribune: 8.9.2011)

In a complex case of neuro surgery, doctors of the PGIMS here yesterday performed a brain operation on a patient with him being fully awake and conscious. The patient had

been suffering from a neurological disorder and it was for the first time that such a surgery was done successfully for the removal of a tumour from a sensitive part.

Describing it as an achievement, a spokesperson of the institute said that the patient who had been admitted with a seizure disorder had been recovering well after the surgery. Dr Vineet Bhai of the Department of Neurosurgery, who conducted the operation, said it was the first time when a patient with such a disorder had been operated upon while being fully conscious.

He said the patient, Bijender, hailing from Sahlawas village of Jhajjar district had been suffering from seizures for the past about 20 years. Despite treatment, the patient continued to have seizures and was asked to undergo surgery recently for the removal of a small tumour in the brain.

Dr Bhai said the investigations revealed that the tumour was located on that part of the brain that is responsible for motor(main) movement of the body, and it was difficult to ensure that this sensitive part was not affected by the surgery. Any impact could have caused weakness in the motor area in the postoperative period. After meticulous planning and explaining the risk to the patient, a team of doctors comprising an anaesthetist, the head of the department, Dr Sarla Hooda, carried out the operation.

It took around two hours and the team was successful in removing the tumour responsible for the seizures. The patient was undergoing a speedy recovery and was talking and having food. The Director of the PGIMS has appreciated the work of the doctors.

Insulin-producing cells

Scientists identify new drug target to stimulate growth of insulin-producing cells (New Kerala: 9.9.2011)

JDRF-funded researchers in collaboration with the pharmaceutical company Hoffmann-La Roche, have discovered a protein that regulates growth of beta cells – the insulin-producing cells that are located within islets in the pancreas– and a chemical compound that stimulates it.

The discovery, led by Markus Stoffel, M.D., Ph.D., a professor at the Swiss Federal Institute of Technology in Zurich, represents a significant advance in identifying a new drug target for diabetes.

The work builds on a discovery made five years ago, when Dr. Stoffel and his team first showed that a once obscure protein, called Tmem27, is localized on the surface membrane of beta cells.

After screening possible molecules that could snip Tmem27, Dr. Stoffel and his team found the culprit: Bace2, an enzyme protein that, like Tmem27, also resides on the outer surface (known as the plasma membrane) of the beta cell.

The researchers then discovered that mice that lacked Bace2 had larger islets and the beta cells in the islets increased in number, a process known as proliferation or regeneration.

They also found that these mice were able to clear glucose from the blood more efficiently than control mice with Bace2.

Dr. Stoffel and his team next aimed to inhibit Bace2 in an effort to control and promote the growth of beta cells. To do so, they teamed up with scientists at Hoffmann-LaRoche who developed a chemical compound that could inhibit Bace2.

When the scientists gave this compound to mice, they saw that it inhibited Bace2 and stimulated the growth of new beta cells.

In addition to identifying a new drug target for promoting beta cell regeneration, Dr. Stoffel's work may also help in developing tests to measure the amount of Tmem27 fragments in the blood – a biomarker that could be used as an index of beta cell number.

The work appears in the September 7 issue of Cell Metabolism.

Gene

Gene That Controls Chronic Pain Identified (Science daily: 9.9.2011)

A gene responsible for regulating chronic pain, called HCN2, has been identified by scientists at the University of Cambridge. The research, published September 9 in the journal Science, opens up the possibility of targeting drugs to block the protein produced by the gene in order to combat chronic pain.

Approximately one person in seven in the UK suffers from chronic, or long-lasting, pain of some kind, the commonest being arthritis, back pain and headaches. Chronic pain comes in two main varieties. The first, inflammatory pain, occurs when a persistent injury (e.g. a burn or arthritis) results in an enhanced sensitivity of pain-sensitive nerve endings, thus increasing the sensation of pain.

More intractable is a second variety of chronic pain, neuropathic pain, in which nerve damage causes on-going pain and a hypersensitivity to stimuli. Neuropathic pain, which is often lifelong, is a surprisingly common condition and is poorly treated by current drugs. Neuropathic pain is seen in patients with diabetes (affecting 3.7m patients in Europe, USA and Japan) and as a painful after-effect of shingles, as well as often being a consequence of cancer chemotherapy. Neuropathic pain is also a common component of lower back pain and other chronic painful conditions.

Professor Peter McNaughton, lead author of the study and Head of the Department of Pharmacology at the University of Cambridge, said: "Individuals suffering from neuropathic pain often have little or no respite because of the lack of effective medications. Our research lays the groundwork for the development of new drugs to treat chronic pain by blocking HCN2."

The HCN2 gene, which is expressed in pain-sensitive nerve endings, has been known for several years, but its role in regulating pain was not understood. Because a related gene, HCN4, plays a critical role in controlling the frequency of electrical activity in the heart, the scientists suspected that HCN2 might in a similar way regulate the frequency of electrical activity in pain-sensitive nerves.

For the study, the researchers engineered the removal of the HCN2 gene from pain-sensitive nerves. They then carried out studies using electrical stimuli on these nerves in cell cultures to determine how their properties were altered by the removal of HCN2.

Following promising results from the in vitro studies in cell cultures, the researchers studied genetically modified mice in which the HCN2 gene had been deleted. By measuring the speed the mice withdrew from different types of painful stimuli, the scientists were able to determine that deleting the HCN2 gene abolished neuropathic pain. Interestingly, they found that deleting HCN2 does not affect normal acute pain (the type of pain produced by a sudden injury- such as biting one's tongue).

Professor McNaughton added: "Many genes play a critical role in pain sensation, but in most cases interfering with them simply abolishes all pain, or even all sensation. What is exciting about the work on the HCN2 gene is that removing it -- or blocking it pharmacologically- eliminates neuropathic pain without affecting normal acute pain. This finding could be very valuable clinically because normal pain sensation is essential for avoiding accidental damage."

This is Biotechnology and Biological Sciences Research Council (BBSRC) and EU funded research.

Brain

Showing off in public is hardwired into brain' (The Times of India: 9.9.2011)

Are you the one who just can't help showing off in public? Well, it's hardwired into your brain, says a new study.

Researchers from the University of Southern California have found that people who show-off in public, taking wild risks they would never dream of taking when on their own, are driven to do so by their brain chemistry, the Daily Mail reported.

The study found that the striatum, which forms part of the brain's reward centre, and the medial prefrontal cortex, which effects one's reasoning, become more far active when one is among one's peers.

Georgio Coricelli, who led the study, said, "These findings suggest that the brain is equipped with the ability to detect and encode social signals, make social signals salient, and then use these signals.

Common Gene

Common Gene Variant Associated With Aortic Dissection: Study Reveals Risk Factor That Doubles Chance of Developing Silent Killer (Science Daily: 12.9.2011)

Richard Holbrooke, John Ritter, Lucille Ball, Jonathan Larson and Great Britain's King George II were all taken by the same silent killer: an acute aortic dissection

Now, scientists led by researchers at The University of Texas Health Science Center at Houston (UTHealth) and Baylor College of Medicine (BCM) have found an association with a common genetic variant in the population that predisposes people to acute dissections and can approximately double a person's chances of having the disease.

An aortic aneurysm is an enlargement or ballooning of the aorta in the segment where it comes out of the heart (thoracic aortic aneurysm). The natural history of a thoracic aortic aneurysm is to enlarge without symptoms over time, leading to instability of the aorta and ultimately an acute aortic dissection. The dissection is a tear in the aorta that allows blood to flow within its layers. It is a life-threatening event, with up to 40 percent of patients dying suddenly.

Although the average age of a person who suffers an aortic dissection is early 60s, the disease can strike at any age. Since the majority of individuals have an aortic aneurysm prior to dissection, identification of these aneurysms is critical since the aneurysm can be surgically repaired to prevent the aortic dissection, which typically occurs when the diameter of the aneurysm reaches twice that of the normal aorta. Therefore it is important to know who is at risk for this disorder.

The results of the research are published in the Sept. 11, 2011 advance online issue of Nature Genetics. Senior author is Dianna M. Milewicz, M.D., Ph.D., professor and the President George H.W. Bush Chair in Cardiovascular Research at The University of Texas Medical School at Houston, part of UTHealth.

"This is the first time we've found an association with a common genetic variant in the population that predisposes people to thoracic aortic aneurysms that cause acute aortic dissections. This variant in the DNA is on chromosome 15 (15q21.1) and involves a gene

called FBN1. We already know that mutations in this gene cause Marfan syndrome, which is a genetic syndrome that strongly predisposes individuals to aortic dissections but also causes people to grow tall and have weak eyes," said Milewicz, who is also director of the Division of Medical Genetics at the UTHealth Medical School and heads the UTHealth John Ritter Research Program in Aortic and Vascular Diseases. "Although patients with aortic dissection in our study did not have Marfan syndrome, this study suggests that the same pathways are involved in causing aortic dissections in patients with and without Marfan syndrome."

Milewicz said the research has implications for using drugs to treat patients to prevent aortic aneurysms from even forming, such as losartan, which is now being tested in clinical trials for people with Marfan syndrome. "Whether they have Marfan or the common variant in FBN1, it may be the same pathway and we may be able to treat these patients the same way. That means that what we learn in treating patients with Marfan syndrome has implications for this larger group of individuals with thoracic aortic disease," she said.

"Over the past two decades, there has been remarkable progress in understanding the causes of aortic aneurysms and dissections in patients with inherited disorders, particularly Marfan syndrome. However, up to 80 percent of patients with thoracic aortic aneurysms and dissections do not have a known inherited cause, and the genetic factors that impact susceptibility to aortic disease in these patients are poorly understood," said the study's first author Scott A. LeMaire, M.D., professor of surgery and director of research in the Division of Cardiothoracic Surgery at BCM and surgeon at the Texas Heart Institute at St. Luke's Episcopal Hospital. "This gap in our understanding of 'sporadic' disease motivated us to conduct this study, which would not have been possible without the tremendous efforts of a large team of dedicated collaborators."

The study examined more than 1,300 patients who had sporadic thoracic aortic disease, meaning they did not have a known family genetic history or genetic syndrome associated with the disease. The patients came from the Memorial Hermann Heart & Vascular Institute, the Texas Heart Institute and Harvard Medical School, as well as from the National Institutes of Health GenTAC program, which includes the Perelman School of Medicine at the University of Pennsylvania, Johns Hopkins University School of Medicine, Weill Cornell Medical College of Cornell University and Oregon Health and Science University.

The discovery was made possible by a grant from the NIH that funded the Specialized Center for Clinically Oriented Research in Aortic Diseases, a multi-institutional collaboration in the Texas Medical Center. The title of the article is "Genome-wide association study identifies a susceptibility locus for thoracic aortic aneurysms and aortic dissections spanning FBN1 at 15q21.1." Merry-Lynn N. McDonald, Ph.D., at BCM; and Dong-chuan Guo, Ph.D., assistant professor of internal medicine at UTHealth, contributed equally along with LeMaire as co-first authors on the article.

Liver transplant

30% of liver transplant patients are alcoholics (World Newspapers: 12.9.2011)

Alcohol is prohibited in Gujarat but everyone knows that liquor is freely available in the state. What's more, it is heavily consumed here, if figures of patients suffering from alcohol abuse and waiting for liver transplant are an indicator.

Explaining the situation, organising secretary of 'Liver Update 2011' and division chief of HPB and liver transplant programme at Sterling Hospitals, Dr Hitesh Chavda spoke to experts who gathered at the Ahmedabad Management Association (AMA) on September 10. He stated, "Nearly 30% cases of liver cancer and transplants or operations are of alcoholic patients. Surprisingly, the age group of these patients is in the range of 35-45 years.

Most of them don't reach out for proper treatment because of ignorance or failure to tell a doctor their trouble. And when it ultimately comes to liver transplant, there is unavailability of donors."

The experts discussed advance therapies for treating liver cancer at the two-day event, disclosed that currently there were around 8 patients waiting to be operated for seven months for the liver transplant surgery. Dr Chavda said, "Currently both private and public hospitals don't have any central registry to refer to with respect to the number of organ donors. Currently Sterling, Apollo and IKDR hospitals perform liver transplant surgeries. But we maintain our own records as there is no government monitored record or registry with regard to organ donors."

Dr Chavda says that at present a minimum of 20 liver transplant operations are being done in Gujarat on a monthly basis. He deals with nearly 10 such cases every month. Liver Update 2011 is the third conference on liver surgery, organized by Gujarat Liver & Digestive Surgery Clinic (GLDSC) and Gujarat Liver Cancer Clinic (GLCC) in association with Sterling Hospitals. It is themed on 'Multidisciplinary Approach to Liver Cancer'.

Another problem that Dr Chavda pointed was that while the chunk of cases of liver cancers was due to Hepatitis B and C, another chunk was because of alcohol abuse.

'Liver Update 2011' will highlight the important aspects of surgical techniques and various novel therapeutic options for various liver malignancies. A special session will also provide insight into liver transplantation and its present role in the management of HCC & other liver tumours.

Stem cells

Stem cells are therapy, not mere experiments (World Newspapers: 12.9.2011)

Stem cell therapy provide a promise of life to people with incurable diseases and is no longer only a research tool, opined Mammen Chandy, director, Tata Memorial Hospital, Mumbai.

Chandy was delivering the keynote address at the inaugural ceremony of a two-day seminar on national medicine update 2011 'Milestones in Medicine' organised by the department of internal medicine of AFMC in Pune on Thursday.

Speaking on the recent trend by some private organisations undertaking stem cell banking, Chandy was of the opinion that there is a pressing need for a national regulatory body to oversee developments in stem cell research and its use.

Chandy called upon AFMC to initiate the process of setting up a national stem cell registry that could facilitate transplant therapy at the national level. More than 200 delegates from across the country from the armed forces, public sector health care providers and the private sector participated in the two-day seminar.

Earlier in the day, director and commandant of the Armed Forces Medical College (AFMC), Air Marshal GS Joneja, highlighted the need for medical professionals to constantly update their domain knowledge to help facilitate better patient care.

Joneja stressed on the need for integrating all specialities of medical care for the benefit of patients. Surgeon Vice-Admiral KM Suryanarayana, director-general medical services, said stem cell research has provided a ray of hope to patients suffering from diseases considered incurable so far and also towards better understanding of causes of various diseases.

Senior AFMC docs pledge their eyes

Senior doctors at the Armed Forces Medical College (AFMC) gave a fillip to the fortnight-long, eye donation and awareness drive initiated by the AFMC.

On Friday afternoon, Air Marshal GS Joneja, director and commandant, AFMC, pledged to donate his eyes in front of a gathering of over 1,000 medical students and professionals at the 'Inter-Collegiate Ophthalmic Quiz-2011' conducted by the Department of Ophthalmology, AFMC.

With this, the AFMC achieved a landmark by registering 700 eye donation pledges in the last 15 days.

Air Marshal Joneja was also joined by dean and deputy commandant, Maj Gen Manoj Luthra, who also took the pledge. Air Marshal Joneja exhorted the audience to rise above the fear and dogma and donate their eyes to provide sight to the needy.

The Ophthalmic Quiz was the culmination of a two-week effort undertaken by the AFMC to raise awareness in the community about the social benefits of eye donation. Six teams from medical colleges of Pune participated in the quiz that saw the Bharatiya Vidyapeeth emerging as winner followed by the AFMC team.

Kyrgyzstan defence min visits NDA

Kyrgyzstan defence minister Major General Abibilla Kudayberdiev, accompanied by a high-level delegation, visited the National Defence Academy (NDA) on Thursday. The delegation was received by Lt Gen Jatinder Singh, Commandant NDA. They were briefed on the various training activities at the academy. The visit was on an invitation extended by India's defence minister AK Antony during his visit to Kyrgyz capital Biskek in July this year. India has progressively strengthened its bilateral defence cooperation with Kyrgyzstan in the fields of military exercises, training, jungle warfare, information technology and counter-terrorism over the last few years.

India's ties with Kyrgyzstan are special and in sync with building ties with other Central Asian Republics, including Kazakhstan, Turkmenistan, Tajikistan and Uzbekistan. The potential of Central Asian Republics, especially Kyrgyzstan is enormous.

The NDA continues to stand out as a global entity in military training. Interactions with foreign military academies have also increased manifold. There have been exchange programmes between cadets of NDA and those of the United States Military Academy (USMA) (Westpoint), USA; the Australian Defence Forces Academy (ADFA) and the National Defence Academy Japan; to name a few.

At present cadets from five friendly foreign countries including those from Kazakhstan and Tajikistan are being trained at the NDA.

The Kyrgyz delegation evinced keen interest in the functioning of the academy. A luncheon was also hosted by the Commandant in honour of the visiting delegation.

Cancer-Killing Cells

Cancer-Killing Cells Are Caught On Film in More 3-D Detail than Ever before (Science daily: 15.9.2011)

Scientists reveal in more detail than ever before how white blood cells kill diseased tissue using deadly granules, in research published in PLoS Biology.

The researchers, from Imperial College London and the University of Oxford, used 'optical' laser tweezers and a super-resolution microscope to see the inner workings of white blood cells at the highest resolution ever. The researchers describe how a white blood cell rearranges its scaffolding of actin proteins on the inside of its membrane, to create a hole through which it delivers deadly enzyme-filled granules to kill diseased tissue.

The study looked at a type of white blood cell called a Natural Killer (NK) cell that protects the body by identifying and killing diseased tissue.

"NK cells are important in our immune response to viruses and rogue tissues like tumours. They may also play a role in the outcome of bone marrow transplants by determining whether a recipient's body rejects or accepts the donated tissue," said Professor Daniel Davis, from the Department of Life Sciences at Imperial College London, who led the research.

The scientists hope that learning more about how NK cells identify which tissues to kill and initiate the killing process could lead to better healthcare for some patients. Professor Davis said: "In the future, drugs that influence where and when NK cells kill could be included in medical treatments, such as the targeted killing of tumours. They may also prove useful in preventing the unwanted destruction by NK cells that may occur in transplant rejection or some auto-immune diseases."

The new visual resolution of NK cell action is a result of a novel imaging technique developed in collaboration with physicists at Imperial, and the use of a super high-resolution microscope at the University of Oxford. The researchers immobilised an NK cell and its target using a pair of 'optical' laser tweezers so that the microscope could capture all the action at the interface between the cells. They then watched inside the NK cell as the actin filaments parted to create a tiny portal and the enzyme-filled granules moved to the portal, ready to pass out of the NK cell and onto the target to kill it.

Dr Alice Brown, also from the Department of Life Sciences at Imperial College London, and one of the researchers who carried out many of the experiments, said: "These previously undetectable events inside cells have never been seen in such high resolution. It is truly exciting to observe what happens when an NK cell springs into action."

The contact between an NK cell and its target is only about a hundredth of a millimetre across and the miniscule actin proteins and granules change position continuously over the few minutes from initial contact until the target is killed. The microscope has to be able to capture images quickly enough and in high enough visual detail in order to reveal their activity.

Most microscopes view images in the horizontal plane, so to view an interface between two cells at any other orientation would require 'stacks' of multiple horizontal images combined to make a 3D image. This significantly limits the speed at which cell dynamics can be viewed and reduces image quality.

Professor Paul French from the Department of Physics at Imperial College London, who helped develop the microscopy with colleagues in the Photonics Group, said: "Using laser tweezers to manipulate the interface between live cells into a horizontal orientation means our microscope can take many images of the cell contact interface in rapid succession. This has provided an unprecedented means to directly see dynamic molecular processes that go on between live cells."

Professor Ilan Davis, a Wellcome Trust Senior Fellow at the University of Oxford, whose group applies super resolution technique to basic cell biology research said: "Our microscope has given us unprecedented views inside living NK cells capturing a super-resolution 3D image of the cell structures at twice the normal resolution of conventional light microscope. This method, developed at University of California San Francisco by Professor John Sedat, maximizes the amount of light captured from the specimen while minimizing the amount of stray light inside the instrument."

This study was funded by the Medical Research Council (MRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and a Marie Curie Intra-European Fellowship. It also benefited from a £150,000 award from the Rector's Research Excellence Prize to Imperial's Chemical Biology Centre to reward high academic achievement in blue skies research with significant potential. Dan Davis and Paul French hold Wolfson Royal Society Research Merit Awards.

Gene Therapy

Gene Therapy Effective Against Stubborn Breast Cancer Cells (Med India: 15.9.2011)

Gene therapy could be effective against some stubborn breast cancer cells, it has been found. The targeted therapy causes the cells to self-destruct, lowers chance of recurrence and helps increase the effectiveness of some types of chemotherapy, researchers at The University of Texas MD Anderson Cancer Center reported in the Sept. 13 edition of Cancer Cell.

They say the gene therapy may provide an effective strategy to inhibit breast tumor growth. It demonstrates virtually no toxicity in normal cells and produces a profound killing effect in multiple breast cancer cell lines and synergy with other agents.

In cellular and mouse studies, scientists found the gene mutation BikDD significantly reduced treatment-resistant breast-cancer initiating cells (BCICs), also known as breast cancer stem cells, by blocking the activity of three proteins in the Bcl-2 family. This genetic approach increased the benefits of lapatinib, one of the most common chemotherapy drugs for breast cancer.

“There are no effective methods to target BCICs, and they’re urgently needed, especially for relapsed breast cancer patients,” said senior author Mien-Chie Hung, Ph.D., vice president for basic research, professor and chair of MD Anderson’s Department of Molecular and Cellular Oncology. “This research suggests a potential therapeutic approach to breast cancer stem cells that will minimize recurrence and drug resistance.”

Special delivery system targets cells

Gene therapy was deposited directly into breast cancer cells with an innovative delivery system called VISA, short for versatile expression vector, which was developed at MD Anderson. It includes a targeting agent, also called a promoter, two components that boost gene expression in the target tissue and a payload — a Bik mutant gene called BikDD known to kill cancer cells. It’s all packaged in a fatty ball called a liposome and delivered intravenously.

CT scan

CT scan has become a screening tool for patients even with minor complaints in abdomen, head or chest. The potential carcinogenic Effects are underestimated or overlooked. (The Tribune: 15.9.2011)

Computed Tomography (CT) scan, an X-ray based investigation, providing a 3-D view of a particular organ or tissue, came as a boon for diagnosis and staging of the disease, especially in patients of cancer and trauma. It has become one of the commonest advised radiological investigations for a patient of today. It is prescribed not only for a seriously ill patient or for establishing the diagnosis but in this era of commercialisation misuse of every investigation is rampant — CT scan is no exception.

Unfortunately, CT scan has become a screening tool for patients even with minor complaints in abdomen, head or chest. This has become a global problem. It was reported in 2007 that more than 62 million CT scans were done in United States per year, compared to three million in 1980.

The popularity of CT scan can be gauged easily from the fact that Chandigarh and Mohali with a total population of 15 lakh have about 25 CT scan machines and the demand is so great that most of these equipment are being used round the clock.

A strong segment of medical profession is of the opinion that these scans are being used too frequently and in some cases unnecessarily. Let us analyse to find out the health consequences of having too many CT scans over the course of a person's life? points to be remembered by patients and clinicians

Avoid CT scan if you can , it is better to substitute it with other imaging modalities, like, Ultra Sound / MRI Scans /Endoscopic and Laparoscopic evaluations, This is more important for getting repeated scans.

Whole body CT scan is not recommended for screening .

PET-CT scan may become necessary in patients of cancer but it should not be repeated too frequently as it will not make us any wiser but will surely give lot of radiation.

Go to a good CT scan centre, where latest technology is being used so as to avoid higher doses of radiation including long duration exposures.

While high-tech imaging can be beneficial in certain cases, it must be used SPARINGLY and only when absolutely necessary because it exposes your body to dangerous ionizing radiation — radiation that is proven to cause cancer

Correct interpretation of the images is also very important, and this requires an experienced expert. In the absence of this not only a repeat CT scan becomes mandatory but false positive and negative reports can bring serious problems.

Unseen danger

CT scans result in a far larger radiation exposure compared with conventional plain-film X-ray.

These result in a marked increase in the average personal radiation exposure to the patient.

The cumulative effect is worse and may result in future public health problems.

Japanese atomic bomb survivors who were about two miles away from the explosions, actually received radiation doses quite similar to those from a CT scan.

Sixty years of study of these survivors have provided direct evidence that there will be an increased individual cancer risk, though small, for those who have this same dose of radiation from CT scans.

It is estimated that about a third of all CT scans are unnecessary and at least these people can be protected from this potential risk.

It is widely believed that all radiological examinations are essentially harmless, because of the small amounts of ionising radiation involved but this is not true. In a Nov. 29, 2007 article in New England Journal of Medicine, David J. Brenner, Ph.D., and Eric J. Hall, Ph.D., from the Center for Radiological Research at Columbia University Medical Center, argue that the potential carcinogenic effects from using CT scans may be

underestimated or overlooked. CT scans result in a far larger radiation exposure compared with conventional plain-film X-ray, these results in a marked increase in the average personal radiation exposure to the patient; the cumulative effect is worse and may result in a future public health problem. Dr. Jon LaPook, CBS News medical correspondent, estimates the percentage of cancers caused by CT scans — currently 0.4 percent — will increase to as much as 2 per cent in a few decades because the number of scans has increased so dramatically.

A whole body scan, which usually is made from mid-thighs to the top of the head, takes from 5 minutes to 40 minutes depending on the acquisition protocol and technology of the equipment used. The radiation and risk from one CT scan is low, but it carries a dose 50 to 100 times greater than a traditional X-ray, reports LaPook. A CT scan of the chest involves 10 to 15 millisieverts (a measure of dose) versus 0.01 to 0.15 for a regular chest X-ray, 3 for a mammogram and a mere 0.005 for a dental X-ray. Eric J. Hall, of Columbia University, therefore, is very much concerned about the built-up public health risk over a long period of time.

Atomic bomb explosions in Hiroshima and Nagasaki have markedly increased the number of cancer patients in these areas; as a matter of fact; the increased incidence is seen even today because of the radiation effects of that time.

Drs. Brenner and Hall have stated that Japanese atomic bomb survivors who were about two miles away from the explosions, actually received radiation doses quite similar to those from a CT scan. Sixty years of study of these survivors have provided direct evidence that there will be an increased individual cancer risk, though small, for those who have this same dose of radiation from CT scans. In particular, Drs. Brenner and Hall suggest that, in a few decades, about 1½ to 2 percent of all cancers in the United States may be due to the radiation from CT scans being done now. This is particularly important for children, who are more sensitive to radiation exposure as compared to adults

This is of particular concern, because perhaps one-third of all CT scans performed may not be medically necessary, the radiation researchers say.

Compounding the issue, surveys suggest that the majority of doctors who prescribe CT Scans and radiologists who undertake the procedure may not even appreciate that CT scans are likely to increase the lifetime risk of cancer.

I tried to gather this information from a number of doctors, who are either prescribing CT scans or are performing these in radiology departments and I was shocked to know that more than 90 per cent users had no clue about the radiation effects of CT scan.

About a decade or two back, CT scan would be advised sparingly. I vividly remember that in nineties even in an institute like PGI, Chandigarh, a CT scan requisition had to be countersigned either by the head of department or unit in-charge but at present there are no such restrictions and the number of these radiological investigations have multiplied manifold. The commonly performed radiological studies of earlier years like Barium

Meal \ Enema; Fistulogram \ Sinogram; I.V.P.\ Retrograde Pyelography; myelogram \ ventriculogram ; used to give radiation not only to the patient but also to the radiologist and technician performing the test and so radiological procedures were ordered and carried out with lot of caution and reservation but no such problem exists with CT scan.

What can be done?

Drs. Brenner and Hall suggest three strategies for proactively addressing the potential increased radiation risks associated with CT scans:

Reduce the CT-related radiation dose in individual patients.

Replace CT use, when appropriate, with other options that have no radiation risk, such as ultrasound or magnetic resonance imaging (MRI).

Decrease the total number of CT scans prescribed.

Drs. Brenner and Hall suggest in their paper's conclusion that these strategies could potentially keep 20 million adults and, crucially, more than one million children annually in the United States from being irradiated unnecessarily. They stress, however, that in the majority of individual cases, the benefits associated with a correct diagnosis through CT will far outweigh the individual risk of all cancers. They estimate that about a third of all CT scans are unnecessary and at least these people can be protected from this potential risk.

Controversy remains, and in a statement issued on November 30, Dr John M. Boone, chairman of AAPM's science council, says that the "science community remains divided" over the radiation dose effects of CT scans and that the findings in the Journal article were based on "flawed assumptions" and were not conclusive.

The problem arises when the patients are not examined thoroughly and worst being not following the patient closely, it is believed by senior and experienced doctors that majority of the patients can be managed correctly and successfully without undertaking repeated CT scans.

Boone responds in his statement that the assumptions about the hazards of CT scan radiation exposure "remain controversial, even among experts in radiation biology." The method of determining risk used in the article is derived from Japanese citizens exposed to large amounts of radiation during the atomic bomb attacks on Hiroshima and Nagasaki in World War II, and the extrapolation of those extremely high radiation exposure rates down to the low CT exposures "remains very controversial," Boone says.

Another "significant flaw" in the article was the attempt to compare the Japanese bomb victims to "patients receiving CT in the US in 2007," Boone says. The article "did not correct for the many underlying confounding age dependent variables that differ between

(the Japanese population) and older Americans, such as the incidence of obesity and diabetes."

However, it should be remembered that there has been significant advances in CT technology that make it extremely user-friendly, for both the patient and the physician. The largest increases in CT use, however, have been in the categories of pediatric diagnosis and adult screening and these trends can be expected to continue for the next few years. The growth of CT use in children has been driven primarily by the decrease in the time needed to perform a scan - now less than 1 second - largely eliminating the need for anesthesia to prevent the child from moving during image acquisition.

A large part of the projected increase in CT scanning for adults will probably come from new CT-based screening programmes for asymptomatic patients. The four areas attracting the most interest for adult screening by CT Scan are CT colonography (virtual colonoscopy), CT lung screening for current and former smokers, CT cardiac screening, and CT whole-body screening.

Congenital Disorder

Girl Has 2 Toes Removed to Treat Congenital Disorder (Med India: 16.9.2011)

Jia Tong - a four year old girl has undergone a surgery to remove her two toes to treat congenital 'giant toe' syndrome.

Jia Tong had to wear adult male- sized shoes due to the disorder.

Though she was taken to Zaozhuang, Shandong, Beijing and Shanghai hospitals, doctors were unable to treat her.

But Jinan clinic doctors successfully operated on her on September 1, the China Daily reports.

She would receive further treatment in the following months.

Retinoblastoma

Retinoblastoma requires early intervention (World Newspapers: 16.9.2011)

Two-year-old Mohiuddin now has a bright future ahead. But he could have gone to the grips of darkness forever, if not for timely intervention and treatment. Even before his birth, Mohiuddin's parents were warned that the baby may be born with retinoblastoma, an eye cancer. As suspected, when Mohiuddin was found to have the disease in both his eyes, his parents put him on treatment at Narayana Nethralaya.

"I lost my older daughter to the same disease when she was four. When she was a year old, we discovered that she had retinoblastoma. We took her for treatment, but it was already too late. Cancer had started spreading to different parts of her body and after struggling for a few years, we lost her," recalled Saifullah Khan, a carpenter from RT Nagar and father of Mohiuddin. Khan, who himself was detected with retinoblastoma when he was seven months. Knowing that retinoblastoma is a genetic problem, Khan did not waste a single day for medical intervention. Mohiuddin underwent sessions of chemotherapy and is now undergoing laser therapy. His vision is normal, though he will be on treatment till 15 years of age.

"After losing their first child to retinoblastoma, the couple was reluctant to have another baby as they suspected similar misfortune again. Retinoblastoma is seen among children from inter-family wedlock like Khan's and is a genetic problem," said Dr Bhujang Shetty, chairman and medical director, Narayana Nethralaya. He was speaking at the inauguration of the third full-fledged Narayana Nethralaya in Ashokanagar.

"There are 1,300 different genetic disorders which are known to medical science as of now. Among these, 191 genetic disorders are related to eyes alone. At Narayana Nethralaya, we are now focusing on child-centric projects. For the next five years, our prime focus will be ophthalmic diseases due to genetic problems. Free treatment is provided to 20% of our patients. No child is turned down just because parents cannot afford the treatment," said Dr Rohit Shetty, vice-chairman and consultant, neuro-ophthalmology, refractive surgery and electrophysiology services, Narayana Nethralaya.

Genetic disorder

Suffering from bad body odour? Blame it on genetic disorder (The Times of India: 16.9.2011)

For some people with troublesome, unexplained body odour, an uncommon genetic disorder once known as "fish-odour syndrome" may be to blame, according to a study.

The condition, known clinically as trimethylaminuria, is caused by emitting excessive amounts of the compound trimethylamine (TMA). TMA is produced when people digest foods rich in a substance called choline --including saltwater fish, eggs, liver and certain legumes, such as soy and kidney beans.

“Individuals with the metabolic disorder trimethylaminuria may sporadically produce malodors despite good hygiene,” wrote study leader Paul Wise, at Monell Chemical Senses Center in Philadelphia, in the American Journal of Medicine. “The psychosocial impact of trimethylaminuria may be considerable. However, trimethylaminuria is difficult to diagnose without specialized tests.” Trimethylaminuria is caused by defects in a gene known as FMO3, which hinder the body’s ability to metabolize TMA and turn it into odor-free compounds.

TMA itself has a strong fishy smell, but only about 10 to 15% of people with trimethylaminuria have that specific malodor, which may make it tougher to get a diagnosis. For someone to have the disorder, he or she must inherit a defective copy of FMO3 gene from both parents, who themselves would be unaffected “carriers”. Of course, if either of parents had the disorder, they would also pass it on. REUTERS

It is ironic that India, which is aiming to become a hub of medical tourism and boasts of world class medical facilities, cannot provide even basic midwifery services and primary health care to thousands of pregnant women. Not only is the country’s maternal mortality rate high, in some districts like Purulia nearly half the women die during pregnancy and child birth

Longevity gene

Longevity gene under cloud of doubts (The Times of India:23.9.2011)

Dispute Erupts Between Two Camps Of Researchers Looking For Anti-Aging Drugs

A trans-Atlantic dispute has opened up between two camps of researchers pursuing a gene that could lead to drugs that enhance longevity.

British scientists say the longevity gene is “nearing the end of its life,” but the Americans whose work is under attack say the approach remains as promising as ever. The dispute concerns genes that make sirtuins, proteins involved in controlling cells’ metabolism.

Because of their metabolic role, the sirtuins may mediate the 40-percent-longer life enjoyed by laboratory rats and mice put on a very low-calorie diet. People cannot keep to such a low-fat diet, but drugs that activate sirtuin would in principle be a painless way for

humans to add years of lean and healthy life. This idea took wing when resveratrol, a substance found in trace quantities in red wine, was reported to activate sirtuin.

In 2008 GlaxoSmithKline paid \$720 million for Sirtris, a start-up company trying to develop resveratrol-mimicking drugs that activate sirtuins. Since then, several aspects of the sirtuin story have come under scientific challenge, including doubts as to whether resveratrol's effects are really exercised through sirtuin, and whether the sirtuins are the real or only mediators of the longevity increase linked to a low-calorie diet.

Despite these concerns, the idea that sirtuins promote longevity appeals to scientists because of experiments that were started in yeast and repeated in two other standard laboratory organisms, the roundworm and the fruit fly. It is these foundations that have now come under attack by David Gems and Linda Partridge, researchers on aging at University College London. They and colleagues have re-examined experiments in which roundworms and flies, genetically manipulated to produce more sirtuin than normal, were reported to live longer. Both experiments were flawed, they say, because the worms and flies used as a control were not genetically identical to the test organisms. "The biology of aging is a young field with emerging pitfalls," they wrote.

In the experiment, published by Leonard Guarente of the Massachusetts Institute of Technology in 2001, the strain of worms used had picked up an extra mutation that also had the effect of prolonging life, they said.

"We agree there is a glitch in one of the worm strains used in the 2001 paper," Guarente said in an interview. "We absolutely do not agree that there is a serious question about whether sir2 extends life span in worms," Guarente said. NYT NEWS SERVICE

Bio-Medical Waste

Health Centres must treat bio-waste: Govt (HT 26.9.2011)

NEW DRAFT Service providers asked to set up treatment units

The environment ministry has notified new draft rules making scientifically treating medical waste a must for every health establishment.

The new rules to be called Bio-Medical Waste (Management and Handling) Rules, 2011, scraps the earlier provision of making bio-medical waste rules applicable only to institutions providing service to more than 1,000 patients a month.

"Every occupier or operator, irrespective of the number of patients being in services or the quantum of bio-medical waste generated is required to obtain the authorisation," the draft rules notified this week said.

The definition includes waste from animal, laboratories, microbiology and biotechnology, human anatomy and medicines. The rules also prohibit mixing of bio-medical waste with other forms of waste and it will have to be sent for treatment within 48 hours. The rules clearly mention that every medical service provider will have to set up requisite bio-medical waste treatment equipment prior to the commencement of its operation or will have to make arrangements for treatment of bio-medical waste through an authorised common bio-medical waste treatment facility.

The bio-medical waste treatment facility will have to take approval of either the Central Pollution Control Board (CPCB) or the state pollution control boards.

The technology to be used in the facility should have approval of CPCB or environment ministry.

The rules makes operator of the bio-medical waste facility liable for action in case of any lapse or damage to the environment.

The new rules once notified will replace the bio-medical waste rules of 1998 and will cover persons who generate, collect, receive, store, transport, treat and dispose and handle bio-medical waste in any form.

BIO-MEDICAL WASTE RULES 2011	
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Brain Development

Brain Development Continues into Our 20s (Med India: 26.9.2011)

The University of Alberta research was conducted in the Department of Biomedical Engineering by researcher Christian Beaulieu, an Alberta Innovates - Health Solutions scientist, and by his PhD student at the time, Catherine Lebel.

For their research they used magnetic resonance imaging or MRIs to scan the brains of 103 healthy people between the ages of five and 32. Each study subject was scanned at least twice, with a total of 221 scans being conducted overall.

The study demonstrated that parts of the brain continue to develop post-adolescence within individual subjects.

The research results revealed that young adult brains were continuing to develop wiring to the frontal lobe; tracts responsible for complex cognitive tasks such as inhibition, high-level functioning and attention.

The researchers speculated in their article that this may be due to a plethora of life experiences in young adulthood such as pursuing post-secondary education, starting a career, independence and developing new social and family relationships.

An important observation the researchers made when reviewing the brain-imaging scan results was that in some people, several tracts showed reductions in white matter integrity over time, which is associated with the brain degrading.

The researchers speculated in their article that this observation needs to be further studied because it may provide a better understanding of the relationship between psychiatric disorders and brain structure. These disorders typically develop in adolescence or young adulthood

Chemotherapy

Chemotherapy during pregnancy does not affect child's development (New Kerala: 28.9.2011)

A new research has found that children born after their mothers were treated with chemotherapy during pregnancy appear to be unaffected by the experience in terms of the development of their mental processes and the normal functioning of their hearts.

"To the best of our knowledge this is the first time that children of 18 months and older have been examined after chemotherapy during pregnancy, and the news is reassuring in respect of the effects of chemotherapy on cognitive and cardiac outcomes," said Professor Frederic Amant, a gynaecological oncologist at the University Hospitals Leuven (Leuven, Belgium).

However, he said that a significant number of the 70 children born from 68 pregnancies were delivered preterm and the researchers found that prematurity, but not chemotherapy, did affect these children's cognitive development significantly.

"At this stage we do not know the full, long-term consequences of prenatal chemotherapy, including its effect on the children's fertility and likelihood of developing cancers when they are older. For this reason, we are continuing this international collaboration to follow-up more children for longer periods of time," Prof Amant concluded.

The study was presented at the 2011 European Multidisciplinary Cancer Congress.

Immune Systems

Women Have Stronger Immune Systems Than Men -- And It's All Down to X-Chromosome Related microRNA (Science Daily: 28.9.2011)

As anyone familiar with the phrase 'man-flu' will know women consider themselves to be the more robust side of the species when it comes to health and illness. Now new research, published in BioEssays, seems to support the idea. The research focuses on the role of MicroRNAs encoded on the X chromosome to explain why women have stronger immune systems to men and are less likely to develop cancer.

The research, led by Dr Claude Libert from Ghent University in Belgium, focused on MicroRNA, tiny strains of ribonucleic acid which alongside DNA and proteins, make up the three major macromolecules that are essential for all known forms of life.

"Statistics show that in humans, as with other mammals, females live longer than males and are more able to fight off shock episodes from sepsis, infection or trauma," said Libert. "We believe this is due to the X chromosome which in humans contains 10% of all microRNAs detected so far in the genome. The roles of many remain unknown, but several X chromosome-located strands of microRNA have important functions in immunity and cancer."

Dr Libert's team proposes that the biological mechanisms of the X chromosome have a strong impact on an individual's genes, known as genetic imprinting, which gives an immunological advantage to females. To develop their hypothesis the team produced a detailed map of all described microRNAs which have a role in immune functions and cancer in both human and mouse X chromosomes.

"We believe this immunological advantage is due to the silencing of X-linked genes by these microRNAs," said Libert. "Gene silencing and inactivation skewing are known mechanisms which affect X-linked genes and may influence X-linked microRNAs in the same way."

This genetic silencing leaves males at an immunological disadvantage as a male has only one X-chromosome. The Y-Chromosome contains fewer genes so if the genes involved in

immunity are silenced maternally the male is left with no compensating genetic information.

"How this unique form of genetic inheritance influences X-chromosome linked microRNAs will be a challenge for researchers for years to come," concluded Libert, "not only from an evolutionary point of view, but also for scientists investigating the causes and cures of disease."

Hormone-producing enzyme

Hormone-producing enzyme inhibitor cuts risk of breast cancer relapse (World Newspapers: 28.9.2011)

Scientists have found that aromatase inhibitor letrozole prevents breast cancer recurrences and reduces the risk of death in post-menopausal women with hormone receptor-positive early breast cancer.

Results from the longest-running trial comparing tamoxifen with the aromatase inhibitor letrozole found that if women with early breast cancer were given letrozole after surgery for at least five years, they continued to do better and have fewer recurrences of the disease than those who were given tamoxifen.

"Over a median of eight years of follow-up, women who were assigned to receive five years of letrozole after surgery had an 18 per cent reduced risk of relapse and a 21 per cent reduced risk of death compared with those assigned to receive tamoxifen," said Professor Richard Gelber, Director of the International Breast Cancer Study Group (IBCSG) Statistical and Data Management Centre at the Dana-Farber Cancer Institute, Boston, MA, USA.

Tamoxifen has been the "gold standard" hormone treatment for women with early, oestrogen-receptor-positive breast cancer and works by blocking the growth-promoting action of oestrogen on the cancer cells.

Aromatase inhibitors, such as letrozole, are newer and alter the function of aromatase, an enzyme involved in oestrogen production.

They can be used in sequence with, or as an alternative to tamoxifen for post-menopausal women.

In the BIG 1-98 trial, researchers enrolled 8,010 patients to receive letrozole and tamoxifen either alone or in sequence, with a total of 4,922 patients included in the monotherapy arms of the study.

This 12-year update shows that, among all 8,010 patients, there were 2,074 relapses and 1,284 deaths, compared with 1,569 relapses and 923 deaths at the ten-year update.

“The data also show that the sequential use of letrozole and tamoxifen (two years of one agent followed by three years of the other) provided similar outcomes compared with five years of letrozole alone for patients who are not at high risk for recurrence,” said Prof Gelber.

The study was presented at the 2011 European Multidisciplinary Cancer Congress, in Stockholm.

Immune system

Altered HIV cuts its ability to suppress immune system (New Kerala: 30.9.2011)

Scientists at Johns Hopkins have altered HIV in a way that makes it no longer able to suppress the immune system.

Their work could remove a major hurdle in HIV vaccine development and lead to new treatments, said the scientists.

Typically, when the body's immune system cells encounter a virus, they send out an alarm by releasing chemicals called interferons to alert the rest of the body to the presence of a viral infection.

When the immune cells encounter HIV, however, they release too many interferons, become overwhelmed and shut down the subsequent virus-fighting response.

The researchers treated HIV with a chemical to remove cholesterol from the viral coat. Then they introduced either the cholesterol-diminished or normal HIV to human immune cells growing in culture dishes, and measured how the cells responded.

The cells exposed to cholesterol-diminished HIV didn't release any initial-response interferons, whereas the cells exposed to normal HIV did.

"The altered HIV doesn't overwhelm the system and instead triggers the innate immune response to kick in, like it does with any first virus encounter," said David Graham, Ph.D., assistant professor of molecular and comparative pathobiology and medicine.

By altering the virus, explained Graham, the researchers were able to reawaken the immune system's response against HIV and negate HIV's immunosuppressive properties.

The study has been published online September 19 in the journal Blood.

Cancer

Wonder metal

Wonder metal: Soon, gold may help treat cancer (The Times of India: 10.8.2011)

Using gold as a potential treatment for cancer could soon become a reality, thanks to a combination of imaging techniques.

An international team, led by University of Western Australia and Griffith University, has described how using two imaging techniques can allow scientists to see where gold complexes used in potential chemotherapeutic treatments end up in cells, the 'Metallomics' journal reported.

They are also able to monitor the gold's effects on the cells in a non-destructive way. Previous methods for this type of analysis were destructive to the cell. Lead author Louise Wedlock claims that one technique — nanoscale secondary ion mass spectrometry — enabled the visualization of the gold at a subcellular level. The other technique — energy filtered transmission electron microscopy — gave element maps for the gold, allowing the scientists to see nuclear and mitochondrial morphology.

"The unique properties of metal ions can be exploited in the design of new drugs. Certain gold compounds are selectively toxic to cancer cells but not to normal cells. However, the development of goldbased chemotherapeutics requires a much deeper understanding of the subcellular biochemical pathways involved," say scientists.

Cancer Patients Benefit From Music Therapy

Cancer Patients Benefit From Music Therapy: Cochrane Review (Med India: 10.8.2011)

A new Cochrane systematic review led by Dr. Joke Bradt, an associate professor in Drexel University's College of Nursing and Health Professions observes cancer patients may benefit from sessions with trained music therapists or from listening to music. Using music can reduce anxiety in cancer patients, and may also have positive effects on mood, pain and quality of life.

Music and music therapy are used in a wide range of clinical settings. Treatments range from patients listening to pre-recorded music, to music therapists engaging patients in music experiences to improve psychological and physical well-being. In their review, researchers focused on trials with patients with any kind of cancer who were offered music or music therapy sessions.

The researchers analyzed evidence from 1,891 patients taking part in 30 trials. Thirteen trials used trained music therapists, while in the remaining 17 trials, patients listened to pre-recorded music. How long and how often patients participated in music sessions varied greatly among trials.

The results show that, compared to standard treatments, music reduced anxiety considerably based on clinical anxiety scores. Some trials reported much larger beneficial effects than others. The results also suggest that music therapy may increase patients' quality of life. There was some benefit in music for mood and pain, although not depression. Smaller beneficial effects were seen for heart rate, respiratory rate and blood pressure.

"The evidence suggests that music interventions may be useful as a complementary treatment to people with cancer," said Bradt, a board-certified music therapist with expertise in medical music therapy. "Music interventions provided by trained music therapists as well as listening to pre-recorded music both have shown positive outcomes in this review, but at this time there is not enough evidence to determine if one intervention is more effective than the other."

Cancer

Cancer scares people more than any other disease (The Tribune: 17.8.2011)

London: A poll of more than 2,000 adults has found that people fear cancer more than any other disease. The survey revealed that 35 per cent of people fear cancer while 25 per cent are mostly worried about developing Alzheimer's disease. Just 3 per cent are concerned about heart disease more than other illnesses while 5 per cent are worried about stroke. "It's understandable why so many people fear cancer among other diseases," the Scotsman quoted Dr Lesley Walker, director of cancer information at Cancer Research, UK, as saying.

Cancer Cells

Research Sheds Light on Painting a Bulls eye on Cancer Cells (Med India: 23.8.20-11)

Now, Prof. Eytan Ruppin of Tel Aviv University's Blavatnik School of Computer Science and Sackler Faculty of Medicine and his colleagues Prof. Eyal Gottlieb of the Beatson Institute for Cancer Research in Glasgow, UK, and Dr. Tomer Shlomi of the Technion in Haifa have taken a big step forward. They have successfully created the first computerized genome-scale model of cancer cell metabolism, which can be used to predict which drugs are lethal to the function of a cancer cell's metabolism.

By inhibiting their unique metabolic signatures, explains Prof. Ruppin, cancer cells can be killed off in a specific and selective manner. The efficacy of this method has been demonstrated in both computer and laboratory models pertaining to kidney cancer. Because the researchers' new approach is generic, it holds promise for future investigations aimed at effective drug therapies for other types of cancer as well.

The results were recently published in the journal Nature.

Lethal to cancer, safe for other cells

The ability to specifically target cancer cells is the holy grail of cancer research. Currently, many cancer drugs are designed to target any proliferating cells in the body — and while cancer cells certainly proliferate, so do healthy cells, such as hair and gut lining cells, the growth of which are essential to the body's overall health. This explains why many cancer treatments, including chemotherapy, have adverse side effects like nausea and hair loss.

Cancer, diabetes, hypertension

Cancer, diabetes, hypertension LARGEST CAUSE OF DEATH (The Times of India: 24.8.2011)

Lifestyle-related diseases are now killing more Indians than the infectious ones. India's disease pattern has undergone a major shift over the past decade, says the World Health Organisation (WHO).

The latest WHO data paints a worrying picture. At present, out of every 10 deaths in India, eight are caused by non-communicable diseases (NCDs) such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes in urban India. In rural India, six out of every 10 deaths is caused by NCDs.

Similar is the trend in the Southeast Asian region. While NCD deaths have seen a 21% jump, infectious diseases deaths have fallen by 17%. The projection is that the South-east Asian region will have the greatest total number of NCD deaths in 2020: 10.4 million.

Speaking to TOI, Dr Nata Menabde, WHO representative to India, said: “Globally, 60% of the deaths are now caused by NCDs. Similar are the numbers in India. NCDs are affecting the entire globe. If not controlled, they will become a tsunami that will not only kill people but impair development and crash economies.”

Shocked by the alarming spike in NCDs, India is launching a comprehensive national programme to prevent and control these. Union health minister Ghulam Nabi Azad on Tuesday said: “The programme will be rolled out during the 12th Plan period starting 2012. It will cover all 640 districts. The programme will focus on health promotion, prevention of exposure to risk factors, early diagnosis, treatment of NCDs and rehabilitation.”

Calling for urgent action to check the rise in NCDs, mental health issues and injuries which account for twothird of the country’s total disease burden, Azad said: “India with an estimated 5.1 crore diabetics has the world’s second largest diabetic population following China. Unless effective measures are taken, India may have 8 crore diabetics by 2030. Similarly, the number of people affected by cardio-vascular diseases which was about 3.8 crore in 2005 may go up to 6.4 crore by 2015.”

The UN has taken note of the NCD menace. After the 2001 UN summit on HIV that made the world come together to fight the deadly AIDS virus, this September, NCDs are set to receive a similar push in New York.

To be attended by the who’s who, including PM Manmohan Singh, the historic UN General Assembly on the Prevention and Control of NCDs on September 19 and 20 will decide how to better prevent, diagnose and treat cancer, cardiovascular disease, chronic respiratory disease and diabetes, which together cause 8 million deaths worldwide, annually.

A ministry official said: “Till now, programmes to combat NCDs which cause 60% of all deaths were tremendously under funded. NCDs also remained a low priority and not included in the Millennium Development Goals. The high-level meetings running up to the UN NCD summit should change that.”

Cardiovascular diseases will be the largest cause of death and disability in India by 2020, WHO says. It is estimated that the overall prevalence of diabetes, hypertension, ischemic heart diseases (IHD) and stroke is 62.47, 159.46, 37.00 and 1.54 respectively per 1,000 population of India. Additionally, there are around 25 lakh cancer cases in India.

Calling it “an impending disaster for many countries — a disaster for health, for society and national economies,” WHO director-general Dr Margaret Chan said: “Chronic NCDs

deliver a two-punch blow to development. They cause billions of dollars in losses of national income, and push millions of people below the poverty line, each and every year.”

According to a recent report, each year NCDs cause more than 9 million deaths before the age of 60 years. They also kill at a younger age in countries like India where 29% of NCD deaths occur among people under 60, compared to 13% in high-income countries.

Dr Ala Alwan, WHO’s assistant director-general for NCDs said: “About 30% of people dying from NCDs are under 60 and in their most productive period of life. These premature deaths are largely preventable.” Without action, the NCD epidemic is projected to kill 52 million people annually by 2030, Dr Alwan added.

Approximately 44% of all NCD deaths occur before 70. In countries like India, a higher proportion (48%) of all NCD deaths occur in people under the age of 70, compared with high-income countries (26%). Cardiovascular diseases were responsible for the largest proportion of NCD deaths under 70 (39%), followed by cancers (27%). Chronic respiratory diseases and digestive diseases were together responsible for 30% of deaths while diabetes was responsible for 4% of deaths.

Anti-cancer virus

Anti-cancer virus may help fight tumours (The Times of India: 5.9.2011)

Scientists have engineered a virus that can selectively target tumour cells throughout the body when injected into the blood, a breakthrough they say could one day “truly transform” cancer therapies. In a small trial on 23 patients, the modified vaccinia virus, which is known for being used to develop a smallpox vaccine, was found attacking only tumours, leaving the healthy tissue alone, the University of Ottawa researchers said. Using viruses to attack cancers is not a new concept, but they have needed to be injected directly into tumours in order to evade the immune system.

Cancer cases

Cancer cases on the rise, hit 12m a year worldwide (The Times of India: 9.9.2011)

The number of cancer cases has risen by 20% globally in a decade to hit 12 million a year, new figures have revealed.

This is more than four times the annual number of new HIV infections, and 2.8 million of the cancers are linked to poor diet, a lack of exercise and being overweight, according to the figures by charity World Cancer Research Fund.

The number of cancers that could potentially be prevented is expected to rise dramatically over the next decade as more people lead sedentary lifestyles and become obese, the Daily Mail has reported.

Experts have said that apart from cancer, diseases such as heart disease and diabetes are some of the biggest health challenges.

The British government has come under fire from several health charities over its responsibility deal, which aims to form partnerships with produce firms. It has been slammed for cutting spending on the Change4Life health campaign in favour of getting commercial firms and charities to fill the gap.

A spokesman for the UK's department of health said, "This week's responsibility deal calorie labelling announcement shows real progress that can be achieved by working with industry voluntarily to help improve public health."

Targeting enzyme to fight breast cancer?

Scientists in Singapore claim to have uncovered a new method to target an enzyme that promotes the oestrogen receptor-negative breast cancer, a finding which may pave the way for an effective treatment for the disease. A team from the Genome Institute of Singapore and the National University of Singapore says it has found the way to target the enzyme EZH2 which puts people at risk of developing the oestrogen receptor-negative breast cancer, one of the most aggressive forms of the disease unresponsive to treatment. It has been known that EZH2 enzymatic activity promotes cancer by inactivating some important tumour suppressors, which function as 'brakes' to stop tumour growth. Over-expression of EZH2 is often linked to aggressive and rapid spread of breast cancers, the most common cancer in women globally.

Lymphoma

Lymphoma can be cured, say doctors (World newspapers: 16.9.2011)

Instances of cancer among children are not uncommon anymore. In India, lymphoma, that constitutes approximately 20% of all cancers in children, is also the second-most common cancer among paediatric population. On the occasion of World Lymphoma Awareness Day, on September 15, oncologists from the city spoke about the disease and its treatment among children.

“In general, the incidence of cancer in children is on the rise because of increased awareness, recognition, and timely diagnosis. Incidents of lymphoma is seen among a population of 5.6 per 1,00,000. Lymphoma is more common in children and also seen in adults, because of viral infections EBV (Epstein Barr Virus),” said Dr Intezar Mehdi, consultant, paediatric oncologist, HCG.

Timely detection of Lymphoma is important, said experts.

“However, once detected, the children need not be on treatment throughout their life. Lymphoma, in general, on an average, requires five to six months of treatment. And mostly, the treatment involves sessions of chemotherapy, with or without radiotherapy, depending on the case,” said Dr Mehdi. In cases, where the patient has recurrent or progressive lymphoma, bone marrow transplant is the best option, he added.

A lot of research is going on globally about lymphoma and its treatment.

“There are some experimental drugs which are used abroad for treating lymphoma-affected patients. But In India, as of now, we are using standard chemotherapy to treat patients,” said Dr Mehdi.

The common symptoms of lymphoma include, painless enlargement of lymph glands anywhere in the body, commonly in the neck, axilla, or groin.

Sometimes, this is coupled with fever and weight loss. And generally, diagnosis is done with help of tissue biopsy from lymph nodes, any other body lump or bone marrow.

“Children generally have a more aggressive lymphoma than adults. However, the best part about paediatric lymphoma is that, once the initial aggressive phase is tackled, it can be managed well and cured,” said Dr Sharad Damodar, HoD, haematology, Mazumdar Shaw Cancer Centre. The cure rate of lymphoma is 70 to 80%, he said.

New technique

New technique that makes cancer cells ‘glow’ during surgery developed (world Newspapers: 21.9.2011)

Tricky cancer operations can be made easier and more effective thanks to a Purdue University researcher’s revolutionising technique that ‘lights up’ the cancerous cells during a surgery.

Philip Low, biochemistry professor from Purdue University in Indiana in the U.S., says that this procedure, named fluorescence-guided surgery, will help surgeons to identify

and remove tumours measuring just one tenth of a millimeter that could otherwise be missed.

“Ovarian cancer is notoriously difficult to see, and this technique allowed surgeons to spot a tumor 30 times smaller than the smallest they could detect using standard techniques,” he said.

“By dramatically improving the detection of the cancer - by literally lighting it up - cancer removal is dramatically improved,” he said.

The technique attaches a fluorescent imaging agent to a modified form of the vitamin folic acid, which acts as a “homing device” to seek out and attach to ovarian cancer cells.

Patients are injected with the combination two hours prior to surgery and a special camera system, called a multispectral fluorescence camera, then illuminates the cancer cells and displays their location on a flat-screen monitor next to the patient during surgery.

The surgeons involved in this study reported finding an average of 34 tumor deposits using this technique, compared with an average of seven tumor deposits using visual and tactile observations alone.

The technology is based on Low’s discovery that folic acid, or folate, can be used like a Trojan horse to sneak an imaging agent or drug into a cancer cell.

A paper detailing the study was published online Sept. 18 in Nature Medicine.

Cancer

City’s elderly most prone to cancer (The Times of India: 21.9.2011)

One in 13 men and one in 11 women in the national capital run the risk of developing cancer by the time they turn 64. The probability is more acute by the time they reach 74, when one in seven men and one in eight women become susceptible to the disease.

In other metros like Mumbai and Kolkata, one in 19 men and one in 14 women run a similar risk before their 64 th birthday. However, while one in 10 men and one in nine women in Mumbai face the possibility of suffering from cancer by the time they are 74 years, the risk is faced by one in 10 men and women in Kolkata.

In Chennai, one in 14 men and one in 12 women are prone to develop cancer before they turn 64, while the probability is one in eight men and women aged 0-74 years.

For the first time, the Indian Council of Medical Research (ICMR) has come out with the “possibility of one in number of persons developing cancer of any site” score. The calculation is age specific – 0-64 years and 0-74 years.

In Bangalore, one in 17 men and one in 10 females between in the 0-64 age group, and one in eight men and one in seven women aged 0-74 years face the risk of developing cancer in any part of their body. In Pune, one in 24 men and one in 17 women aged 0-64 years and one in 12 men and one in 11 women aged 0-74 years run a similar risk.

The report looks at incidents of cancer and probability rates for three years – from 2006 to 2008. Dr A Nandakumar, deputy director general of ICMR and in-charge of the report, said, “Since the establishment of the national cancer registry programme in 1982, this is the first report of 20 population-based cancer registries covering 7% of the population. We have also for the first time looked at the risk a person faces across India of developing cancer in their lifetime.”

While addressing the United Nations summit of non-communicable diseases (NCDs) in New York on Tuesday, Union health minister Ghulam Nabi Azad said common diagnostic services are being provided at 100 district hospitals for early detection of cancer. Provision is also being made for basic surgery, chemotherapy and palliative care at these hospitals.

“For supporting chemotherapy, drugs will be provided in these 100 district hospitals for 10,000 patients at a cost of \$25 million. Also, 65 centres

are being strengthened as Tertiary Cancer Centres (TCCs) to provide comprehensive cancer care services at a cost of \$ 1.5 million each,” Azad announced. The rise in cancer across India has led top scientists recommend to the health ministry to classify cancer as a “notifiable disease”. So far, only highly infectious diseases like plague, polio figured in such a list. Cancer will become the first NCD to get such a push. Once declared a notifiable disease, it will become mandatory for all private hospitals to record and report every single case of cancer.

Chemotherapy

Chemotherapy during pregnancy does not affect child's development (New Kerala: 28.9.2011)

A new research has found that children born after their mothers were treated with chemotherapy during pregnancy appear to be unaffected by the experience in terms of the development of their mental processes and the normal functioning of their hearts.

"To the best of our knowledge this is the first time that children of 18 months and older have been examined after chemotherapy during pregnancy, and the news is reassuring in respect of the effects of chemotherapy on cognitive and cardiac outcomes," said Professor

Frederic Amant, a gynaecological oncologist at the University Hospitals Leuven (Leuven, Belgium).

However, he said that a significant number of the 70 children born from 68 pregnancies were delivered preterm and the researchers found that prematurity, but not chemotherapy, did affect these children's cognitive development significantly.

"At this stage we do not know the full, long-term consequences of prenatal chemotherapy, including its effect on the children's fertility and likelihood of developing cancers when they are older. For this reason, we are continuing this international collaboration to follow-up more children for longer periods of time," Prof Amant concluded.

The study was presented at the 2011 European Multidisciplinary Cancer Congress.

Cancer –Fighting with vinegar

In Thailand, fighting cancer with vinegar (The Indian Express: 28.9.2011)

Maikaew Panomyai did a little dance coming out of the examination room, waving her fists in the air and crowing, in her limited English: "Everything's OK! Everything's OK!"

Translation: The nurse just told me I do not have cervical cancer, and even the little white spot I had treated three years ago is still gone.

What allowed the nurse to render that reassuring diagnosis was a remarkably simple, brief and inexpensive procedure, one with the potential to do for poor countries what the Pap smear did for rich ones: end cervical cancer's reign as the No. 1 cancer killer of women. The magic ingredient? Household vinegar.

Every year, more than 250,000 women die of cervical cancer, nearly 85 percent of them in poor and middle-income countries. Decades ago, it killed more American women than any other cancer; now it lags far behind cancers of the lung, breast, colon and skin.

Nurses using the new procedure, developed by experts at the Johns Hopkins medical school in the 1990s and endorsed last year by the World Health Organisation, brush vinegar on a woman's cervix. It makes precancerous spots turn white. They can then be immediately frozen off with a metal probe cooled by a tank of carbon dioxide, available from any Coca-Cola bottling plant.

With a Pap smear, a doctor takes a scraping from the cervix, which is then sent to a laboratory to be scanned by a pathologist. Many poor countries lack high-quality labs, and the results can take weeks to arrive.

The procedure, known as VIA/ cryo for visualization of the cervix with acetic acid (vinegar) and treatment with cryotherapy, can be done by a nurse. Only one visit is needed to detect and kill an incipient cancer.

More than 20 countries have done pilot projects, but in Thailand, VIA/cryo is now routine in 29 of 75 provinces, and 500,000 of the 8 million women, ages 30 to 44, in the target population have been screened at least once.

Breast Cancer

Breast cancer

Drug that prevents breast cancer (The Times of India: 7-6-2011)

Lowers Chances Of Contracting Disease By 65%, Stops Recurrence

A drug now used to prevent recurrences of breast cancer can also reduce the risk of it occurring in the first place, providing a new option for women at high risk of getting the disease, researchers reported.

Two drugs, tamoxifen and raloxifene, are already approved to prevent breast cancer but both are rarely used for that purpose, in part because they can have serious side effects like blood clots. The researchers said the new option, exemestane, does not have those side effects and might be more acceptable.

Exemestane, also known by the brand name Aromasin, is one of a class of compounds known as aromatase inhibitors. These drugs stop the production of estrogen, which fuels tumour growth. They have proven superior to tamoxifen in preventing recurrence of cancer after a breast tumor is removed. So researchers have long suspected that aromatase inhibitors would also reduce the risk of an initial occurrence of breast cancer.

The trial involved 4,560 postmenopausal women in the US, Canada, France and Spain who were considered to be at a higher than normal risk of developing breast cancer either because of being over at least 60 or other factors.

After a follow-up of about three years, 11 women getting the drug had developed invasive breast cancer compared with 32 of the women receiving a placebo. That is a reduction in risk of 65%.

The study was published online by the New England Journal of Medicine. NYT NEWS SERVICE

Excess flab reduces odds of survival

Breast cancer patients who were overweight or obese before and after the diagnosis have a lower chance of surviving, a study says. Researchers found the link between dying from breast cancer and obesity only in estrogen receptor-positive forms of the disease, or cases in which the hormone estrogen fuels the breast cancer, HealthDay reports. The findings will be presented at The Endocrine's Society's annual meeting on Saturday. AGENCIES

Breast Cancer

Systems Biology Study of Breast Cancer (Med India: 1.8.2011)

Researchers have discovered a set of proteins in the blood involved in a variety of mechanisms related to cancer development. The findings, by co-authors Christopher Kemp, Ph.D., and Samir Hanash, M.D., Ph.D., members of Fred Hutchinson Cancer Research Center's Human Biology and Public Health Sciences divisions, respectively, are published online ahead of the Aug. 1 print issue of Cancer Research.

Studying a mouse model of HER2-positive breast cancer (cancer that tests positive for a protein called human epidermal growth factor receptor 2) at various stages of tumor development and remission, the researchers found that even at the very earliest stages the incipient tumor cells communicate to normal tissues of the host by sending out signals and recruiting cells, while the host tissues in turn respond to and amplify the signals. "It is really a 'systems biology' study of cancer, in that we simultaneously examined many genes and proteins over time – not just in the tumor but in blood and host tissues," Kemp said.

"The overall surprising thing we found was the degree to which the host responds to cancer early in the course of disease progression, and the extent of that response. While a mouse – or presumably a human – with early-stage cancer may appear normal, our study shows that there are many changes occurring long before the disease can be detected clinically. This gives us hope that we should be able to identify those changes and use them as early detection tools with the ultimate goal of more effective intervention.

Bladder Cancer

Bladder Cancer Patients May Benefit from Improved Radical Surgery Techniques (med India: 9.8.2011)

Bladder cancer patients who have radical surgery at university hospitals can benefit from excellent local control of the disease, acceptable clinical outcomes and low death rates, according to research in the August issue of the urology journal BJUI.

Researchers studied 2,287 patients who had radical cystectomy surgery, where the bladder is removed, together with nearby tissue and organs as required. The surgery was performed at eight Canadian academic centres between 1998 and 2008.

The study found that there were three independent factors, apart from pathological stage at surgery, that influenced survival rates. Patients who smoked had lower survival rates, while patients who had pelvic lymphadenectomy - lymph nodes removed from the pelvic

area - had higher survival rates, as did patients who received adjuvant chemotherapy, which aims to destroy microscopic cancer cells left after surgery.

However, the researchers found that neoadjuvant chemotherapy - which is often recommended prior to surgery to improve outcomes - tends to be under utilised for bladder cancer in Canada.

"Recent advances in combined radiation with chemotherapy have challenged the role of radical cystectomy (RC) with pelvic lymphadenectomy, which is used to treat muscle invasive and refractory non-muscle invasive bladder cancer" says co-author Dr Wassim Kassouf, from McGill University Health Centre, Quebec, Canada.

"These bladder-preservation strategies are potentially attractive in terms of health-related quality of life and cancer outcomes, but they only tend to work in highly selected patients.

Breast Cancer

Breast Cancer Tumor Suppressor Gene Silenced by Low Oxygen (Science Daily: 16.8.2011)

Low oxygen can silence the BRCA1 tumor suppressor gene and contribute to the progression of cancer, according to a paper in the August 2011 issue of the journal Molecular and Cellular Biology. Silencing this particular gene is one of the steps on the malignant pathway to breast cancer. The research may ultimately lead to ways of reactivating this and other tumor suppressor genes, in order to thwart cancer, says corresponding author Peter Glazer of Yale University, New Haven.

This study grew out of Glazer's laboratory's previous findings that low oxygen stress to cells can cause changes in expression of many human genes, sometimes boosting, and sometimes reducing expression. "We had found a few years ago that hypoxia reduces expression of BRCA1, and so I had the idea to ask whether it could drive silencing of the gene," says Glazer.

Hypoxia is common in human tumors, partly because newly emerging tumors lack blood vessels. "They become hypoxic because they don't get enough blood," says Glazer. As they enlarge, they begin to grow blood vessels, in a process known as angiogenesis. But "that process is never perfect, so tumors have a very variable and incomplete blood supply," says Glazer. "That makes them more genetically unstable, and helps drive them towards more malignant properties," he adds, citing earlier work by his laboratory.

The silencing could be a first step towards cancer, but Glazer thinks it more likely is a later step, since without the tumor, the hypoxia that drives gene silencing is less likely to occur, says Glazer.

Understanding the mechanism of reduced expression would open the way to research that could lead to strategies for interfering with the gene silencing. What we know so far: the mechanism for the silencing involves the histones, proteins that wrap around the chromosomes when they are silent, but which unwrap around genes that are being expressed. Glazer showed that the silencing of BRCA1 is accompanied by a change in the histones, called methylation, which is frequently seen when gene expression is reduced.

"We then found that one particular enzyme, called lysine demethylase [LSD1] is manipulating the methylations," says Glazer. Finding a way to block that enzyme could lead to reactivating BRCA1, he says, noting that this might be done by finding a small molecule that inhibits that enzyme's activity. Such a drug might reactivate other tumor suppressors as well, he says.

Glazer thinks that cell stress in general caused by hormones or environmental toxins may lead to silencing BRCA1, and he plans to investigate that hypothesis.

Molecule

Indian origin scientist finds molecule to block breast cancer spread (World Newspapers: 23.8.2011)

An Indian origin scientist and his colleagues have discovered a molecule that blocks the development and spread of breast cancer.

According to the researchers, the "naturally-occurring molecule" "clamps" on to a cancer-causing protein, preventing it from working.

It is now hoped a drug could be developed to mimic the molecule, which was first discovered in bacteria. The research was carried out at Cancer Research UK's Cambridge Research Institute.

One of the main challenges is to stop the cancer before it spreads to other parts of the body, making it far harder to treat. But now, scientists have identified a molecule known as thiostrepton that stops a protein FOXM1, which is found in increased levels in breast cancer cells, from working.

It attaches to certain areas of DNA and turns on genes that regulate the growth and division of cells, producing tumours. It then causes those tumours to spread, even triggering the growth of blood vessels to supply them with nutrients.

Although designing drugs is a huge challenge, the discovery will allow researchers to create molecules that mimic thiostrepton but are even more effective at blocking the effects of FOXM1.

“This naturally-occurring molecule doesn’t have all the right properties to be used as a treatment itself,” the Daily Express quoted the lead author of the research, Professor Shankar Balasubramanian, as saying.

“But this exciting discovery paves the way for the design of more potent and selective drugs based on the structure of thiostrepton,” added Balasubramanian.

The research has been published in the journal Nature Chemistry.

Breast cancer

Breakthrough offers hope in breast cancer fight (The Tribune: 24.8.2011)

A naturally occurring molecule in bacteria can block the development of breast cancer, scientists have discovered, paving the way for the design of more potent and selective drugs.

The molecule, thiostrepton, clamps FOXM1, a cancer-causing protein, is present in greater amounts in breast cancer cells. It switches on genes regulating the growth and division of cells, causes tumours to spread and triggers the growth of blood vessels.

Blocking this protein may prevent the development of cancer at an early stage as well as blocking its growth and spread according to the study published in Nature Chemistry. Its lead author, Professor Shankar Balasubramanian, based at Cancer Research UK in Cambridge, said: “Before this research we weren’t aware of any natural product which could directly target a protein that controls gene activity. Yet intriguingly a molecule in bacteria — which also has strong antibiotic effects — does this very well, switching off cancer-causing genes in breast cancer cells.”

Dr Lesley Walker, the organisation’s director of cancer information, said: “It’s fascinating to discover how a simple bacteria could hold the key to powerful new approaches to treat breast cancer developing and spreading.”

Meanwhile a cancer drug which extends the lives of melanoma sufferers but costs £72,000 for one course of treatment for each patient, goes on the market today in the UK. Ipilimumab (brand name Yervoy) is the first new treatment for advanced melanoma, the most deadly form of skin cancer, since the 1970s. There are more than 10,000 cases of melanoma a year and 2,000 deaths.

Ipilimumab boosts the immune system and has been shown in trials to extend the lives of patients with metastatic melanoma (which has spread to other organs) by about 10 months. In a trial, 46 per cent of patients were still alive at one year compared with 25 per cent prescribed a different treatment.

The National Institute for Clinical Excellence is considering whether to recommend the drug, made by Bristol Myers Squibb, for use by the NHS.

Hereditary Breast and Ovarian Cancer Gene

Key Function of Mutation in Hereditary Breast and Ovarian Cancer Gene Discovered (Science Daily: 6.9.2011)

It is widely known that mutations in the breast cancer susceptibility 1 (BRCA1) gene significantly increase the chance of developing breast and ovarian cancers, but the mechanisms at play are not fully understood. Now, researchers at Virginia Commonwealth University Massey Cancer Center have shown that certain BRCA1 mutations result in excessive, uncontrolled DNA repair, which challenges the prior assumption that mutations in BRCA1 only contribute to breast cancer through a reduction in function.

Recently published in the journal *Aging*, the study led by Kristoffer Valerie, Ph.D., discovered that certain BRCA1 mutations affecting the BRCA1 C-terminal (BRCT) binding site resulted in excessive DNA repair, or hyper-recombination, which may contribute to the development of breast and ovarian cancers. The BRCT domain is a protein binding site typically found on DNA repair proteins like BRCA1 that are responsible for maintaining genomic stability and facilitating DNA repair. This study has implications for the treatment, diagnosis and development of therapies for patients with breast and ovarian cancer.

"Our findings suggest that caution should be exercised when targeting BRCA1 for breast and ovarian cancer therapies," says Valerie, co-leader of the Radiation Biology and Oncology program and a professor in the Department of Radiation Oncology at VCU Massey Cancer Center. "We need to better understand the biological mechanisms that lead to the development of breast and ovarian cancer before we attempt to attack it through targeted therapies aimed at causing DNA damage."

When DNA damage occurs, various forms of BASC (BRCA1-associated genome surveillance complex) bind to the BRCT domain on BRCA1. BASC is a protein complex that in part binds to the BRCT domain and serves as a "docking site" for other proteins and enzymes to come in, effectively repair the DNA damage and leave when repair is completed. However, certain BRCT mutants unable to bind to BASC disrupt the delicate DNA repair process. Previously, it was assumed this meant that BRCA1 was unable to assist with the repair process and, thus, recombination did not occur.

Valerie and his colleagues showed through experiments with cultured breast cancer cells and tissue samples from breast cancer patients that BRCT mutants increased ubiquitination of BASC, which, in turn, increased recombination several-fold over normal levels. Ubiquitin is a small protein in all living organisms that "marks" other proteins for

degradation or, as more recently discovered, the participation in specific cellular processes such as recombination. The researchers proposed that the hyper-recombination resulting from increased ubiquitination of the BASC might result in improperly repaired DNA and increased genomic instability, which could lead to the development and aggressive progression of breast and ovarian cancers.

"Our results point to ubiquitination as a potential therapeutic target," says Valerie. "By disrupting ubiquitination we may be able to prevent hyper-recombination and stop the growth of cancer cells with these BRCT mutations. This might sensitize the cancer cells to radiation therapy while having little effect on cells with normal BRCA1 function." The researchers hope to continue studying the role of BRCA1 in DNA double-strand break repair in order to determine whether the mutations they examined are important for the onset of cancer and whether targeted therapies can be developed.

Valerie collaborated on this study with Seth M. Dever, Ph.D., Sarah E. Golding, Ph.D., Elizabeth Rosenberg, M.S., Bret R. Adams, Michael O. Idowu, M.D., M.P.H., John M. Quillin, Ph.D., C.G.C., Nicholas Valerie, and Lawrence F. Povirk, Ph.D., from Virginia Commonwealth University, and Bo Xu, M.D., Ph.D., from The Methodist Hospital in Houston, Texas.

Funding for this study was provided by the National Institutes of Health.

Breast Cancer

Newly Discovered Protein Discovered May Suppress Breast Cancer Growth (Science Daily: 15.9.2011)

Research led by Dr. Suresh Alahari, the Fred Brazda Professor of Biochemistry and Molecular Biology at LSU Health Sciences Center New Orleans and its Stanley S. Scott Cancer Center, has found that a protein discovered by his laboratory can inhibit the growth of breast cancer cells.

The research is published September 14, 2011 online in the Journal of the National Cancer Institute.

Building upon Dr. Alahari's earlier discovery of nischarin, a novel protein that regulates breast cancer cell migration and movement, this current study examines the presence and levels of nischarin in breast cancer tumor tissue from 300 women as well as normal breast tissue samples. The researchers also generated derivatives of human metastatic breast cancer cells to test by manipulating the protein in a mouse model.

"We found that normal human breast tissue samples had statistically significantly higher levels of nischarin compared with tumor tissue samples," notes Dr. Alahari, "and tumors grew significantly faster in the cells where we blocked the production of nischarin. Tumor growth and metastasis were also reduced in the samples where we manipulated the overproduction of nischarin. Our research shows that nischarin can function as a tumor suppressor of breast cancer, inhibiting breast cancer progression."

The research team also describes the regulation of nischarin and reports the genetic mechanism by which this protein suppressed breast tumor growth, information that could be used to target new treatment approaches.

Excluding skin cancer, breast cancer is the most common type of cancer among women in the United States. The National Cancer Institute estimates 230,480 new cases among American females this year, and 2,140 among men in the US, with 39,520 deaths in women and 450 deaths in men.

Risk factors include aging, weight gain, combined hormone therapy, physical inactivity, and consumption of one or more alcoholic beverages per day. A family history increases risk, as does never having had children or having a first child after age 30. Mammography can often detect breast cancer at an early stage when treatment options are greatest and a cure is possible.

"Next steps include determining whether nischarin controls some of its tumor suppressor roles through regulation of the pathways we reported in this paper," concludes Dr. Alahari, "and these studies are already underway."

The LSUHSC research team also included Dr. Robin McGoey, Associate Professor of Pathology, as well as postdoctoral fellows, Drs. Somesh Baranwal, Yanfang Wang, Rajamani Rathinam, and Lianjin Jin. Researchers from Duke University and Memorial Sloan Kettering Cancer Center also contributed.

The research was supported by grants from the National Institutes of Health, the Susan Komen Foundation, the Louisiana Board of Regents, and the Louisiana Cancer Research Consortium.

Breast Cancer

Poor and Old Hispanic Women More Likely to be Operated for Breast Cancer (Med India: 23.9.2011)

A recent U.S study has revealed that the disadvantaged and old Hispanic women are more likely to be operated for breast cancer.

During the study, researchers found that nearly one third of 18000 women who had undergone mastectomy for early stage breast cancer had got the lymph nodes under the armpit surgically removed.

Cancer had not spread beyond the breast for these women.

The study showed that women in the lower socio economic group were getting unnecessary surgery done, especially when the cancer had not spread.

"There are surgeons that choose not to do it, and there are patients that don't know it's better. The take-home message for patients and surgeons is, you have to be educated about the downstream consequences of the surgery you choose to do," researchers said

Breast Cancer

Another Step toward Resisting Breast Cancer (Science daily; 26.9.2011)

Medical researchers at the University of Leeds have come a step closer to understanding how to stop breast cancers from coming back.

Their findings, published in the International Journal of Cancer, suggest that some novel drugs that are being developed to tackle other cancers should be considered as a future treatment for breast cancer too.

Hormone therapies, such as tamoxifen, that target a protein responsible for tumour growth, have dramatically improved the treatment of breast cancer. Survival rates have improved considerably for patients whose breast cancer is spotted at an early stage and many patients with advanced disease can now have a much better quality of life.

But hormone therapies do not work in all patients and the tumours continue to grow and spread. In other patients, the hormone therapies work well at first but then their cancer often develops resistance and the tumour starts to grow again.

Leeds researchers have now pointed the finger at a key protein that they believe helps breast cancer to become resistant to hormone treatments. Laboratory studies on breast cancer tissue revealed that resistant tumours contained excessive levels of a protein known as FGFR3. Levels of this protein were much, much lower in tumours that had responded to hormone treatment. This suggests an important link between FGFR3 and resistance to hormone treatment.

"The options available for treating breast cancers that return are relatively limited at the moment. It is therefore of utmost importance to identify the factors that cause this resistance to help promote the development of novel drugs that can be used to target recurrent breast cancers," said Dr Darren Tomlinson, lead author of the research.

"Drugs are currently being made to target this protein -- FGFR3 -- in other types of cancers. Our work suggests that these drugs could potentially be made available to treat some breast cancers too and help tackle this problem of resistance.

"Similar work has already been done on different proteins that belong to the same family. We've added to this research by identifying a further family member. If drugs could be developed to target these different family members, then in the future, patients could be given a personalised treatment programme, depending on how their particular cancer was trying to evade the hormone therapy," he said.

The work is very encouraging. We know that resistance to breast cancer is complex, so identifying the proteins involved brings us closer to understanding how to prevent breast cancer from coming back," said Dr Valerie Speirs, the study's principal investigator.

Cervical Cancer

Cervical Cancer

Research Says Modeling Disparities may help with Cervical Cancer Prevention (Med India: 9.9.2011)

A study published online September 6 in the Journal of the National Cancer Institute says that explicit inclusion of disparities in cost-effectiveness analysis, would allow policy makers to identify strategies that would reduce overall cancer risk, reduce disparities between racial ethnic subgroups, and be cost-effective.

Disease simulation models can be used to identify effective and cost-effective strategies for reducing overall cancer incidence and mortality, but are sometimes criticized for not considering how the benefits are distributed within the population. Advances in computer-based modeling, together with the availability of better data, allows details to now be included that account for inequalities between different population subgroups.

To provide a framework for how health inequities could be more explicitly considered in model-based cost-effectiveness analysis, Sue J. Goldie, MD, MPH, and Norman Daniels, Ph.D., of the Harvard School of Public Health, devised a typology of cancer disparities among black, white, and Hispanic populations in the United States that differentiated inequalities resulting from different factors, such as access and quality of treatment and prevention. They used this typology to guide an evaluation of different cervical cancer screening and vaccination strategies in which the health and economic outcomes were calculated for the average population, and also for the three racial subgroups separately.

The researchers identified strategies that reduced the overall risk of cervical cancer from 60% to 74.5%, and that improved cancer outcomes in all racial subgroups. However, they also found that the benefits were unequally distributed; for example, while current screening patterns would result in a 60% reduction in overall cancer incidence, reductions ranged from 54.8% for Hispanic women to 62.5% for white women.

Lung cancer

Lung cancer

Lung cancer linked to stroke risk: (The Times of India: 23.9.2011)

People recently diagnosed with lung cancer are at a higher risk of having a stroke than those without lung tumors, according to a Taiwanese study. The risk was highest during the first three months after a lung cancer diagnosis for men and during the first four-to-six months for women. They also found that a less common type of stroke —hemorrhagic stroke — occurred more often among the lung cancer patients .

Lung cancer

Exposure to goats linked to rare lung cancer (New Kerala: 26.9.2011)

People who work with goats are exposed to greater risks of a rare lung cancer, says a new research.

The study has linked exposure to goats with a distinct subset of lung cancer, known as pneumonic-type lung adenocarcinoma (P-ADC).

"Scientists have noticed similarities between P-ADC and a contagious viral infection in sheep before," said Nicolas Girard from the Louis Pradel Hospital, Hospices Civils de Lyon, France, who led the study.

Girard and colleagues investigated whether a viral agent found in sheep and goats could be easily transferred to people who work with the animals, leading to risk for P-ADC, according to a Louis Pradel statement.

The study involved 44 patients with P-ADC and 132 disease free participants. All of them were asked about risk factors including their smoking status, their personal history of cancer and their exposure to goats.

The results showed that people who worked with goats during their lifetime were five times more likely to get P-ADC compared with other types of lung cancer.

Ovarian cancer

Ovarian cancer

Soon, test for ovarian cancer (The Times of India: 9.8.2011)

Coming soon: A simple test for ovarian cancer, say scientists. A team at the Institute of Cancer Research claims that the test could be available within two years, thanks to the "landmark" discovery of a single faulty gene which increases a woman's risk of ovarian cancer sixfold.

Women with the gene have a one in 11 chance of getting the disease. The discovery paves the way to a diagnostic test which could be available within two to three years, the 'Daily Express' reported.

Ovarian cancer

Simple ovarian cancer test to be available in 2 yrs (The Tribune; 10.8.2011)

London: The "landmark" discovery of a single faulty gene, which increases a woman's risk of ovarian cancer six-fold, has paved the way for a simple diagnostic test that could be available in two years. Women with the gene have a one in 11 chance of getting the disease, and they generally have a one in 70 chance of developing it. Each year around 6,500 new cases of ovarian cancer are reported in the UK and more than 4,000 women die from it. It has few early symptoms and is often diagnosed at a late and dangerous stage. "There is real hope on the horizon that drugs specifically targeted to the gene will be available," the Daily Express quoted study author Nazneen Rahman of the Institute of Cancer Research, as saying.

Ovarian Cancer

Discovery of Gene Fusion in Ovarian Cancer Could Lead to Earlier Diagnoses (Science Daily: 21.9.2011)

About 15 percent of cases of an aggressive, difficult-to-detect form of ovarian cancer contain a unique fusion between two neighboring, normally separate genes, say researchers at the Stanford University School of Medicine. Although gene fusions are known to occur in prostate and some blood cancers, they have been notoriously difficult

to identify in solid tumors. This is the first recurrent gene fusion found for ovarian cancer.

The finding is important because it could give clinicians an edge as they scramble to develop a better screening test for serous ovarian cancer, which accounts for about 50 percent of all cases but about 80 percent of all deaths from this type of cancer. If further research shows that the protein product of the gene fusion circulates in the blood, it may be possible one day to detect in early stages of the cancer.

Furthermore, if the fusion protein -- which marries a portion of a gene-regulatory protein related to the estrogen receptor and another of unknown function -- initiates or contributes to cancer progression it could be a target for future therapies.

"This kind of genetic lesion -- a chromosomal rearrangement involving pairs of genes located near one another on the same chromosome -- can escape detection by any of the methods traditionally used to detect chromosome rearrangements in cancer," said biochemistry professor Patrick Brown, MD, PhD. "But I think these local rearrangements that have previously flown under our radar might actually turn out to be among the most frequent genetic lesions in cancer."

Brown, a Howard Hughes Medical Institute investigator and a member of the Stanford Cancer Institute, is the senior author of the study, which will appear in the Sept. 20 issue of PLoS Biology. Research associates Julia Salzman, PhD; Robert Marinelli, PhD; and Peter Wang, MD, PhD, are co-first authors.

Gene fusions, where a portion of one gene is swapped with a portion of another, have been previously identified in other cancers. In particular, a fusion between two genes on chromosomes 9 and 22 (also known as the Philadelphia translocation) occurs in nearly all people with chronic myelogenous leukemia and is used to diagnose the disease. And recently, gene fusions involving a family of important regulatory genes have been found in a large fraction of prostate cancers.

Gene fusions are interesting because many proteins are modular -- for example, containing discrete "domains" responsible for binding to DNA or other proteins. Hybrid proteins arising from such mix-and-match fusions may have unique functions that contribute to the development or progression of a cancer cell. Because these proteins are unique to the cancer cell, clinicians might also be able to also look for their presence in normal blood, which could be a more effective method than the current approach that uses other, less-sensitive markers for ovarian cancer that are also found in normal blood. Early detection of serous ovarian cancer is particularly important. Every year about 14,000 women in the United States are killed by ovarian cancers, many of which are of the serous type. Serous cancers are especially deadly because they usually metastasize before they are diagnosed.

A previous study by Brown's lab indicated that it is necessary to be able to detect tumors of this type of cancer when they are only about the size of a peppercorn in order to make a significant dent in mortality. This is about 200 times smaller than those detectable by

the current diagnostic methods. Encouragingly, though, the previous analysis also indicated that it takes about four years before these tiny tumors metastasize and become life-threatening.

Building on their previous study, Brown, Salzman, Marinelli and Wang set out to find tumor-specific, recurrent (that is, the same fusion occurs in many cases of the tumor) biomarkers in 67 tumor samples collected by the Pacific Ovarian Cancer Research Consortium, the Fred Hutchinson Cancer Research Center and the British Columbia Cancer Agency. They focused on gene fusions because they can be highly detectable if the protein product circulates in the blood. But to do so, they had to rely on the latest in sequencing technology to "read" the RNA messages that carry protein-making instructions from the DNA to the cell's machinery.

"We began looking for biomarkers in ovarian cancer by using a recently developed technique called deep paired-end sequencing," explained Salzman. "This allowed us to catalogue all the RNA in a pool of 12 tumors and look for unusual combinations that don't exist in normal tissue. We identified several potential gene fusions, but one looked particularly interesting because it involved a protein called ESRRA, or estrogen-related receptor alpha."

The researchers took note because ESRRA has been linked in some cases to a poor prognosis in breast cancer. In the newly identified fusion, a portion of ESRRA's DNA-binding region is melded to the end of a neighboring protein of unknown function called C11orf20.

Pooling the tumors allowed the researchers to identify which potential fusion events occurred in more than one tumor sample. When they analyzed individual tumors, they found the ESRRA-C11orf20 fusion in 10 of 67 patient samples -- a prevalence of about 15 percent, and far greater than any previously identified in this cancer. A closer look at the DNA of two of the tumors showed that the gene fusion was the result of a chromosome rearrangement in the cancer cells, rather than occurring during the step in which DNA is transcribed into RNA.

"It's potentially the case that this fusion is an early event in the cancer," said Salzman, a statistician by training who developed a new algorithm to analyze potential fusion events in the messy background of the cancer cell. "If so, it's possible that it could be used as a biomarker for the cancer before it has become clinically apparent, or that we can learn more about what causes the cancer by studying what we expect will be a new protein product."

In addition to identifying and learning more about the putative fusion protein, the researchers plan to investigate whether the presence of the fusion correlates with the clinical outcome of the patients in which they occur. It will be important to determine whether the protein, which has not yet been identified, is detectable in circulating blood -- a characteristic that would greatly aid its use as a screen for asymptomatic women.

The study was funded by the Canary Foundation, the National Cancer Institute and Howard Hughes Medical Institute.

Ovarian cancer

Early symptoms of ovarian cancer can help beat disease(The Tribune: 21.9.2011)

A new study led by an Indian-origin researcher has claimed that recognising early symptoms of ovarian cancer can assist in early detection of the disease. Diljeet Singh, MD and co-director of the Ovarian Cancer Early Detection and Prevention Program at Northwestern Memorial Hospital, says that the best defence against ovarian cancer is to make use of preventive methods, understand the risks and recognize potential warning signs of the cancer. “Currently, there is no reliable screening test to identify early ovarian cancer. Women need to focus on good health habits, listen to their bodies and tell their doctor if a change occurs,” he said.

Prostate Cancer

New Prostate Cancer

New Prostate Cancer Screening Test Shows Promise for Diagnosis (Science Daily: 26.8.2011)

A new prostate screening test developed by AnalizaDx, Inc., a Cleveland-based biotech company, and studied by researchers at the Seidman Cancer Center at University Hospitals (UH) Case Medical Center along with colleagues at the Cleveland Clinic, the Veterans Administration Boston Healthcare and the National Cancer Institute, may prove to be a promising new tool in the diagnosis of prostate cancer.

The study which will be published in the September issue of Urology found that this new screening test, the PSA/SIA assay, may be more sensitive in detecting prostate cancer than traditional screening methods.

"This has the potential to be a major advance in the development of more accurate tests for prostate cancer diagnosis," says Mark Stovsky, MD, Principal Investigator and lead author of the study, urologist at UH Case Medical Center and Associate Professor of Urology at Case Western Reserve University School of Medicine. "Prostate cancer is the most common cancer in men but traditional screening is not very accurate. This test provides a new way to look at prostate cancer diagnosis utilizing a novel biological assay which differentiates PSA molecular structures arising from cancer versus non-cancerous glands."

The accuracy of traditional prostate cancer screening (serum prostate-specific antigen or PSA) is limited by both relatively high false positive and false negative rates. Current diagnostic strategies that use total PSA to determine the need for biopsy demonstrate false positive rates of approximately 55-75 percent. This finding can therefore lead to unneeded prostate biopsies and unnecessary worry in patients. Additionally, the serum PSA test carries, in some studies, false negative rates of up to 15 percent, meaning that some men with 'normal' PSA values actually have cancer. What is needed is a test that can more accurately predict the presence of prostate cancer on biopsy.

Working with AnalizaDx, Inc., Dr. Stovsky and colleagues studied a urine-based test that works differently than most prostate screening methods by using a novel assay to separate PSA protein structures as being linked to either a 'cancer' or 'non-cancer' pathologic diagnosis based on ultrasound guided biopsy. Instead of attempting to find a single genetic biomarker which predicts the presence of cancer, the PSA/SIA assay is based on the assumption that there may be myriad different ultra-structural changes in the PSA protein which define the cancer phenotype. The authors theorize that the extremely

high sensitivity of the test is the result of the ability of the PSA/SIA biological filter to categorize the myriad ultra-structural changes in the PSA protein as being made by either cancer versus non-cancer glands. The PSA/SIA assay was also found to have relatively high specificity (low false positive) results compared to the traditional serum PSA test.

The initial study, which followed 222 men, found that the new screening method had 100% sensitivity (no false negative results) and 80.3% specificity (low false positive results). The study data was collected at three clinical sites -- UH Case Medical Center, VA Boston and Cleveland Clinic, and was analyzed at the National Cancer Institute.

"This new assay is a complete departure from how the scientific community has looked at biomarkers for cancer," says Arnon Chait, CEO of AnalizaDx, Inc. "Instead of just measuring levels of proteins, we are exploring changes in structure which are associated with cancer. This new method of diagnosing cancer truly has significant potential for other types of cancer as well."

The technology will be tested in further clinical research studies to determine its accuracy in serum as well as its ability to predict cancer grade/aggressiveness and the response to curative intent therapies. Study coauthors include Lee Ponsky, Srinivas Vourganti, Peter Stuhldreher, Mike Siroky, Victor Kipnis, Olga Fedotoff, Larissa Mikheeva, Boris Zaslavsky, Arnon Chait and J. Stephen Jones. The study is dedicated to the late Martin Resnick, MD, who served as the original Principal Investigator of this work and was Chairman of the Department of Urology at UH Case Medical Center and Case Western Reserve University School of Medicine.

Prostate cancer

High intake of calcium raises risk for prostate cancer (The Tribune: 21.9.2011)

A new study has found that high intake of calcium causes prostate cancer among African-American men who are genetically good absorbers of the mineral. "High dietary intake of calcium has long been linked to prostate cancer but the explanation for this observation has been elusive," said Gary G. Schwartz, associate professor of cancer biology, urology, and public health sciences at Wake Forest Baptist and co-author on the study. Schwartz and colleagues from the Keck School of Medicine at the University of Southern California (USC) and the Cancer Prevention Institute of California studied 783 African-American men living in the San Francisco and Los Angeles areas, 533 of whom were diagnosed with prostate cancer. Their study found that men who reported the highest intake of calcium were two times more likely to have localised and advanced prostate cancer than those who reported the lowest.

Prostate Cancer

Prostate Cancer - New Finding (Med India: 30.9.2011)

Levels of prostatic intraepithelial neoplasia (PIN) could allow for a more precise prognosis for prostate cancer, suggests study published in Cancer Epidemiology, Biomarkers & Prevention.

The researchers evaluated men with localized prostate cancer diagnosed following a surgical procedure to treat benign prostatic hyperplasia. Of these men, 228 died of prostate cancer and 387 were diagnosed with prostate cancer, but were still alive after 10 years. Those with PIN were 89 percent more likely to die of prostate cancer.

Even after accounting for age, Gleason score, year of diagnosis, inflammation and type of focal atrophy present, PIN still managed to independently predict the lethality of a given tumor. There was also a suggestion that the degree of chronic inflammation adjacent to the tumor could predict lethal outcome.

"Identifying features surrounding the tumor that can predict prognosis, such as the presence of PIN or inflammation, can improve our understanding of the biology of aggressive prostate cancer and help to guide clinical decision-making," said Rider. The study was funded by the United States Department of Defense, the National Institutes of Health, the Prostate Cancer Foundation and the Swedish Cancer Society.

Tumor

Tumor Growth

Role of Telomeres in Tumor Growth (Med India: 6.9.2011)

The presence of alternative lengthening of telomeres (ALT) in bladder cancer, cervical cancer, esophageal cancer, liver and lung cancer was published in the journal The American Journal of Pathology. Presence of ALT can be used as a diagnostic marker in the development of anti-cancer drugs.

Telomeres are nucleoprotein complexes located at the ends of chromosomes. During normal cell division, these telomeres become shorter with each division, potentially resulting in cell death. In some cancers, however, this shortening is counteracted by the ALT mechanism, thus allowing the unlimited growth of the cancer cells.

"The present study offers a springboard to guide future investigations in larger cohorts that specifically focus on the tumor types exhibiting ALT to more precisely determine the prevalence and potential prognostic value of this phenotype," commented lead investigator Christopher Heaphy, PhD, a postdoctoral research fellow at The Johns Hopkins School of Medicine.

"These results may have therapeutic consequences, given that cancers using the ALT pathway are predicted to be resistant to anti-telomerase therapies, some of which have entered phase I/II clinical trials. Further understanding of the molecular mechanisms of ALT will be paramount in designing novel anti-cancer therapeutics targeting cancers utilizing the ALT pathway," observed corresponding author Alan K. Meeker, PhD, Assistant Professor of Pathology at Johns Hopkins.

Meeker and co-investigators have assessed the prevalence of the ALT mechanism in a wide range of human cancer subtypes. Analyzing 6,110 tumor samples from 94 different cancer subtypes, 541 benign neoplasms, and 264 normal tissue samples, researchers found that the overall prevalence of the ALT phenotype was 3.73%. It was not observed in benign neoplasms or normal tissues.

Neuroendocrine Tumors

Efficiency of Radionuclide Therapy for Neuroendocrine Tumors (ed India: 26.9.2011)

A peptide based radio-labeled therapy is effective in decreasing tumor size and reducing the severity of side effects that accompany a cancer diagnosis, finds research published in The Journal of Nuclear Medicine. While many neuroendocrine cancers are incurable, they grow relatively slowly, and life expectancy is relatively long, making quality of life an important factor in treatment

In particular, the study "Quality of Life in 265 Patients with Gastroenteropancreatic or Bronchial Neuroendocrine Tumors Treated with [177Lu-DOTA0,Trp3]Octreotate" focused on gastroenteropancreatic or bronchial neuroendocrine tumors. These tumors are relatively rare neoplasms that derive from the neuroendocrine system; they affect approximately 1-2.5 individuals per 100,000. Since they often have unpredictable biological behavior, the time from discovery to final diagnosis of the tumors is frequently delayed.

"In patients with gastroenteropancreatic or bronchial neuroendocrine tumors, median progression-free survival after therapy with 177Lu-octreotate is 40 months. Such a survival is promising only if the years that are gained are free of serious side-effects or symptoms that affect quality of life," said Saima Khan, MD, lead author of the study. "We showed that the years gained after this therapy show an improved quality of life, as judged by the patients themselves, according to a validated questionnaire. Moreover, this type of treatment lacks most of the serious adverse events and symptoms that are typical with chemotherapeutic agents."

For the study, 265 patients with gastroenteropancreatic or bronchial neuroendocrine tumors were treated with the radiolabeled pharmaceutical 177Lu-octreotate. Follow-up visits were scheduled at fixed time points: six weeks, three months and six months after the last treatment cycle and biannually thereafter. In addition to imaging scans and blood work, patients also completed the European Organisation for Research and Treatment of Cancer quality of life questionnaire—which measures levels of fatigue, nausea plus vomiting, pain, shortness of breath, insomnia, appetite loss, constipation and diarrhea, as well as physical, emotional, role, cognitive and social functioning—at each visit. A baseline questionnaire also was completed prior to therapy.

Vascular Cancer

Research Gives New Hope to Those With Rare Vascular Cancer (Science Daily: 9.9.2011)

A specific genetic alteration has been discovered as a defining feature of epithelioid hemangioendothelioma (EHE), a rare but devastating vascular cancer. These findings have also been used to develop a new diagnostic test for this blood vessel disease.

An international research effort led by Brian Rubin, M.D., Ph.D., of Cleveland Clinic's Pathology and Laboratory Medicine Institute and Lerner Research Institute, devised an innovative approach to reveal the genetic alteration thought to cause EHE, which is considered uncommon: it comprises less than one percent of all cancers. There are approximately 100 new cases in the U.S. each year.

The genetic aberration was detected in 89 percent (42 of 47) of EHE tumor tissues examined; none of the non-EHE vascular tumors contained the anomaly. The research, published in the Aug. 31, 2011, issue of Science Translational Medicine, was done in collaboration with Cleveland Clinic's Taussig Cancer Institute.

The authors defined the genetic aberration as a "translocation" between chromosomes 1 and 3, where chromosomes 1 and 3 exchange DNA fragments in such a way that the DNA is "transposed" onto opposite chromosomes. The result is that the swapped DNA encodes a unique, fused gene that contains components from each chromosome. Since genes are translated into proteins, the result of this unique gene is a correspondingly unique protein, whose function is deduced to be oncogenic (cancer-causing).

"This finding is the beginning of a new era for patients with EHE," said Dr. Rubin. "We firmly believe that the characterization of this genetic translocation will lead to a cure for EHE patients."

Identification of translocations in cancers is critical to understanding the molecular pathways at work within cancer cells. Understanding these molecular pathways allows cancer researchers to target them with specific drugs to disrupt the cancer. Thus, finding this translocation in EHE is a gateway to curing this cancer; using the techniques reported here may likewise provide breakthroughs for other cancers as well.

Depression

‘WHO says India a depressed nation?’ (The Times of India: 1.8.2011)

A World Health Organisation study may claim that India has the highest number of depressed people but the country's leading mental health institution — the National Institute of Mental Health and Neuro Sciences (Nimhans) — has debunked the theory.

WHO's figures could be 'highly inflated' and they see very few severe depression patients. "Most people who come to the tertiary mental health care centre have moderate to mild forms of depression" is their argument. The WHO-sponsored study concluded that while around 9% of people in India reported having an extended period of depression within their lifetime, nearly 36% suffered from what is called Major Depressive Episode (MDE).

But Dr S K Chaturvedi, professor and head of the department of psychiatry, Nimhans, told TOI: "The figures in the study are highly inflated. There could be a methodological problem. If the criteria they are going by is based on the western populations, then it's not suitable for India. In practice, we see few cases of MDE. This is because the strong social support system and the family structure acts as a defence. This is not the case in the west."

Kids' anxiety, depression

Parents can halve kids' anxiety, depression(New Kerala: 1.8.2011)

The right match between parenting style and child's personality can practically halve depression and anxiety symptoms in school children. But mismatches can lead to twice as many depression and anxiety symptoms.

University Washington psychologists found this during a three-year study, the Journal of Abnormal Child Psychology reports.

"This study moves away from the one-size-fits-all approach to parenting, and gives specific advice to parents on how to mitigate their child's anxiety and depression," said Cara Kiff, psychology resident at the University of Washington School of Medicine.

"We're considering characteristics that make children vulnerable to anxiety and depression, and factoring in how that shapes how kids react to different parenting approaches," said Kiff, who led the study, according to a Washington statement.

"We hear a lot about over-involved parents, like 'tiger moms' and 'helicopter parents,'" said study co-author Liliana Lengua, psychology professor at Washington.

"It is parents' instinct to help and support their children in some way, but it's not always clear how to intervene in the best way," added Lengua.

Kiff, Lengua and Nicole Bush -- co-author and postdoctoral fellow at University of California, San Francisco -- studied interactions between 214 children and their mothers during interviews at home.

An almost even mix of boys and girls participated in the study and were, on average, six years old when the study began

Depression

Depression Linked to Increased Risk of Stroke in Women (Science Daily: 12.8.2011)

Depressed women may face an increased risk of stroke, according to new research reported in Stroke: Journal of the American Heart Association.

In six years of follow-up of women in the Nurses' Health Study, researchers found that a history of depression was associated with a 29 percent increased risk of total stroke -- even after considering other stroke risk factors. Women who used anti-depressant medication -- particularly selective serotonin reuptake inhibitors -- had a 39 percent increased risk of stroke. Examples of these drugs are Prozac, Zoloft, and Celexa.

Anti-depressant medication use may be an indicator of depression severity, said Kathryn Rexrode, M.D., the study's senior author and Associate Physician at Brigham and Women's Hospital in Boston, Mass. "I don't think the medications themselves are the primary cause of the risk. This study does not suggest that people should stop their medications to reduce the risk of stroke."

Researchers followed 80,574 women 54 to 79 years old in the Nurses' Health Study from 2000-06 without a prior history of stroke. They assessed depressive symptoms multiple times with a Mental Health Index. Anti-depressant use was reported every two years beginning in 1996, and physicians diagnosed depression beginning in 2000.

Depression was defined as currently reporting or having a history of depression.

The reported prevalence of depression at baseline in the women was 22 percent, and 1,033 stroke cases were documented during six years of follow-up.

Compared to women without a history of depression, depressed women were more likely to be single, smokers and less physically active. They were also slightly younger, had a higher body mass index and more coexisting conditions such as high blood pressure, heart disease and diabetes.

"Depression can prevent individuals from controlling other medical problems such as diabetes and hypertension, from taking medications regularly or pursuing other healthy lifestyle measures such as exercise," said Rexrode, who is also Assistant Professor of Medicine at Harvard Medical School. "All these factors could contribute to increased risk."

Depression may be associated with an increased risk of stroke through a variety of mechanisms. It may be linked to inflammation, which increases the risk of stroke as well as other conditions or underlying vascular disease in the brain, said An Pan, Ph.D., lead author of the study and a research scientist at the Harvard School of Public Health. "Regardless of the mechanism, recognizing that depressed individuals may be at a higher risk of stroke may help the physician focus on not only treating the depression, but treating stroke risk factors such as hypertension, diabetes and elevated cholesterol as well as addressing lifestyle behaviors such as smoking and exercise."

Among limitations of the study, the participants were predominantly white registered nurses, it excluded women without detailed information on depression measures and the participants with onset of stroke at a young age.

"We cannot infer cause or fully exclude the possibility that the results could be explained by other unmeasured unknown factors," Pan said. "Although the underlying mechanisms remain unclear, recognizing that depressed women may be at a higher risk of stroke merits additional research into preventive strategies in this group."

Depression childhood

Study links persistent depression to childhood abuse (World Newspaper: 16.8.2011)

Doctors treating people for depression should delve into the childhoods of their patients before prescribing, because a history of mistreatment has a significant impact on their illness and ability to recover, scientists said on Monday.

Researchers who conducted a combined analysis of 26 studies involving more than 23,000 people found that those who suffered maltreatment as children were twice as

likely as those who had normal childhoods to develop persistent and recurrent depression -- one of the world's most common and costly mental illnesses.

Those who had stressful or abusive childhoods were also less likely to be helped with drug or psychological treatment, the analysis found, suggesting doctors and scientists should look for new kinds of treatments and ways of intervening earlier.

"Identifying those at risk of multiple and long-lasting depressive episodes is crucial from a public health perspective," said Andrea Danese of the Institute of Psychiatry (IoP) at King's College London, who led the study.

Danese said the study showed that prevention and early intervention measures to target childhood maltreatment could prove vital in helping prevent the major global health problem.

"Knowing that individuals with a history of maltreatment won't respond as well to treatment may also be valuable for clinicians in determining patients' prognosis," he added.

Depression is a major cause of mortality, disability, and economic burden worldwide and the World Health Organisation predicts that by 2020, depression will be the second leading contributor to the global burden of disease across all ages.

In Britain, experts say it affects at least one in 10 people at any one time and can lead to long-term sick leave, relationship breakdown or unemployment. According to a 2006 study, depression is responsible for 100 million lost working days a year in England and Wales alone at a cost of 9 billion pounds (\$14.6 billion).

Danese, whose study was published in the American Journal of Psychiatry on Monday, told a briefing that previous research has found that people who were maltreated as children also have biological scars from those experiences.

Around one in 10 children worldwide is exposed to maltreatment including psychological, physical or sexual abuse or neglect and as a result abnormalities can show up in biological areas that are particularly sensitive to stress, such as the brain and the immune system, he said.

These biological changes could potentially explain why depressed people with a history of maltreatment are less likely to respond well to treatment and may give clues for research aimed at finding more effective treatments, the scientists said.

"Whilst we still do not know exactly what type of treatment may improve the care of maltreated individuals, it may be that new treatments based on the biological vulnerabilities associated with childhood maltreatment could prove an exciting avenue for research," said Rudolf Uher, also of the IOP, who worked with Danese on the research.

A study published earlier this month found that childhood hardship, including suffering abuse or losing a parent or having a parent with addiction problems, also raised the risk of a range of chronic physical illnesses in later life, such as diabetes, heart disease or asthma.

Depressed mothers

Kids born to depressed mothers have different brains (World Newspapers: 17.8.2011)

Children of depressed mothers have a different brain, a new study has found.

A Canadian team has discovered that the brain is sensitive to the quality of care received during childhood.

Dr. Sonia Lupien and her colleagues from the University of Montreal worked with ten-year-old children whose mothers exhibited symptoms of depression throughout their lives, and discovered that the children's amygdala, a part of the brain linked to emotional responses, was enlarged.

Similar changes, but of greater magnitude, have been found in the brains of adoptees initially raised in orphanages. Personalized attention to children's needs may be the key factor.

Scientists have established that the amygdala is involved in assigning emotional significance to information and events, and it contributes to the way we behave in response to potential risks. The need to learn about the safety or danger of new experiences may be greater in early life, when we know little about the world around us.

“Having enlarged amygdala could be protective and increase the probability of survival,” Lupien said.

The study was recently published in the Proceedings of the National Academy of Sciences.

Depression

‘Super mums’ more likely to be victims of depression (The Tribune: 24.8.2011)

London: Working mothers who expect that a successful career and family life can be blended with relative ease, are more likely to become depressed than women who accept they “cannot do it all”, according to a new research. They become frustrated when they fail to measure up to their own expectations.

“Women are sold a story that they can do it all, but most workplaces are designed for employees without child-care responsibilities,” the Daily Express quoted sociologist Katrina Leupp of Washington University as saying. In reality, juggling home and work requires some sacrifice such as cutting back on work hours and persuading husbands to help more, she said. “You can happily combine child rearing and a career, if you are willing to let some things slide,” Leupp said.

She analysed responses to a survey of 1,600 stay-at-home and working mothers, all married, who answered questions about work-life balance. When the women reached the age of 40, Leupp measured their levels of depression and found the stay-at-home mothers had more symptoms of depression than the working ones. There was some truth to the adage that “stay-at-home mums have the hardest job in the world”, she concluded.

Depression

Juggling Home and Career Leaves Many Women Depressed (Med India: 6.9.2011)

The number of depressive episodes has risen among women especially among those aged 16 to 42.

Women carry a 2.6 times higher risk of suffering depression as compared to men. High pressure jobs, raising babies, and managing home put women in a tight spot. When coping become hard, it leaves them emotionally drained out and also depressed. This is a sign that they need help.

Men also go through anxiety but may not verbalize their emotions, and hence many cases may go undiagnosed, reveal experts.

Depression

Depression associated with increased risk of dying from stroke (New Kerala: 21.9.2011)

An analysis of nearly 30 studies including more than 300,000 patients has found that depression is associated with a significantly increased risk of developing stroke and dying from stroke.

An Pan, Ph.D., of the Harvard School of Public Health, Boston, and colleagues conducted a systematic review and a meta-analysis of prospective cohort studies to describe the association between depression and risk of total and subtypes of stroke.

The researchers conducted a search of the medical literature and identified 28 prospective cohort studies that met criteria for inclusion in the analysis. The studies, which included 317,540 participants, reported 8,478 stroke cases during a follow-up period ranging from 2 to 29 years.

The researchers found that when the data from the studies were pooled, analysis indicated that depression was associated with a 45 percent increased risk for total stroke; a 55 percent increased risk for fatal stroke; and a 25 percent increased risk for ischemic stroke. Depression was not associated with an increased of hemorrhagic stroke.

The researchers speculate that depression may contribute to stroke through a variety of mechanisms, including having known neuroendocrine (relating to the nervous and endocrine systems) and immunological/inflammation effects.

Poor health behaviours (i.e., smoking, physical inactivity, poor diet, lack of medication compliance) and obesity; having other major comorbidities, such as diabetes and hypertension, both of which are major risk factors for stroke; and antidepressant medication use, which may contribute to the observed association.

“In conclusion, this meta-analysis provides strong evidence that depression is a significant risk factor for stroke,” the article stated.

“Given the high prevalence and incidence of depression and stroke in the general population, the observed association between depression and stroke has clinical and public health importance,” it added.

Diseases

Diseases

Fatigue Syndrome

Role of exercises in managing fatigue syndrome (Tribune: 8-6-2011)

Individuals visiting clinics with chronic shifting pains are often not taken seriously. Diagnosis could also be frustrating and is usually arrived at by exclusion.

Fibromyalgia or the chronic fatigue syndrome is more prevalent than is commonly thought of. This condition is characterised by widespread pain and stiffness in the muscles, joints and tendons. The disease afflicts millions of people, particularly females, between the age of 30 and 35 years. Family members are irritated by constant complaint and nagging regarding pain by the patient.

The pain experienced is genuine, although there is no localised inflammation or damage to the tissues. The durations of symptoms may vary from months to years. No specific tests are available to diagnose this condition. Treatment is done on the basis of the presence of tender spots on different parts of the body. Slightest pressure on these tender points leads to pain and distress.

Pain all over the body, particularly on pressing the bones, could also be due to calcium/vitamin D deficiency, especially in menopausal women. It is believed that the symptoms due to fibromyalgia may be owing to some chemical changes in the brain, the history of past injury, certain viral/bacterial infection, sleep disturbances, etc. Some symptoms indicate thyroid hormone disease, rheumatoid arthritis, neuropathies, etc. Among such symptoms are muscular pain, anxiety and sleep disorder.

Treatment is a combination of medication and physical therapy. It is important to encourage patients to have a positive attitude which helps in early recovery. Analgesics, muscle relaxants and anti-anxiety drugs help in reducing pain and improve sleep.

Some doctors believe that exercises may worsen the symptoms. So, patients are advised rest. The fact is that exercises play a major role in the treatment of fibromyalgia. Exercises strengthen muscles, provide sound sleep and improve the overall sense of well-being. Aerobic exercises improve the functioning of the heart and lungs, leading to a decrease in blood pressure, the cholesterol level, etc. Due to inactivity (because of pain and fatigue) exercises should be initiated slowly and increased gradually so that the body gets acclimatised.

A vigorous exercise programme and over-exertion can make the symptoms worse. Starting with three to five minutes of low impact aerobic exercises like walking, cycling and swimming, increase these by one minute per session every third or fourth day until one exercise is done for a period of 20 to 30 minutes.

Ideally, the exercises should be done up to 40 minutes at least three times a week. But one should not try to meet unrealistic goals. Stretching exercises as in yoga help in improving flexibility, reducing joint and muscle stiffness, etc. Here are some exercises:

Low back stretch-Lying on the back with the knees bent, press the lower back against your bed. Repeat five times and then pull both knees to the chest. Hold for five seconds and release slowly. Repeat ten times Shoulder rolls Raise the shoulders five times, then squeeze them first in front and then in the back five times.

While standing breathe in deeply and slowly, raise your arms upwards as high as possible. Then bring the arms straight to the sides. Repeat this five times. Neck Stretch Hold the right side of the head with the left hand. Gently pull it towards the left shoulder. Repeat on the other side. Leg lifts Lying in side on the position, raise and lower each leg 10 times.

Deep breathing exercises and meditation help in reducing the stress level. When suffering from fibromyalgia, having a positive attitude and following a regular exercise regimen can prevent pain, anxiety and many other problems.

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Disease

Lab –on –a-chip could help detect disease in minutes (The Asian Age: 1.8.2011)

Researchers tested prototypes of the creditcard-sized lab-on-a-chip with hundreds of patients in Rwanda, reporting nearly 100 per cent accuracy

MARLOWE HOOD ARIS July 31: A cheap, highly portable blood test has proven as accurate as expensive hospital-based analyses in detecting HIV, syphilis and other infectious diseases, according to a study released Sunday.

Researchers tested prototypes of the creditcard-sized lab-on-a-chip with hundreds of patients in Rwanda, reporting nearly 100 per cent accuracy.

The so-called “mChip”, they said, could help knock down three barriers to effective delivery of health care into the world’s poorest regions: difficult access, high costs and

long delays for results. “The idea is to make a large class of diagnostic tests accessible to patients in any setting in the

world, rather than forcing them to go to a clinic to draw blood and then wait days for their results,” said Samuel Sia, a professor at Columbia University and lead developer. The findings were published in Nature Medicine.

With a projected production cost of a dollar per unit, the mChip would be far cheaper to administer than current lab-based tests.

Because it can scan for multiple proteins, each corresponding to a disease, at the same time with a single blood sample, it is probably even cheaper — and more accurate — than strips which work like storebought pregnancy tests.

“Current rapid HIV tests require subjective interpretation of band intensity by the user that can result in false positives,” that is, healthy individuals being misdiagnosed, the study noted.

Gum Disease

Gum Disease Can Increase the Time It Takes to Become Pregnant (Science daily: 1.8.2011)

Professor Roger Hart told the annual meeting of the European Society of Human Reproduction and Embryology that the negative effect of gum disease on conception was of the same order of magnitude as the effect of obesity.

Periodontal (gum) disease is a chronic, infectious and inflammatory disease of the gums and supporting tissues. It is caused by the normal bacteria that exist in everyone's mouths, which, if unchecked, can create inflammation around the tooth; the gum starts to pull away from the tooth, creating spaces (periodontal pockets) that become infected. The inflammation sets off a cascade of tissue-destructive events that can pass into the circulation. As a result, periodontal disease has been associated with heart disease, type 2 diabetes, respiratory and kidney disease, and problems in pregnancy such as miscarriage and premature birth. Around 10% of the population is believed to have severe periodontal disease. Regular brushing and flossing of teeth is the best way of preventing it.

Prof Hart, who is Professor of Reproductive Medicine at the University of Western Australia (Perth, Australia) and Medical Director of Fertility Specialists of Western Australia, said: "Until now, there have been no published studies that investigate whether gum disease can affect a woman's chance of conceiving, so this is the first report to suggest that gum disease might be one of several factors that could be modified to improve the chances of a pregnancy."

The researchers followed a group 3737 pregnant women, who were taking part in a Western Australian study called the SMILE study, and they analysed information on pregnancy planning and pregnancy outcomes for 3416 of them.

They found that women with gum disease took an average of just over seven months to become pregnant -- two months longer than the average of five months that it took women without gum disease to conceive.

In addition, non-Caucasian women with gum disease were more likely to take over a year to become pregnant compared to those without gum disease: their increased risk of later conception was 13.9% compared to 6.2% for women without gum disease. Caucasian women with gum disease also tended to take longer to conceive than those who were disease-free but the difference was not statistically significant (8.6% of Caucasian women with gum disease took over one year to conceive and 6.2% of women with gum disease).

Information on time to conception was available for 1,956 women, and of, these, 146 women took longer than 12 months to conceive -- an indicator of impaired fertility. They were more likely to be older, non-Caucasian, to smoke and to have a body mass index over 25 kg/m². Out of the 3416 women, 1014 (26%) had periodontal disease.

Prof Hart said: "Our data suggest that the presence of periodontal disease is a modifiable risk factor, which can increase a woman's time to conception, particularly for non-Caucasians. It exerts a negative influence on fertility that is of the same order of magnitude as obesity. This study also confirms other, known negative influences upon time to conception for a woman; these include being over 35 years of age, being overweight or obese, and being a smoker. There was no correlation between the time it took to become pregnant and the socio-economic status of the woman.

"All women about to plan for a family should be encouraged to see their general practitioner to ensure that they are as healthy as possible before trying to conceive and so that they can be given appropriate lifestyle advice with respect to weight loss, diet and assistance with stopping smoking and drinking, plus the commencement of folic acid supplements. Additionally, it now appears that all women should also be encouraged to see their dentist to have any gum disease treated before trying to conceive. It is easily treated, usually involving no more than four dental visits.

"The SMILE study was one of the three largest randomised controlled trials performed in Western Australia. It showed conclusively that although treatment of periodontal disease does not prevent pre-term birth in any ethnic group, the treatment itself does not have any harmful effect on the mother or fetus during pregnancy."

Prof Hart said that the reason why pregnancies in non-Caucasian women were more affected by gum disease could be because these women appeared to have a higher level of inflammatory response to the condition.

Diseases

Hospital report rise in diseases (The Hindustan Times: 2.8.2011)

Almost all Out Patient Departments (OPDs) across Delhi hospitals are getting at least two-three cases of gastroenteritis and hepatitis A infections daily.

“The situation is usually bad this time of the year but this year particularly several patients are complaining of dirty water supply in their areas,” said a doctor from the department of medicine at Aiims.

A person falls sick by drinking polluted water either directly or by use of such water in cooking, washing or for other personal purposes. The microorganisms of these diseases multiply in the body and the infection is excreted with the person's stool or urine. Situation at Delhi government's biggest hospital Lok Nayak is no different.

“Although we haven't seen many typhoid cases this season, diarrhoea, jaundice and gastroenteritis patient load is huge,” said a doctor at Lok Nayak, wishing to remain anonymous. “We are asking patients not to self-medicate. Most cases are that of viral infection, which needs re-hydration treatment besides lots of rest. Only bacterial infections like typhoid need antibiotics,” said the doctor.

Private hospitals are also getting their share of cases with symptoms of water-borne infections in equally high number.

“Children less than five years of age are more prone to diarrhoea as they tend to consume water while brushing or bathing,” said Dr Rahul Nagpal, head of department of paediatrics at Max Healthcare.

“I see at least three people in a day who complain of diarrhoea and vomiting. Most of them test positive for jaundice,” said Dr Suranjit Chatterjee, senior consultant, internal medicine at Indraprastha Apollo Hospital.

Doctors at Fortis Hospital at Vasant Kunj are also receiving two-three cases of gastrointestinal infections. Records from a single OPD last week showed five cases of jaundice. Faridabad, too, has been witnessing a sharp rise in gastroenteritis cases.

Emerging Diseases

Virus Discovery Helps Scientists Predict Emerging Diseases (Science Daily: 23.9.2011)

Fresh insight into how viruses such as SARS and flu can jump from one species to another may help scientists predict the emergence of diseases in future. Researchers have shown that viruses are better able to infect species that are closely related to their typical target species than species that are distantly related.

Their results suggest that when diseases make the leap to a distant species -- such as bird flu infecting humans -- they may then spread easily in species closely related to the new victim, regardless of how closely related these are to the original target species.

Scientists from the Universities of Edinburgh and Cambridge looked at how relationships between species might determine the spread of an important group of emerging diseases, known as RNA viruses. This group of diseases includes HIV, SARS and flu.

By infecting more than 50 species of flies with three different viruses, the researchers showed that species closely related to a virus's usual target species were more susceptible than distantly related flies. They also showed that groups of flies that were closely related were similarly susceptible to the same viruses.

The study, funded by the Biotechnology and Biological Sciences Research Council, Natural Environment Research Council, the Wellcome Trust and the Royal Society, was published in the journal PLoS Pathogens.

Dr Ben Longdon of the University of Edinburgh's School of Biological Sciences, who led the study, said: "Emerging diseases such as SARS, HIV and some types of flu have all got into humans from other species. Understanding how diseases jump between different species is essential if we want to predict the appearance of new diseases in the future."

Disease season

In disease season, some new steps, one old obstacle (The Indian Express: 26.9.2011)

The encephalitis season has peaked again in eastern Uttar Pradesh and Bihar, the Centre has stepped up research and the UP government has sanctioned funds for a long-term treatment plan. Yet the original problem remains — identifying the exact virus behind a syndrome that sees patients testing negative for Japanese encephalitis, but which has been killing thousands, mostly children, year after year since 2006.

The season usually continues till the middle of October. Around 300 patients, 260 of them children, have already died in UP due to what has come to be known as acute encephalitis syndrome, or AES. Over 2,100 cases of patients with such symptoms have been registered from eastern Uttar Pradesh; 125 of these later turned out to be of Japanese encephalitis, which has caused 14 of the 300 deaths. Bihar has had 130 cases with 33 deaths. There have been 800 cases and 130 deaths of patients from Assam, too, but about half those cases have been of Japanese encephalitis, which is preventable by vaccination.

Experts of the National Institute of Mental Health and Neuro Sciences, Bangalore, have taken samples of cerebral spinal fluid from AES patients from all three states.

For UP, Chief Minister Mayawati has announced the construction of a separate, 100-bed special ward for Japanese encephalitis at BRD Medical College in Gorakhpur, sanctioning Rs 18 crore. For now, an 80-bed ward at the hospital has been reserved for AES/JE cases, eight ventilators worth Rs 2 crore will be acquired, and Rs 2 crore has been sanctioned for strengthening of the pediatric ward, with diploma seats in the medical college's child health department raised from three to ten. The government has also ordered installation of more hand-pumps for clean water in affected areas.

The hospital's pediatric ward is overcrowded, with about 470 patients on 180 beds till the weekend. The proportion of lab-confirmed Japanese encephalitis cases is less than six per cent of the total that have been registered as AES.

Till 2006, Japanese encephalitis had been taken to be the primary killer. After the introduction of a vaccine in 2006, JE appeared to have been brought under control but patients continued to show encephalitis-type symptoms, the syndrome often leading to death, though very few of them tested positive for JE.

There is no specific medicine yet for AES. Preventive vaccination is available only for JE and doctors continue to give symptomatic treatment to AES patients against convulsions and kidney failure, and to help keep their respiratory track clear since most patients are admitted in a semi-conscious state.

"All experts now feel that the need is to bring about changes in the lifestyle and basic hygiene among people because a majority of the patients are affected with entero-viruses, which are contagious. Installation of some hand-pumps will not help because the population coverage would remain small. Still, a large population depends on contaminated sources of drinking water and defecate in the open. Until these practices are stopped, it would be difficult to control the spread of the disease," said K P Kushwaha, head of the pediatric department at the medical college. He has been handling encephalitis patients for three decades.

The health department has deputed five extra doctors at the medical college to manage just encephalitis cases. "The NIMHANS experts have told us that they have developed

some new technique, where they can test a sample for over five-six viruses at a time within eight hours. We are hopeful that some results will come this time,” Kushwaha said.

Dr R N Singh, a private practitioner who has written letters in blood to the President and the Prime Minister on the subject, stressed the need for a national eradication program for encephalitis. With Assembly elections approaching, he said he would urge parties to include this in their agendas.

A senior state health official said the percentage of deaths is down slightly this year and the positivity of JE cases has decreased. “The best preventive measures are being planned and we hope they will be effective. An awareness drive has been taken up, even pradhans have been educated about basic hygiene; new handpumps have been provided. Chlorine tablets are being distributed and fogging is taking place.”

However, some experts say that such efforts start after the peak season begins in the end of July, and are not continued round the year.

From Bihar, state surveillance officer A K Tiwari said, “Central officers have visited affected districts like Gaya, Aurangabad and Nawada and collected some samples. But they have been doing similar exercises for many years without any results. We cannot be sure about the preventive measures that we can take because we are not sure about the virus.”

Acute encephalitis syndrome, or AES, became an expression widely used by doctors. Not all cases, it was found, were caused by JE virus. As per WHO, “Clinically, a case of AES is defined as a person of any age, at any time of year with the acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma, or inability to talk) or new onset of seizures (excluding simple febrile seizures).”

2008: New laboratory

NIV established a field laboratory on premises of BRD Medical College, Gorakhpur. NIV senior scientist Dr M M Gore researching there since. The same year, AES cases showed rising presence of entero-viruses that enter through oral-faecal route; research began to identify the exact entero-virus causing this from among hundreds.

2009: Vaccine controversy

State refused to use about 16 lakh doses of encephalitis vaccine meant for routine immunisation, saying their efficacy was doubtful. The previous year, 6 lakh doses had been wasted over allegations that they were ineffective after heat exposure. Dr R N Singh, private practitioner, wrote in blood to the Prime Minister to draw his attention to the outbreak.

2010: Fresh round

This time, it was vaccines meant for a special campaign. Centre asked UP to use previous year's leftovers, UP refused. Later, Centre agreed to send 25 lakh fresh doses and special vaccination took place seven districts — in November 2010, after the JE season had ended.

2011: No let-up

In eastern UP so far, over 2,000 cases, over 300 deaths; only 125 confirmed JE cases and 14 such deaths. Of 1,925 deep-bore hand-pumps to ensure clean water, promised in Gorakhpur, Mahrajganj, Deoria and Kushinagar, only 375 installed.

AIDS-HIV

AIDS control programme

Slowdown hits India's AIDS control programme (Business Standard: 5-7-2011)

THE global meltdown has started to hurt India's AIDS control programme. India may have to cough up more internal resources to finance the next phase of its AIDS control programme, as international donor agencies, which footed 75 per cent of the `11,585-crore expenditure in the third phase, are unwilling to commit funds.

Health Minister Ghulam Nabi Azad said the agencies were hesitant to make any commitments in the wake of the global economic slowdown. "Some of them hinted that they may not be able to support at all, while others were not willing to commit funds for the fourth phase of the National AIDS Control Programme that begins from April 1, 2012," Azad told Business Standard .

He had met representatives of the external donors like World Bank, World Health Organisation, United Nations Children's Fund, Clinton Foundation, UNAIDS, etc, during the recently concluded UN General Assembly Session on HIV/AIDS at New York.

Speaking on the sidelines of a national convention of zila parishad chairpersons and mayors on HIV/AIDS in New Delhi today, Azad said he had written to Prime Minister Manmohan Singh, seeking assurance of financial aid if external fund flow declined. "The requirement will not be known now. It depends on the commitments that will come from the external funding agencies. What we need now is to maintain the speed of our AIDS control measures. We are cruising along now, and I want this to continue, irrespective of the external fund flow," Azad said.

Of the `11,585-crore allocation for the five years ending on March 31, 2012, `2,861 crore came through budgetary support. The balance came from international donor agencies.

According to Azad, there has been a decline in prevalence of infection to 0.31 percent, resulting in a 50 per cent reduction in newer infections in the last decade (from 270,000 in 2000 to 120,000 in 2009) due to concerted efforts put in by the National AIDS Control Programme since 1992. BS REPORTER New Delhi, 4 July

STOPPING short of direct funding commitments, Prime Minister Manmohan Singh has hinted that India's acquired immune deficiency syndrome (AIDS) control initiatives

should continue without any complacency. He called for a multi-sectoral approach and greater integration of resources in dealing with response to HIV/AIDS.

Inaugurating the National Convention of Parliamentarians, Legislators, Zila Parishad Chairpersons and Mayors on HIV/AIDS, organised by the Forum of Parliamentarians on HIV/AIDS here today, Singh wanted all ministries to have “human immunodeficiency virus (HIV) sensitive” policy and programmes so that the marginalised populations infected and affected by HIV/AIDS are not denied the benefits of such schemes.

“Linkages should be made between the HIV/AIDS programmes and the Mahatma Gandhi National Rural Employment Guarantee Programme to facilitate employment of HIV-positive persons. Nutritional needs of HIV positive people, especially women and children, should be tackled by linking them with Integrated Child Development Services and other developmental schemes,” he added.

Speaking on the occasion, Michel Sidibe, executive director, Joint United Nations Programme on HIV/AIDS (UNAIDS) complimented India for the historic progress and turn around achieved in controlling the epidemic.

He said the country needs to work towards a vision of zero new infections, zero discrimination and zero deaths on account of AIDS.

United Progressive Alliance Chairperson Sonia Gandhi urged the MPs, the zila parishad members, the mayors and members of the state legislatures to provide necessary support to supplement the government’s efforts in combating AIDS.

The two-day national convention is an effort to sensitise opinion makers and seek their commitment and support in dealing with the HIV epidemic at all levels.

Multi-sectoral approach needed to fight HIV:PM

Prime Minister Manmohan Singh looks on as UPA Chairperson Sonia Gandhi lights a lamp to inaugurate the National Convention of Parliamentarians, Legislators, Zila Parishad Chairpersons and Mayors on HIV/AIDS in New Delhi on Monday. PHOTO: PTI

Linkages should be made between the HIV/AIDS programmes and the Mahatma Gandhi National Rural Employment Guarantee Programme to facilitate employment of HIV positive persons

MANMOHAN SINGH

Prime Minister

What we need now is to maintain the speed of our AIDS control measures. We are cruising along now, and I want this to continue irrespective of the external fund flow

GHULAM NABI AZAD

Health Minister

HIV

HIV-infected, recycled syringes sting Kolkata (The Times of India: 2.8.2011)

Kolkata: It is wobbly with a crooked needle and a depressed piston. The tip looks blunt, the cap is loose and the tube has a pale exterior. 'For single use only', says the instruction printed on the syringe but it looks far from a fresh one, safe enough for use. And it is not the only one which doctors at SSKM Hospital in Kolkata suspect to have been recycled from clinical wastes that are routinely dumped in the hospital backyard.

Hundreds of syringes, saline bottles, blood bags, slides and other medical equipment — all recycled — are believed to have infiltrated SSKM through a network that has been active for some years. The result could be disastrous and might have started taking effect already, fear doctors.

TOI got hold of a syringe bearing lot number 11071 bought by the hospital in June. Tightly wrapped in a transparent packet, it looks like any other syringe. But, the piston is unsteady and loose while the needle is blunt. "It is clear that this is a recycled product and could be carrying deadly germs. Hepatitis B is the most common virus that recycled instruments like these could be carrying. Even HIV can't be ruled out," said Rezaul Karim, a senior faculty at the hospital.

The recycled syringes are mixed up with new ones in a batch. "It's a fifty-fifty mix so you don't know what you are going to get," said a doctor. Ironically, the genuine ones were priced lower — at Rs 7 per piece — as against the recycled variety that cost Rs 7.10. It's not just syringes that are being recycled. Slides for collecting blood samples are regularly found to have been used before. The stains on recycled slides are a giveaway but they are not easy to spot. But doctors don't fail to notice them. "Blood reports are likely to be inaccurate if these slides are used. We often advise patients to get slides from College Street instead of buying them from shops around the hospital," said Karim.

SSKM authorities admit to an inefficient disposal system. The waste is dumped in an open space behind the superintendent's office and remains uncollected till 11am. "We do try and put them into three separate bags as per the norm. The agency which collects the waste is at fault as well. They don't collect the waste in time," said Provash Chakrabarty, medical superintendent of the hospital. The waste is taken to Dhapa where they are sold at slums on the city's Basanti Expressway and Tangra-Topsia Road, off EM Bypass. Here, the reusable parts are segregated and sent to fringe areas like Mahishbathan, Dum Dum and Garia for cleaning. From there, the recycled wastes make their way to the "manufacturing" units at Burrabazar where they are repackaged and sold back to retailers.

Virus that kills HIV-infected cells

Virus that kills HIV-infected cells created (World Newspapers: 10.8.2011)

A USC scientist has created a virus that hunts down HIV-infected cells, which could herald a breakthrough toward curing the disease.

Dr Pin Wang's lentiviral vector latches onto HIV-infected cells, flagging them with what is called "suicide gene therapy" — allowing drugs to later target and destroy them.

"If you deplete all of the HIV-infected cells, you can at least partially solve the problem," said Wang, chemical engineering professor with the USC Viterbi School of Engineering.

The lentiviral vector approach to targeting HIV has the advantage of avoiding collateral damage, keeping cells that are not infected by HIV out of harm's way.

Wang said such accuracy has not been achieved by using drugs alone.

So far, the lentiviral vector has only been tested in culture dishes and has resulted in the destruction of about 35 percent of existing HIV cells.

HIV

From cold to HIV, this drug can fight any viral infection (The Times of India: 12.8.2011)

London: In what might be the greatest medical discovery since penicillin, scientists have developed a broad-spectrum drug which they claim can cure everything — from the common cold to HIV to almost any other virus one can think of.

A team of researchers at the the Massachusetts Institute of Technology in the US created the drug, known by the acronym DRACO, which homes in on infected cells and makes them self-destructive .

Its hit list includes human rhinoviruses — the bugs that causes colds in adults and in children — flu, polio, a stomach bug and deadly dengue fever.

But DRACO is also expected to zap measles and German measles, cold sores, rabies and even HIV — and could be on pharmacy shelves in a decade, the Daily Mail reported.

Lead researcher Mike Rider said, “It’s certainly possible that there’s some virus that we aren’t able to treat but we haven’t found it yet.” In lab tests, DRACO killed 15 viruses. It also saved the lives of mice given a dose of flu that would have killed them.

HIV Infection

How HIV infects healthy T cells and leads to the development of AIDS (New Kerala: 25.8.2011)

The specific process by which the HIV virus infects healthy T cells was unknown, until now.

However, a George Mason University researcher team has now finally revealed the process, with the principal investigator, HIV researcher Yuntao Wu, saying that he hopes this breakthrough will start a new line of inquiry into how researchers can use this knowledge to create drugs that could limit or halt HIV infection.

The study outlined a new understanding on how T cells—which are the target cells that the HIV virus infects—move and migrate when hijacked by the virus.

“The discovery adds to our understanding of how HIV initiates the infection of human T cells, which leads to their eventual destruction and the development of AIDS,” said Wu, a professor of molecular and microbiology at Mason.

Researchers and doctors have known for some time that the HIV virus, rather than directly killing healthy T cells, actually hijacks them. This eventually leads to their destruction. So the virus essentially turns the infected T cells (also known as CD4T cells or helper T cells) into a factory for creating even more HIV. Learning more about how the cells are infected could be a key step toward figuring out how to stop infection altogether.

The researchers discovered that LIM domain kinase, or LIMK triggers a cell to move, almost acting like a propeller. This cell movement is essential for HIV infection. This discovery marks the first time that a research team has uncovered the involvement of LIMK in HIV infection.

Building upon these results, the researchers then used a drug to trigger similar LIMK activation and found that it increased infection of T cells. Of course, the researchers ultimately want to decrease the infection of T cells—so they worked backwards and found something very promising.

“When we engineered the cell to inhibit LIMK activity, the cell became relatively resistant to HIV infection,” said Wu.

In other words, the researchers engineered human T cells that were not easily infected by HIV. This finding suggests that, in the future, drugs could be developed based on LIMK inhibition.

The study has been published in the Journal of Biological Chemistry.

HIV/ AIDS

Overcoming barriers through technology (The Hindu: 5.9.2011)

Can technology help surmount the major barriers to effective learning of HIV/AIDS — cultural and sociological?

This question took founder and CEO of TeachAIDS Piya Sorcar, on her journey, being chronicled here.

Ms. Sorcar decided that it could, and set to developing interactive software to educate children on HIV in a way that is sensitive to the country's cultural mores. Today, the National AIDS Control Organisation has master copies of her work being distributed nationwide. The software has also been distributed in States, where other forms of sex education are banned, she says.

“In 2005, while I was doing my master's [followed by my Ph.D.] at Stanford, I came across several reports noting that India was the next hot zone for HIV/AIDS. We conducted our own Stanford Institutional Review Board-approved study among high school and college students in India, and our findings corroborated the previous research,” she says.

The software uses video, interactive menus and voiceovers to understand the issue. The simple tutorial voiced by Shabana Azmi and Shruti Hassan (<http://teachaids.org/software>) starts with “the premise that prevention is better than no cure.” While Ms. Azmi is the voice of the friendly doctor, Ms. Hassan is the young person looking for answers.

Fifteen complete versions will be available in a few months. The base curriculum, which de-couples HIV/AIDS education from the traditional sex education, is similar in all versions. “We take a biology-based approach to explaining the transmission of the virus. All the videos can be accessed for free from either our website or our YouTube channel. Anyone can download the materials or replicate them by emailing us at info@teachaids.org.”

The software can optimise learning and retention, regardless of the knowledge or comfort level of the educator. Where the educator is highly knowledgeable or has access to a medical or health expert, the software can be used as a supplementary tool to reiterate key concepts and messages. The animation can simply be played in the classroom to impart

comprehensive and accurate knowledge to learners. “We have an entire team of world-class medical experts who have vetted the accuracy of the materials.”

The ‘Interactive’ version allows users to interact with the animations through question/answer sessions.

This option is ideal for individuals or small groups operating the animation on a computer. The “Linear” version plays the animation straight through. This is ideal for projecting the animation to groups.

“Through in-depth interviews with young people and educators I realised that there were many images, words, or actions which are not acceptable in cultures. We got around those taboos by using euphemisms or indirect illustrations, which our research indicated were culturally acceptable — yet still, unambiguous and clear,” Ms. Sorcar explains.

The earlier tests, which used pictures from the traditionally-used AIDS education materials, revealed that the students were highly uncomfortable with images depicting various modes of transmission. For instance, a relatively small reduction in the amount of skin exposed on a picture of a woman breastfeeding greatly improved comfort. After building the revisions into the animations, a field study in India revealed that 98 per cent of young people felt comfortable with the software.

Various schools in Gujarat, Maharashtra, Goa and West Bengal are already using this.

AIDS

Researchers Team with Glowing Cats Against AIDS, Other Diseases; New Technique Gives Cats Protection Genes (Science Daily: 12.9.2011)

Mayo Clinic researchers have developed a genome-based immunization strategy to fight feline AIDS and illuminate ways to combat human HIV/AIDS and other diseases. The goal is to create cats with intrinsic immunity to the feline AIDS virus. The findings -- called fascinating and landmark by one reviewer -- appear in the current online issue of Nature Methods.

Feline immunodeficiency virus (FIV) causes AIDS in cats as the human immunodeficiency virus (HIV) does in people: by depleting the body's infection-fighting T-cells. The feline and human versions of key proteins that potentially defend mammals against virus invasion -- termed restriction factors -- are ineffective against FIV and HIV respectively. The Mayo team of physicians, virologists, veterinarians and gene therapy researchers, along with collaborators in Japan, sought to mimic the way evolution normally gives rise over vast time spans to protective protein versions. They devised a way to insert effective monkey versions of them into the cat genome.

"One of the best things about this biomedical research is that it is aimed at benefiting both human and feline health," says Eric Poeschla, M.D., Mayo molecular biologist and leader of the international study. "It can help cats as much as people."

Dr. Poeschla treats patients with HIV and researches how the virus replicates. HIV/AIDS has killed over 30 million people and left countless children orphaned, with no effective vaccine on the horizon. Less well known is that millions of cats also suffer and die from FIV/AIDS each year. Since the project concerns ways introduced genes can protect species against viruses, the knowledge and technology it produces might eventually assist conservation of wild feline species, all 36 of which are endangered.

The technique is called gamete-targeted lentiviral transgenesis -- essentially, inserting genes into feline oocytes (eggs) before sperm fertilization. Succeeding with it for the first time in a carnivore, the team inserted a gene for a rhesus macaque restriction factor known to block cell infection by FIV, as well as a jellyfish gene for tracking purposes. The latter makes the offspring cats glow green.

The macaque restriction factor, TRIMCyp, blocks FIV by attacking and disabling the virus's outer shield as it tries to invade a cell. The researchers know that works well in a culture dish and want to determine how it will work in vivo. This specific transgenesis (genome modification) approach will not be used directly for treating people with HIV or cats with FIV, but it will help medical and veterinary researchers understand how restriction factors can be used to advance gene therapy for AIDS caused by either virus.

The method for inserting genes into the feline genome is highly efficient, so that virtually all offspring have the genes. And the defense proteins are made throughout the cat's body. The cats with the protective genes are thriving and have produced kittens whose cells make the proteins, thus proving that the inserted genes remain active in successive generations.

HIV+ve insurance

Give HIV+ve insurance cover, says IRDA (The Times of India: 16.9.2011)

‘Patients Shouldn’t Be Denied Insurance for Ailments Not Directly Related To HIV’

HIV positive (AIDS) patients should not be denied insurance cover for other diseases they have, Insurance Regulatory and Development Authority (IRDA) chief, J Hari Narayan said on Thursday.

“Insurance cover will not be given for HIV disease but for other ailments, which are not directly related to that disease and this inclusion of HIV patients in insurance cover will

happen,” Narayan said. He urged insurance companies to reconsider the reasons for excluding of HIV+ patients from getting cover.

The IRDA on Tuesday had announced guidelines giving insurance companies directions on portability. According to the new guidelines, any customer, dissatisfied with the services of his insurance company, has the option to switch to another company and carry his track record.

“There are no issues considering health insurance portability with the insurance companies and we have got assurances from all of them. It will surely come into effect from October 1,” Narayan said on the sidelines of a health insurance summit organized by the CII.

Elaborating on the health portability scheme, Narayan said that only two things would be allowed to be carried forward. One, the time already spent in covering the pre-existing disease in one policy would be given credit and a policy holder will have the right to transfer no-claim bonus.

However, the premium of the scheme will not be carried forward and would be decided by the new company. The new company would decide the coverage details of the scheme.

The regulator is also looking into the issue of allowing banks to sell insurance products of more than one player.

“The committee on bancassurance has recommended that banks be permitted with two insurance companies. Right now they can tie up with only one. But the issue is that there are certain weaknesses in current bank insurance companies. We are looking into whether the recommendations of the committee will check these gaps,” said Narayan.

HIV cases

HIV cases going down says study (The Asian Age: 30.9.2011)

After reporting a major downfall, the prevalence of HIV is found to be going further down in most of the districts in India -a new study has suggested. In a first of its kind, Integrated Behavioral and Biological Assessment (IBBA) national summary report, conducted among populations of most at risk of contracting HIV by the Indian Council of Medical Research (ICMR) and FHI 360/India, has revealed an “improvement” in most parts of the country in tackling the spread of fatal virus. The study was conducted among female sex workers and their clients, men having sex with men (MSM), Injecting Drug Users (IDU) and long-distance truck drivers to measure the major outcomes of HIV interventions funded by Gates Foundation under the India AIDS initiative (Avahan). The experts conducted two rounds of study — between 2005 and 2007, and second round

between 2009 and 2010 — in the six high-prevalence states of India covering 19 districts from Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Manipur and Nagaland. The analysis of both the rounds showed that usage of condoms during commercial sex acts has increased considerable across the states.

Alzheimer

Alzheimer

Scientists hone in on new approaches for AD diagnosis and treatment (New Kerala: 4-7-2011)

London, Jul 4 : A new research has shown that a little-studied amyloid peptide could play a greater role in promoting Alzheimer's disease (AD), suggesting a potential role in new approaches for preventing AD-causing amyloidosis.

One hypothesis that has attracted widespread support proposes that AD is caused by the buildup of the senile plaques, and in particular of their main constituent, amyloid- β peptides (A β). Two major forms of A β , A β 40 and A β 42, have been associated with genetic mutations causing early-onset AD, and have thus received considerable research attention.

In their current work, the researchers at the RIKEN Brain Science Institute focused on A β 43, an amyloid- β peptide found just as often in patient brains as A β 42, but about which relatively little is known. To study the peptide's role in AD, they generated mice with a mutation causing overproduction of A β 43, and used a highly sensitive system to distinguish between concentrations of A β 40, A β 42 and A β 43.

Their surprising results reveal that A β 43 is even more abundant in the brains of AD patients than A β 40, and more neurotoxic than A β 42. A β 43 also exhibits the highest propensity to aggregate and considerably accelerates amyloid pathology. Moreover, unlike the other two A β species, which exist in human and mouse brains at birth, A β 43 levels appear to increase with age, consistent with the pattern of AD onset.

The findings thus reveal the possible value of A β 43 as a biomarker for diagnosis of AD and suggest a potential role in new approaches for preventing AD-causing amyloidosis, promising hope to AD sufferers around the world.

The study has been published in the journal Nature Neuroscience.

Alzheimer Drug

Alzheimer Drug in Down syndrome Treatment (Med India: 3.8.2011)

Memantine, a drug currently used in treatment of the Alzheimer's disease, could boost cognitive function in those afflicted by the Down syndrome, it looks like. A University of Colorado School of Medicine scientist is completing a major clinical trial on the drug.

"We are hoping to enhance memory and learning in those with Down syndrome, said Alberto Costa, MD, PhD, an associate professor of medicine and the neuroscientist leading the effort. "We have been studying this drug for three years and are now ready to analyze the data on our trial. Our team at the University of Colorado and Children's Hospital Colorado expects to have the results in the next two or three months.

Costa, is testing memantine in 39 people with Down syndrome. About half received the drug and the others a placebo. In 2007, Costa demonstrated that memantine could improve memory function in mice with Down syndrome.

And now, for the first time, he is taking a drug effective in the treatment of learning and memory deficits in mice with Down syndrome and applying it to humans, a move described by the New York Times as "a milestone in the history of Down syndrome research.

Costa is no disinterested researcher. His 16-year-old daughter Tyche "C named for the Greek goddess of Fortune "C has Down syndrome. Like others with the condition, she faces the specter of a steady decline in mental functioning as she gets older and a roughly 20 percent chance of getting Alzheimer's in her 50's. After that diagnosis, death is often just five years away.

Alzheimer's Disease

Enzyme Found Disrupting Nerve Cell Communication in Alzheimer's disease (Science Daily; 16.8.2011)

Alzheimer's disease is characterized by abnormal proteins that stick together in little globs, disrupting cognitive function (thinking, learning, and memory). These sticky proteins are mostly made up of beta-amyloid peptide. A better understanding of these proteins, how they form, and how they affect brain function will no doubt improve the diagnosis and treatment of Alzheimer's disease.

To this end, a research team led by Stuart A. Lipton, M.D., Ph.D. at Sanford-Burnham Medical Research Institute (Sanford-Burnham) found that beta-amyloid-induced destruction of synapses -- the connections that mediate communication between nerve cells -- is driven by a chemical modification to an enzyme called Cdk5. The team found that this altered form of Cdk5 (SNO-Cdk5) was prevalent in human Alzheimer's disease brains, but not in normal brains. These results, published online the week of August 15 in the Proceedings of the National Academy of Sciences, suggest that SNO-Cdk5 could be targeted for the development of new Alzheimer's disease therapies.

Cdk5 is an enzyme known to play a role in normal neuronal survival and migration. In this study, Dr. Lipton and colleagues found that beta-amyloid peptides, the hallmark of Alzheimer's disease, trigger Cdk5 modification by a chemical process called S-nitrosylation. In this reaction, nitric oxide (NO) is attached to the enzyme, producing SNO-Cdk5 and disrupting its normal activity.

"After NO is attached to Cdk5, it then jumps like a 'hot potato' to another protein called Drp1, disrupting its function and fragmenting mitochondria, the energy powerhouse of nerve cells. When the mitochondria are damaged, the synapses, which normally require a lot of energy for their function, are destroyed. This scenario disrupts communication between nerve cells, and thus memory and cognitive ability in Alzheimer's disease," said Dr. Lipton, professor and director of Sanford-Burnham's Del E. Webb Neuroscience, Aging and Stem Cell Research Center. Dr. Lipton is also a neurologist who sees Alzheimer's disease patients in his own clinical practice, and is credited with characterizing and developing memantine (Namenda®), the latest FDA-approved drug for Alzheimer's disease.

In the current study, Cdk5 is shown to perform a new function not previously known -- the ability to transfer NO from one protein to another. Until now, Cdk5 was only known to influence the function of other proteins by tagging them with phosphate groups in a process known as phosphorylation. The new study shows that the addition of NO sends Cdk5 into overdrive and allows it to also S-nitrosylate other proteins, in this case Drp1 on mitochondria. Most notably, the transfer of NO from SNO-Cdk5 to Drp1 triggers the loss of synapses, the part of a nerve cell that transmits electrochemical signals to other nerve cells. Loss of synapses is known to correlate with the degree of cognitive decline in Alzheimer's disease.

Taking the study a step further, the team compared SNO-Cdk5 levels in brain tissue from healthy people and from Alzheimer's disease patients. SNO-Cdk5 was dramatically elevated in human brains with Alzheimer's disease.

"Our experiments using human brain tissue from patients with Alzheimer's disease give this finding clear clinical relevance," Dr. Lipton said. "SNO-Cdk5 could provide a new target for treating this devastating condition."

As many as 5.3 million Americans are living with Alzheimer's, currently the seventh-leading cause of death in the United States. This study was funded by the National

Institutes of Health (NIH). Co-authors include Jing Qu, Tomohiro Nakamura, Gang Cao, Emily A. Holland, Scott R. McKercher, and Stuart A. Lipton, all located at Sanford-Burnham in La Jolla, Calif.

Alzheimer's Disease

Study Identifies Chemical Changes in Brains of People at Risk for Alzheimer's Disease(Science Daily: 25.2011)

A brain imaging scan identifies biochemical changes in the brains of normal people who might be at risk for Alzheimer's disease, according to research published in the Aug. 24, 2011, online issue of *Neurology*®, the medical journal of the American Academy of Neurology.

The study of 311 people in their 70s and 80s with no cognitive problems, from the population-based Mayo Clinic Study of Aging, used an advanced brain imaging technique called proton MR spectroscopy to see if they had abnormalities in several brain metabolites that may be biomarkers for Alzheimer's disease. They also had PET scans to assess the level of amyloid-beta deposits, or plaques, in the brain that are one of the first signs of changes in the brain due to Alzheimer's disease. The participants were also given tests of memory, language and other skills.

"There is increasing evidence that Alzheimer disease is associated with changes in the brain that start many years before symptoms develop," said Jonathan M. Schott, MD, of the Dementia Research Centre, University College London in England and a member of the American Academy of Neurology, who wrote an editorial accompanying the study. "If we could identify people in whom the disease process has started but symptoms have not yet developed, we would have a potential window of opportunity for new treatments - - as and when they become available -- to prevent or delay the start of memory loss and cognitive decline."

The study found that 33 percent of the participants had significantly high levels of amyloid-beta deposits in their brains. Those with high levels of amyloid-beta deposits also tended to have high levels of the brain metabolites myoinositol/creatine and choline/creatine. People with high levels of choline/creatine were more likely to have lower scores on several of the cognitive tests, regardless of the amount of amyloid-beta deposits in their brains.

"This relationship between amyloid-beta deposits and these metabolic changes in the brain are evidence that some of these people may be in the earliest stages of the disease," said study author Kejal Kantarci, MD, MSc, of the Mayo Clinic in Rochester, Minn., and a member of the American Academy of Neurology. "More research is needed that follows people over a period of years to determine which of these individuals will actually develop the disease and what the relationship is between the amyloid deposits and the metabolites." At the present time, MR spectroscopy cannot be used for diagnosis.

The study was supported by the Paul Beeson Award in Aging, National Institutes of Health and the Robert H. and Clarice Smith and Abigail Van Buren Alzheimer's Disease Research Program of the Mayo Foundation.

Alzheimer's

Chemical changes in brains may predict risk for Alzheimer's (New Kerala: 26.8.201

study has identified biochemical changes in the brains of normal people who might be at risk for Alzheimer's disease.

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They also had PET scans to assess the level of amyloid-beta deposits, or plaques, in the brain that are one of the first signs of changes in the brain due to Alzheimer's disease.

The participants were also given tests of memory, language and other skills.

The study found that 33 percent of the participants had significantly high levels of amyloid-beta deposits in their brains.

Those with high levels of amyloid-beta deposits also tended to have high levels of the brain metabolites myoinositol/creatine and choline/creatine.

People with high levels of choline/creatine were more likely to have lower scores on several of the cognitive tests, regardless of the amount of amyloid-beta deposits in their brains.

“This relationship between amyloid-beta deposits and these metabolic changes in the brain are evidence that some of these people may be in the earliest stages of the disease,” said study author Kejal Kantarci, MD, MSc, of the Mayo Clinic in Rochester, Minn., and a member of the American Academy of Neurology.

The study was published in the August 24, 2011, online issue of Neurology, the medical journal of the American Academy of Neurology.

Alzheimer's disease.

Short-term memory loss may best predict Alzheimer's (New Kerala: 7. 8 .2011)

Spanish researchers have found that a short-term memory loss may help predict Alzheimer's disease.

Lead researcher Dr. Gomar of Centro de Investigación Biomedica en Red de Salud Mental, Barcelona, and colleagues looked at 116 people with mild cognitive impairment (MCI) who developed Alzheimer's disease within two years, 204 patients with the condition who didn't develop Alzheimer's and 197 people with no cognitive problems.

After assessing them by biomarker tests and cognitive measures, the researcher found the cognitive markers can forecast the variance, English.news.cn reported.

“Remarkably, they accounted for nearly 50 percent of the predictive variance,” said Dr. Gomar.

Mild cognitive impairment at the start of the study was a stronger predictor of Alzheimer's than most biomarkers, the researchers concluded.

The finding is published in Archives of General Psychiatry, an American Medical Association journal.

World Alzheimer's Report 2011

World Alzheimer's Report 2011 (Med India: 16.9.2011)

Alzheimer's Disease International (ADI) released the World Alzheimer's Report 2011 'The Benefits of Early Diagnosis and Intervention'. The report shows that there are interventions that are effective in the early stages of Alzheimer's disease.

ADI commissioned a team of researchers led by Professor Martin Prince from King's College London Institute of Psychiatry, to undertake the first-ever, comprehensive, systematic review of all evidence on early diagnosis and early intervention for dementia.

Currently, the majority of people with dementia receive a diagnosis late in the course of the disease, if at all, resulting in a substantial 'treatment gap'. This greatly limits their access to valuable information, treatment, care, and support and compounds problems for all involved - patients, families, carers, communities and health professionals.

Lead author Prof Prince said: 'There is no single way to close the treatment gap worldwide. What is clear is that every country needs a national dementia strategy that promotes early diagnosis and a continuum of care thereafter. Primary care services, specialist diagnostic and treatment centres and community-based services all have a part to play, but to differing degrees depending upon resources.'

'Failure to diagnose Alzheimer's in a timely manner represents a tragic missed opportunity to improve the quality of life for millions of people,' said Dr. Daisy Acosta, Chairman of ADI. 'It only adds to an already massive global health, social, and fiscal challenge - one we hope to see in the spotlight at next week's United Nations Summit on Non-Communicable Diseases.'

Alzheimer's

‘Alzheimer's patients require love, care, and medicines’ (New Kerala: 21.9.2011)

'Pick laundry', 'Pay maid' and notes relating to other daily chores greet you as you enter Padma Narsimhan's room, where she sits in a corner listening to morning ragas in her own voice.

The notes are necessary as 75-year-old Narsimhan, has been suffering from Alzheimer's disease for the last four years.

She struggles to remember even the most basic activities of her daily life. But her daughter ensures she is not subjected to the loneliness the disease brings with it.

"Life was going normal until a family feud began stressing my mother. She was active in working at home but one day she forgot to switch off the cooking gas for hours. We used to give her money and tell her to keep it safe but she would forget where she had kept it," said Narsimhan's daughter Rangashri Kishore as she recalled her mother's journey.

"After some visits to the doctor, I and my husband realised it was Alzheimer's. We prepared ourselves to be with her in the times when she really needed us," an emotional Rangashri told IANS.

Though both her daughter and son-in-law work - necessitating the notes - but a maid ensures that Narsimhan is never left alone in the house as she does not even know what is to be done when someone knocks on the door.

But her son-in-law, M.C. Kishore, said that despite the memory disorder, the septuagenarian is clued in to current affairs and is the first one to read the newspapers and narrate the stories of the day to her grandchildren.

With nearly 3.7 million people suffering from dementia in 2010, Alzheimer's affects nearly 60 percent of them. The age-related disorder hampering memory and thinking caused by loss in brain function is expected to double by 2020, according to Dementia India Report 2010.

"In India's context, we are in a very tricky situation for Alzheimer's. We are yet to get a clear health policy for the elderly through the National Programme for Health Care of Elderly (NPHCE) by the health ministry," said Alzheimer's and Related Disorders Society of India (ARSDI) chairman K. Jacob Roy.

The risk of Alzheimer's increases after the age of 60 and results in a societal cost of about Rs.14,700 crore.

The flicker of hope, according to experts, is India's push that has resulted in the inclusion of mental health in the list of non-communicable diseases (NCDs) such as cardiovascular diseases and cancer.

"Like tuberculosis and cancer, Alzheimer's also has an organic origin. It needs diagnosis through memory clinics, where a team of neurologists, psychiatrists and general doctors attend on the patient," Roy explained.

He also lamented on the "scarcity of memory clinics and thinning chances of an early diagnosis".

Even as research on the mode of treatment and awareness are in the offing, what is missing is love and care from families of the elderly patients. The nuclear family culture makes the ride tougher for the elderly, making them easy prey to loneliness and dependence.

"We need care in the form of day care centres and chronic care facilities with trained staff available in remote regions as well," said Manjari Tripathi, associate professor of neurology at the All India Institute of Medical Sciences (AIIMS).

"Drugs for symptomatic relief are available after diagnosis. But immense awareness is needed with risk factors like age, blood pressure, diabetes, stress and head injuries.

"Turmeric in food, salads and fruits can help the brain in learning new activities in old age," Tripathi advised.

Roy said: "The family has to be very caring and not make feel the elderly dependent, burden or miserable. We need counselling for the families on the care of elderly as they almost need child-like care. It needs patience."

Back at the Kishore household in Jor Bagh, the family awaits as Narsimhan enters draped in a purple silk sari with a tray of coffee mugs in hand. "I haven't forgotten my knack for making the best filter coffee," she quips as her voice still plays in the backdrop.

The music is a reminder to Narasimhan that she was once a classical singer who taught music to children. "My students gifted it to me for posterity so that I never forget my own voice," she added of the player.

Alzheimer's Drug

AIIMS Doc develops Alzheimer's Drug (The Asian Age: 21.9.2011)

A new drug derived from citrus fruits can help people suffering from Alzheimer's disease to improve their quality of life, claims a researcher of the All Indian Institute of Medical Sciences.

Dr Mahaveer Golechha, senior research fellow, Department of Pharmacology, AIIMS, who developed the antiAlzheimer's potential of citrus fruits has been awarded the prestigious Alzheimer's Drug Discovery Foundation's, USA Young Investigator Scholarship Award.

"Alzheimer's disease (AD) is a neurodegenerative disorder that generally affects the elderly. Till date the treatment was symptomatic but this new drug will work pathologically and have no side effect," Dr Golechha said.

"This drug Naringin is a bioflavonoid. Naringin exerted its effects through multiple mechanisms, like anti-oxidant, anti-inflammatory, and anti-apoptotic. This drug has been discovered from citrus fruits," he said.

This work has been published in the Biological and Pharmaceutical Bulletin, an international journal of Japanese Society of Pharmacology.

Alzheimer's disease is the most common form of disorders that impairs mental functioning. The most common symptom of the disease in the early stages include difficulty in recalling recently observed events.

As the disease advances, it leads to confusion, irritability and aggression, mood swings, language breakdown, long-term memory loss, and the general withdrawal of the sufferer.

Alzheimer's Protein

Alzheimer's Protein Kills Nerve Cells in Nose; Animal Study May Suggest Way to Rescue Cells from Disease (Science Daily: 28.9.2011)

A protein linked to Alzheimer's disease kills nerve cells that detect odors, according to an animal study in the Sept. 28 issue of The Journal of Neuroscience. The findings shed light on why people with Alzheimer's disease often lose their sense of smell early on in the course of the disease.

Deficits in odor detection and discrimination are among the earliest symptoms of Alzheimer's disease, suggesting that the sense of smell can potentially serve as a 'canary in the coal mine' for early diagnosis of the disease," said Leonardo Belluscio, PhD, of the National Institute of Neurological Disorders and Stroke, who led the study. "The changes taking place in the olfactory system as a result of Alzheimer's disease may be similar to those in other regions of the brain but appear more rapidly" he added.

Researchers once thought that protein plaques commonly seen in the brains of people with Alzheimer's disease were responsible for killing off nerve cells, causing disruptions in memory -- a hallmark of the disease. The plaques are primarily derived from a protein called amyloid precursor protein (APP). The new study suggests that APP alone -- in the absence of the plaques -- may be to blame for the death of nerve cells.

In the new study, Belluscio and his colleagues genetically manipulated mice to produce high levels of a mutated version of human APP in olfactory nerve cells. The mutated form of the protein is seen in some people with early-onset Alzheimer's disease, a rare form that runs in families and strikes before age 65.

The researchers found that mice making mutant APP had four times as much olfactory nerve cell death by three weeks of age compared with normal mice. Although the cells that produced mutant APP died, the neighboring cells -- that did not have mutant APP -- survived. The cell death also occurred in the absence of amyloid plaques. Together, this showed that the cell death was initiated from within the cells making the mutant APP, not from plaques outside the cells. When the researchers blocked the olfactory nerve cells from producing high levels of the mutant precursor protein, more cells lived.

"Reducing APP production suppressed the widespread loss of nerve cells, suggesting that such disease-related death of nerve cells could potentially be stopped," Belluscio said.

"Together, these results support the hypothesis that amyloid proteins are involved in the degeneration of the brain that occurs with Alzheimer's disease," said Donald Wilson, PhD, of New York University School of Medicine and the Nathan Kline Institute for Psychiatric Research, an olfactory system expert who was unaffiliated with the study. "Further, they provide an exciting opportunity to explore how to prevent or reverse the events that lead to cell death and, ultimately, dementia."

The research was supported by the National Institute of Neurological Disorders and Stroke.

Anemia

Anaemic

40% of 5-yr-olds are anaemic (The times of India: 4.8.2011)

More than 40% children in pre-school age of 0-five years are suffering from anaemia in India.

Anaemia affects 1.62 billion or a quarter of the global population, including 293 million (47%) children younger than five years and 468 million (30%) non-pregnant women.

Although the prevalence of anaemia is estimated at 9% in countries with high development, in countries with low development the prevalence is as high as 43%.

Anaemia is estimated to contribute to more than 1.15 lakh maternal deaths, and 5.91 lakh prenatal deaths globally per year. Asia and Africa account for more than 85% of the absolute anemia burden in high-risk groups. These are the findings of a paper published in the British medical journal, The Lancet, on Tuesday.

Speaking to TOI, Dr S V Subramaniam from the Harvard School of Public Health said, "India is among the countries with highest anaemia figures. Anaemia cases may have worsened in some states."

Anaemia among children (6-59 months) was highest in Bihar (78%), Madhya Pradesh (74.1%), Uttar Pradesh (73.9%), Haryana (72.3%), Chhattisgarh (71.2%) and Jharkhand (70.3%).

According to some experts, prevalence of anaemia in India is high because of low-dietary intake, poor availability of iron and chronic blood loss due to hookworm infestation.

Anxiety

Anxiety

Treating anxiety early in kids cuts risk of mental illness by 60pc (New Kerala: 6.9.2011)

Treating children early for anxiety would reduce their risk of developing severe mental problems in later life by 60 per cent, a new study has suggested.

It is estimated that 38.2 per cent – 165 million people – of people in Europe suffers from a mental disorder and that anxiety is the commonest.

The incidence of depression has doubled since the 1970s and the average age at onset has fallen from the mid-twenties to the late teens as adolescents lost their sense of security in a changing world, according to Professor Hans Ulrich Witten, lead author of study of the state of Europe's mental health.

"We screen for dental caries [decay] – why not for anxiety, ... because the potential treatments are so effective?" the Independent quoted him as saying.

Anxiety disorders could also be a warning sign of neurodegenerative illnesses, such as Parkinson's disease, Professor Witten said.

Professor David Nutt, head of the department of neuropsychopharmacology at Imperial College, London, said: "If you can get in early you may be able to change the course of the illness so people don't progress on to disability."

The study has been published in the journal European Psychopharmacology.

Asthma

Asthma

The Role of Bacteria in Asthma and the Potential for Antibiotic Treatment (ScienceDaily: 7-7-2011)

People with severe asthma are more likely to have antibodies against the disease-causing bacteria *Chlamydia pneumoniae* than the general population and in some cases antibiotic treatment can greatly improve symptoms according to research presented May 23 at the 111th General Meeting of the American Society for Microbiology.

"We conclude that a subset of severe asthmatics harbor infectious *C. pneumoniae* in their lungs, resulting in antibody production and increased asthma severity," says Eduard Drizik of the University of Massachusetts, Amherst, who presented the study.

Asthma is a chronic respiratory disease, whose causes are not completely understood, affecting over 300 million people worldwide, including almost 24 million American children and adults. There is no cure for asthma and the disease is managed by controlling disease symptoms. The recognition that asthma pathogenesis involves chronic inflammation has led to a flurry of studies exploring the prevalence of various infectious organisms in the asthmatic condition.

Having previously demonstrated an increased prevalence of *C. pneumoniae* in the lungs of children and adults with asthma, the researchers conducted a study designed to determine if the presence of *Chlamydia*-specific antibodies could predict asthma severity and if these antibody-positive patients would benefit from treatment with antibiotics.

"The data revealed a statistically significant link between *Chlamydia*-specific IgE antibody production and the severity of asthma," says Drizik. "Of the asthma patients analyzed, 55% had *Chlamydia*-specific IgE antibodies in their lungs compared to 12% of blood donor controls."

Moreover, patients who were treated on the basis of asthma severity with antibiotics had significant improvements in asthma symptoms and some even experienced a complete abolition of these symptoms.

"Physicians should therefore fully explore the involvement of microbes in difficult to treat asthma cases, since there might be a cure for some types of asthma after all," says Drizik.

Asthma

Genes triggering adult asthma identified (New Kerala: 2.8.2011)

A new study has shed light on the genetic factors contributing to asthma susceptibility, paving way for better treatments of millions of sufferers around the world.

Researchers at the RIKEN Center for Genomic Medicine (CGM), together with colleagues at Kyoto University, Tsukuba University, Harvard University, and other medical institutions have identified three new loci associated with susceptibility to adult asthma in the Japanese population.

To clarify the genetic origins of adult asthma, the research group conducted a genome-wide association study on 1532 adult patients and 3,304 controls.

Among a total of roughly 460,000 genetic variants (called Single Nucleotide Polymorphisms or SNPs), the group identified five genetic regions associated with susceptibility to adult asthma, three of which had not previously been connected to the disease.

The associations were confirmed in a separate replication study on a population of 5,639 patients and 24,608 controls.

The study has been published in Nature Genetics.

Asthma

Asthma cans make Pediatric Diabetes Care Difficult (Med India: 28.9.2011)

Children who are victims of both asthma as well as diabetes have a difficult time controlling their blood sugar, according to a recent study, though this is an area which needs to be studied further.

The new study found that 11 percent children who are victims of diabetes also suffer from asthma.

Most children are victims of Type 1 diabetes, although Type 2 is also becoming common among children.

"Among youth with type 1 diabetes, asthma is associated with poor glycemic control, especially if asthma is untreated," researchers said.

Bacteria

Ebola virus

How Ebola virus gains entry into cells and transmits deadly infection (New Kerala: 25.8.2011)

An Indian-origin researcher and his colleagues have identified a cellular protein that plays a critical role in Ebola virus infection.

The study, which was a collaborative effort involving scientists from Albert Einstein College of Medicine of Yeshiva University, the Whitehead Institute for Biomedical Research, Harvard Medical School, and the U.S. Army Medical Research Institute of Infectious Diseases, has suggested a possible strategy for blocking infection due to Ebola virus, one of the world's most lethal viruses and a potential bioterrorism agent.

Ebola virus's ability to enter cells is reminiscent of the Trojan Horse used by the ancient Greeks to defeat their archenemies. Ebola virus binds to the host cell's outer membrane, and a portion of host cell membrane then surrounds the virus and pinches off, creating an endosome – a membrane-bound bubble inside the cell. Endosomes carry their viral stowaways deep within the cell and eventually mature into lysosomes – tiny enzyme-filled structures that digest and recycle cellular debris.

The viruses captive in the lysosome manage to escape destruction by exploiting components of the cell to gain entry to the cytoplasm, the substance between the cell membrane and the nucleus where the virus can replicate. But the identities of many of these components have remained unknown.

In seeking the answer, Einstein researchers and colleagues searched for proteins that Ebola virus might exploit to enter the cell's cytoplasm. One such cellular protein, known as Niemann-Pick C1 (NPC1), stood out.

The NPC1 protein is embedded within cell membranes, where it helps transport cholesterol within the cell. However, the absence of NPC1 due to gene mutations causes a rare degenerative disorder called Niemann-Pick disease, in which cells become clogged up with cholesterol and eventually die.

To confirm their finding that NPC1 is crucial for Ebola virus infection, the researchers challenged mice carrying a mutation in NPC1 with Ebola virus. The researchers also tested whether other major viruses need NPC1 to infect human cells. Only Ebola virus and its close relative, Marburg virus, were found to require the presence of NPC1 protein for infection. Like Ebola virus, Marburg virus also needs NPC1 to kill mice.

“Our work suggests that these viruses need NPC1, which is embedded in the lysosomal membrane, to escape from the lysosome into the cytoplasm,” said co-senior author Kartik Chandran, Ph.D., assistant professor of microbiology and immunology at Einstein.

The study has been published in online edition of Nature

Harmless' soil bacteria

'Harmless' soil bacteria can destroy tumours (The Times of India: 6.9.2011)

Scientists are harnessing a harmless soil bug to kill tumours making it a drug delivery vehicle.

The therapy uses *Clostridia sporogenes* — a bug found abundantly in soil. Its spores are injected into patients and only grow in solid tumours, where a specific bacterial enzyme is produced.

An anti-cancer drug is injected separately into the patient. After reaching the tumour site, the bacterial enzyme activates the drug, allowing it to destroy only the tumour cells.

University of Nottingham's Nigel Minton, who led the research, said, “*Clostridia* are an ancient group of bacteria that evolved on the planet before it had an oxygen-rich atmosphere and so they thrive in low-oxygen conditions.”

When *Clostridia* spores are injected into a cancer patient, they will only grow in oxygen-deficit environments, i.e. the centre of solid tumours, according to a Nottingham statement.

Researchers have introduced a gene for an improved version of the enzyme into the *Clostridia sporogenes* DNA. It can now be produced in far greater quantities in the tumour than previous versions, and is more efficient at converting the pro-drug into its active form.

Infections

Over 16 per cent children in Delhi have worm infections, says study(The Indian Express: 7.9.2011)

A study to assess the prevalence of intestinal worms in children has thrown up some worrying results. Over 16 per cent of the children in Delhi were found to be infected by worms, in comparison to 14 per cent in Andhra Pradesh.

In a joint venture with Deworm the World, an NGO, the Health department tested 3,251 children from 40 government schools, 40 MCD schools and 48 slums for worm infection.

According to the study, “The average prevalence rate of worms was significantly higher in MCD schools (18.86 per cent) and slums (18.79 per cent) as compared to Delhi government schools (9.91 per cent).” Dr Yogita Kumar, the Delhi coordinator for the study from Deworm the World, said, “We have carried out a similar study in Bihar, where the prevalence rate was 18 per cent. But Delhi, with its considerably smaller size and population, has come a close second.”

The study, conducted under the school health scheme, will be followed by a massive deworming project aimed at mapping the prevalence pattern. Under the month-long programme, stool samples of children were studied for presence of worm eggs.

Soil-transmitted helminths, commonly known as intestinal worms (Roundworm, Whipworm and Hookworm), have been identified as the most common parasite affecting children from deprived communities. The findings also indicate a higher presence of these worms in young children.

As much as 17.3 per cent of the affected children were found to be in the age group of 1-5 years, 16.1 per cent in the 6-12 age group, and 12.7 per cent in the 13-18 age group. Students of primary schools also seemed more susceptible at 14.6 per cent, when compared to secondary school children at 11.1 per cent.

Dr Kumar said Deworm the World has proposed a massive deworming project under the Delhi government, keeping this trend in view. “Though we carried out a similar project in Bihar, in Delhi we have proposed that pre-school children from slums also be included in the program. In both Bihar and Andhra Pradesh, we have only included school-going children in the programme.”

The prevalence of roundworm was found to be the highest in Delhi (11.84 per cent), followed by whipworm (5.63 per cent) and hookworm (1.38 per cent). A break-up of the district-wise data shows that overall, the highest prevalence was found in Northeast Delhi (26.7 per cent) and Central Delhi (25.4 per cent).

Research has shown that mass deworming programmes can reduce school absenteeism by as much as 25 per cent, making it a cost-effective ways to increase participation in school activities.

Bacterial and Viral Infections

New Rapid Test Tells Difference between Bacterial and Viral Infections (Science Daily: 16.9.2011)

Scientists are reporting development and successful testing of a rapid and accurate test to tell the difference between bacterial and viral infections. Those common afflictions often have similar symptoms but vastly different treatments -- antibiotics work for bacterial infections but not for viruses.

The report appears in ACS' journal Analytical Chemistry.

Robert Marks, Daria Prilutsky, and colleagues cite the importance of determining the source of an infection in order to quickly start the right treatment. If left untreated until results of a throat culture, for instance, are in, bacterial infections can get worse. But needlessly giving antibiotics to patients with a viral infection could contribute to the growing problem of antibiotic-resistant bacteria. Since current diagnostic methods to sort out the two kinds of infection are time-consuming and may not be completely accurate, the researchers sought to develop a new test that would enable doctors to rapidly make the right diagnosis.

They found that the immune systems of patients with bacterial infections behaved differently than the immune systems of patients with viral infections, and developed a test based on those differences. "The method is time-saving, easy to perform and can be commercially available, thus, having predictive diagnostic value and could be implemented in various medical institutions as an adjunct to clinical decision making," say the researchers.

Bird flu

Bird flu strikes again, two Bengal villages affected (Business Standard: 21.9.2011)

Less than three months of declaring it free from the dreaded bird flu, the virus has resurfaced in India with confirmed cases being reported from Nadia district of West Bengal. The agriculture ministry said the bird flu cases have been reported from two villages in Tehatta block in Nadia district of West Bengal.

“Samples forwarded to the ERDDL, Kolkata and High Security Animal Disease Laboratory (HSADL), Bhopal have tested positive for H5 strain of Avian Influenza (bird flu),” an official statement said.

According to a PTI report, Prime Minister Manmohan Singh has directed the union animal husbandry department to take steps in coordination with the state government to prevent the incident from spreading further.

“The Prime Minister directed the department to closely monitor the situation to prevent any outbreak even though the incidence is restricted to a few villages,” the report said quoting unnamed sources from the Prime Minister’s Office.

Meanwhile, authorities have started culling of poultry to check the spread of the virus.

“Culling of entire poultry and destruction of eggs within a radius of three kilometers from the epicenter of the attack has already started,” the ministry said in a statement.

The government is also undertaking constant surveillance of poultry and eggs within a radius of 10 kilometers.

Incidentally, only last month, the Food and Agriculture Organization had warned that there is strong possibility of bird flu again hitting India along with other countries in Asia because of its proximity to major infected areas.

The last attack of bird flu in India was reported in February-March 2011 from Tripura. The disease had hit India for the first time in 2006 in Maharashtra. Since then, off and on there have been attacks of bird flu on poultry in India.

The cases have been mostly confined to eastern parts of the country, which experts believe is much more prone to bird flu because of unrestricted flow of birds from neighbouring Bangladesh.

Meanwhile, the government of India has decided to share costs of compensation on 50:50 basis with the West Bengal government and authorised the state government to utilise funds available with them under the programme of ‘Assistance to States for Control of

Animal Disease' (ASCAD), for controlling the disease. "The state government should ensure that payment of compensation for culling should be given immediately and simultaneously," the statement said.

Bird flu

Bird flu: Health Ministry deposes central team to probe situation (World Newspapers: 22.9.2011)

The Health Ministry Wednesday deposed a central team to take stock of the ground situation in the wake of outbreak of bird flu in West Bengal.

The team comprising three experts from the National Centre for Disease Control, New Delhi and the All India Institute of Hygiene and Public Health, Kolkata, will report back to the Centre following concerns expressed by the Prime Minister.

Public Health teams of the state government are already initiating measures in the affected area of the state to ensure that the virus does not infect humans. They would be going house to house in the affected area in Nadia district of West Bengal and test the contact history of flu-prone people.

Already, animal husbandry experts are engaged in culling chickens and destroying eggs in the affected areas to keep the infection from spreading any further.

The H5 flu is said to be particularly infectious and has larger consequences for humans as compared to the flu caused by other sub-types of Influenza A virus, the primary bird flu causing virus, said health officials.

Health Ministry sources said there was nothing to worry about at present and the situation was being constantly monitored. The further course of action would be devised after the central team reports back on the outbreak.

Prime Minister Manmohan Singh had expressed concern on bird flu scare in West Bengal and Assam and had yesterday directed the animal husbandry department to take steps in coordination with the state governments to prevent outbreak of epidemic.

Fungus, harmful chemicals

Fungus, harmful chemicals, insects found in food samples in Delhi (World Newspapers: 23.9.2011)

Fungus, harmful chemical, insects and synthetic colour beyond permissible limit were found in various food articles and sweets lifted by Prevention of Food Adulteration Department of Delhi Government as part of a major drive.

PFA officials said out of total 289 samples, eight were found totally unsafe and cases have been registered against the traders involved in the adulteration. The samples were lifted from various popular markets in East Delhi.

Another ten samples were found sub-standard while eight others were found with fake labels. The samples were lifted in the last one-and-half month following a directive from Health Minister AK Walia.

In view of the result of samples, Walia today issued a fresh instruction to all out to lift samples of ghee, milk, paneer, cooking-oil, mid-day meals in schools, buck wheat in considering the forthcoming festive season.

"We will come down very hard on the food adulterators and they will be punished as per provision of Food Safety and Standards Act," Walia said after a review meeting of functioning of the PFA department.

The stringent legislation had come into force in the city last month. "We are determined to enforce the new law in true spirit," he said.

As per the legislation, manufacturers of adulterated food may face imprisonment up to seven years with fine of Rs10 lakh. In case of death caused due to adulterated food items, the maximum punishment will be life term and fine will be up to Rs10 lakh.

Walia instructed the Department to upgrade the existing laboratory and take immediate action to set up another advanced laboratory. He also directed the department to fill up the vacant posts

Officials said fungus were found in samples of black peeper while insects were found in samples of rice.

Harmful chemical and synthetic colour beyond permissible limit were found in samples of sweets.

Cholesterol

Diet - Bad Cholesterol

Diet Alone Can Help Lower Bad Cholesterol, Says Study (The Economic Times: 25.8.2011)

A diet based around plants, nuts and high-fibre grains lowered “bad” cholesterol more than a low-saturated-fat diet that was also vegetarian, researchers reported on Tuesday. And the drop in low-density lipoprotein, or LDL cholesterol, was big enough that dietary changes could be an alternative to statin medications for many people, they said.

“There’s no question that statins have made a major difference in terms of cardiovascular disease control,” said study author Dr David Jenkins, from the University of Toronto. But at least for now, he added, “we can only get so far with statins”.

One in four adults of age 45 and older in the US takes cholesterol-lowering drugs. Jenkins and his colleagues wanted to see how big an effect a diet based on the pillars of lower cholesterol could have on LDL numbers without statins.

They randomly split 351 Canadians with high cholesterol into three groups. One group got nutrition counselling promoting a low-saturated-fat diet for six months. In the other two groups, dietitians helped participants fit more cholesterol-lowering foods, including soy milk, tofu, nuts, oats, peas and beans, into a healthy diet meeting with some of them twice during the study, and with others seven times. All the diets were vegetarian. After six months, people on the low-saturated-fat diet saw a drop in LDL cholesterol of 8 milligrams per deciliter (mg/dL), on average, according to findings in the Journal of the American Medical Association. That compared to 24 mg/dL and 26 mg/dL decreases in participants on the cholesterol-lowering diets. (The average starting LDL was about 170 mg/dL. A number 160 mg/dL and above is considered high.)

That drop is “really a lot,” said Dr. Yunsheng Ma, a nutrition and heart disease researcher from the University of Massachusetts Medical School in Worcester, who was not involved in the new study.

Chronic disease

Addiction is chronic brain disease, not just bad behaviour or bad choices (New Kerala: 16.8.2011)

A new definition of addiction released by the American Society of Addiction Medicine (ASAM) has highlighted that addiction is a chronic brain disorder and not simply a behavioural problem involving too much alcohol, drugs, gambling or sex.

This the first time ASAM has taken an official position that addiction is not solely related to problematic substance use.

When people see compulsive and damaging behaviours in friends or family members—or public figures such as celebrities or politicians—they often focus only on the substance use or behaviours as the problem.

However, these outward behaviours are actually manifestations of an underlying disease that involves various areas of the brain, according to the new definition by ASAM, the nation's largest professional society of physicians dedicated to treating and preventing addiction.

"At its core, addiction isn't just a social problem or a moral problem or a criminal problem. It's a brain problem whose behaviours manifest in all these other areas," said Dr. Michael Miller, past president of ASAM who oversaw the development of the new definition.

"Many behaviours driven by addiction are real problems and sometimes criminal acts. But the disease is about brains, not drugs. It's about underlying neurology, not outward actions," he added.

The new definition also recognizes addiction as a chronic disease, like cardiovascular disease or diabetes, so it must be treated, managed and monitored

Chronic Illness

Chronic Illness Connected to Suicide (Med India: 25.8.2011)

A study has found that nearly 400 people suffering from chronic illnesses take that extreme step of suicide with assistance, a fact which many health chiefs push under the carpet.

The report has revealed that many numbers of Brits suffering chronic illnesses visit the Swiss Dignitas clinic for assistance in committing suicide.

Health chiefs do not take up this issue fearing the repercussions it may have on families. This study has accused many health chiefs of shirking their responsibility towards chronically ill patients.

Dengue

A novel route to battle dengue carrying mosquitoes (The Hindu: 25.8.2011)

Wolbachia bacterium, a common bacterium that infects insects and mosquitoes, was used

Nearly 50 million people get infected with dengue fever every year in more than 100 countries, India included. And the severity of the outbreaks is showing an upward trend. All conventional methods have so far failed to prevent people from getting infected. Humans get infected with dengue when *Aedes aegypti* mosquitoes carrying the dengue virus bite them.

It is against this backdrop that two groups of scientists have taken a totally different route to fight the battle. They have made the *Aedes aegypti* mosquitoes completely resistant to dengue virus infection.

The result: the manipulated *A. aegypti* mosquitoes are no longer the carriers of the dengue virus. Thus the transmission of the virus to humans is blocked. Their work is reported in two papers published today (August 25) in *Nature*.

The mechanism

So how did they make the *A. aegypti* mosquitoes resistant to dengue infection? They introduced Wolbachia bacterium, a common bacterium which even in nature infects insects and mosquitoes, into *A. aegypti*. Since the bacterium lives inside the host's cells, it makes the mosquitoes resistant to dengue virus.

Incidentally, studies done already have shown that mosquitoes become resistant to West Nile virus when an avirulent strain of Wolbachia bacterium is introduced into them. These papers come at a time when earlier studies had shown that the ability of the Wolbachia-infected mosquitoes to block dengue transmission came at the cost of fitness of the mosquitoes.

The highlight is that the bacterium is maternally inherited and hence the offspring carry the bacterium. That is, the embryos die when Wolbachia-infected males mate with uninfected females. On the other hand, the embryos are not destroyed when Wolbachia-infected females mate with either infected or uninfected males. Thus in principle, the bacterium can spread through the *A. aegypti* population in the field.

While the first team led by T. Walker of The University of Queensland, Brisbane, restricted itself to laboratory and caged studies, the second team led by A.A. Hoffmann of The University of Melbourne, Victoria, went a step further. They released the genetically

modified mosquitoes in the field in two locations near Cairns in north-eastern Australia in January this year.

Laboratory studies

Walker's team compared the various important attributes of mosquitoes with both virulent (wMelPop-CLA) and avirulent (wMel) strains of the bacterium. Hoffmann's team used only mosquitoes with avirulent (wMel) strains for the field study.

The avirulent wMel mosquito strains outclassed the virulent wMelPop-CLA on most counts. The wMel strains could successfully invade a small wild-type population of mosquitoes much more effectively than the other strain.

The other most important parameter is the survival ability of embryos. wMel strains showed a very strong ability to destroy embryos produced by uninfected females mated with infected males. A 90 per cent embryo survival rate was seen in the case of infected female mosquitoes.

The viability of eggs was better in the case of the avirulent wMel mosquito strains. While the lifespan of the avirulent strains was reduced by only 10 per cent, there was a 40 per cent drop in the case of the virulent strains.

The wMelPop-CLA strains showed greater ability to suppress dengue virus transmission. But such high transmission disruption comes at the cost of survival of the infected mosquitoes.

“The ability of wMel to provide protection against dengue virus in *A. aegypti* is unlikely to be transient,” the authors conclude. They also state that dengue can be controlled by releasing a relatively small number of Wolbachia-infected mosquitoes.

Field studies

The first release happened in January this year and continued for 9-10 weeks in both locations. The number of mosquitoes released per week varied between 10,000 and 22,000. Cairns in north-eastern Australia was hit by a severe cyclone during the trial period, and the effects of that is not completely known.

But despite the cyclone, after the seventh release the mosquitoes carrying the Wolbachia increased and “reached near fixation 5 weeks after releases stopped.”

The proof

The field studies showed that wild mosquito populations' ability to act as carriers of the dengue virus can be reduced by releasing Wolbachia-infected mosquitoes.

Nature news notes the advantage of such population-replacement approach. “Once established, they are self-propagating. And since the mosquito population is simply changed rather than eliminated, effects on the ecosystem should be minimal,” it states.

Keywords: dengue, mosquitoes, *Aedes aegypti*

Dengue

Dengue cases cross 200 in city (The Times of India: 28.9.2011)

With 11 people testing positive for dengue in the city in the last two days, the total number of cases has crossed the 200 mark.

MCD sources said the number is much less than last year. “A total of 206 cases have been reported till now. 11 fresh cases of dengue were reported from different hospitals today. 172 were reported from MCD area alone,” an MCD official said. He said that “last year a total of 2,989 cases were reported on September 27, 2010 with an additional 24 new cases.

Diabetes

Diabetes

Age-related problems develop faster in middle age adults with diabetes (New Kerala: 1.4.2011)

A new study has found that patients in their 50s with diabetes have nearly double the risk for developing "geriatric" ailments.

According to experts from the University of Michigan Health System and VA Ann Arbor Healthcare System, middle-aged adults with diabetes are much more likely to develop age-related conditions than their counterparts who don't have diabetes.

They found that adults between 51 and 70 with diabetes developed age-related ailments like cognitive impairment, incontinence, falls, dizziness, vision impairment and pain at a faster rate than those without diabetes.

"Our findings suggest that middle age adults with diabetes start to accumulate these age-related problems," said lead author Christine Cigolle.

"Because diabetes affects multiple organ systems, it has the potential to contribute significantly to the development of a number of issues that we associate with aging," she added.

The research was based on nationally representative data from the University of Michigan Health and Retirement Study.

The study has been published in the March issue of the Journal of General Internal Medicine.

Diabetes

Avoiding or Controlling Diabetes May Reduce Cancer Risk and Mortality (Science Daily: 4.4.2011)

Results of the NIH-AARP Diet and Health Study revealed that diabetes is associated with lower risk of prostate cancer in men but with higher risk of other cancers in both men and women. The data, presented at the AACR 102nd Annual Meeting 2011, held in Orlando, Florida April 2-6, also showed an association between diabetes and higher cancer mortality rates.

Previous epidemiologic studies have shown an association between diabetes and an increased risk for cancers including colorectal, liver and pancreas, according to Gabriel Lai, Ph.D., a cancer prevention fellow at the National Cancer Institute.

"Our results provide further evidence that abnormal insulin and glucose signaling may contribute to cancer initiation and development," he said. "There are myriad benefits from avoiding diabetes through exercise, diet and maintaining a healthy body weight. Our study confirms additional benefits in the form of reduced morbidity and mortality from certain cancers."

Lai and colleagues conducted a prospective study using data from more than 500,000 predominantly white, non-Hispanic men and women aged 50 to 71 years. From 1995 to 1996, the participants completed questionnaires about diet, lifestyle and whether or not they had diabetes. Researchers followed the patients for 11 years.

Results showed that diabetes was associated with an 8 percent increased risk for cancer among women and a 4 percent decreased risk for men. In previous research, a decreased risk for prostate cancer was associated with diabetes, which researchers believe might be due to the lower testosterone levels associated with diabetes. After excluding prostate cancer from their evaluation, Lai and colleagues found that diabetes was associated with a 9 percent increased risk for cancer in men.

As for mortality, diabetes was associated with an 11 percent increased risk in women and a 17 percent increased risk in men.

"These risks appeared independent from other cancer risk factors, such as obesity and cigarette smoking," Lai said.

After evaluating by cancer site, the researchers found diabetes was associated with a significant increase in risk for colon, rectal and liver cancers among men and women. In men, diabetes was associated with an increased risk for pancreatic and bladder cancers; in women, it was associated with an increased risk for stomach, anal and endometrial cancers. No association was found between diabetes and lung, skin or other cancers.

"Follow-up studies to identify the biologic mechanisms involved should be performed to build upon confirmed findings," Lai said.

Diabetes

Diabetes or lipid-lowering medications may help treat addiction (New Kerala: 7.4.2011)

Two recent studies have suggested that diabetes or lipid-lowering medications may play roles in the treatment of nicotine and alcohol addiction by acting in the brain.

Thiazolidinediones (TZDs) are a class of medications that are commonly prescribed to treat type-2 diabetes, while fibrates are a structurally-related class of medications that are prescribed to modulate lipid levels in both diabetic and non-diabetic patients to help reduce the risk of cardiovascular disease.

These drugs work by binding to peroxisome proliferator-activated receptors (PPARs), with TZDs reducing insulin resistance and lowering the levels of cytokines that promote inflammation, and fibrates reducing low-density lipoprotein (LDL) and triglyceride levels and increasing high-density lipoprotein (HDL) levels to help prevent the development of cardiovascular disease.

Another effect of TZDs and fibrates is to raise leptin levels, an effect that may reduce appetite.

Recent studies also suggest that PPARs are expressed in the central nervous system, particularly in brain regions implicated in reward.

Now, the new studies have suggested that drugs that stimulate two different subclasses of PPARs, PPAR- α and PPAR- γ , may play roles in the treatment of nicotine and alcohol addiction by acting in the brain.

The first study, by Mascia and colleagues, used a multi-pronged approach to demonstrate that nicotine's addictive effects can be counteracted by drugs that activate PPAR- α .

In both rats and monkeys, these drugs reduced nicotine intake and relapse to nicotine seeking after a period of abstinence. They also prevented nicotine from altering electrical activity and neurochemical levels in addiction-related brain areas.

In the second study, Stopponi and colleagues used pioglitazone to evaluate its effects on alcohol drinking, relapse-like behavior, and withdrawal in rats. Pioglitazone activates PPAR- γ and is an FDA-approved medication for the treatment of type 2 diabetes.

Corresponding author Roberto Ciccocioppo detailed their findings, "We demonstrated that activation of PPAR- γ receptors by pioglitazone potently reduces alcohol consumption in a rat model of excessive drinking. We also found that pioglitazone abolishes alcohol craving elicited by exposure to stress and prevented the expression of somatic signs of alcohol withdrawal."

The studies have been recently published in Biological Psychiatry.

Diabetes

Some diabetes drugs are better than others: Study (New Kerala: 8.4.2011)

A new study has found that several commonly prescribed drugs for type 2 diabetes may not be as effective at preventing death and cardiovascular diseases, such as heart attacks and stroke, as the oral anti-diabetic drug, metformin.

Insulin secretagogues (ISs), such as glimepiride, glibenclamide (known as glyburide in the USA and Canada), gliclazide and tolbutamide, have been used to treat type 2 diabetes since the 1950-1970s. Nevertheless, the long-term risk associated with these drugs has largely been unknown. Metformin is the first drug of choice in type 2 diabetes, but, until

now, there have not been studies investigating the long-term risk of individual ISs compared with metformin.

The study followed a large, unselected group of everyone living in Denmark, aged over 20, who had been treated with either an IS or metformin (monotherapy) between 1997 and 2006 – a total of 107,806 people. It found that, compared to metformin treatment, monotherapy with most ISs, including glimepiride, glibenclamide, glipizide and tolbutamide, was associated with a greater risk of death from any cause, and a greater risk of heart attacks, stroke or death from cardiovascular diseases. This was the case both for patients who had already suffered a heart attack and for patients who had not. Two other ISs, gliclazide and repaglinide, showed no significant difference to metformin in their effectiveness in patients with and without a history of heart attacks.

Compared to metformin, patients who had not suffered a heart attack had approximately a fifth to a third higher risk of death from any cause if they were taking glimepiride, glibenclamide, glipizide or tolbutamide. In patients with a history of heart attacks, the risk was approximately a third to a half higher.

The researchers, led by Tina Ken Schramm, a senior resident doctor at the Heart Centre at the Rigshospitalet Copenhagen University Hospital (Copenhagen, Denmark), stress that the findings may not mean that these ISs actually cause harm, but only that they appear to be less effective than metformin.

The study has been published online in the European Heart Journal.

Caffeine and Diabetes

Caffeine and Diabetes: Helpful or Harmful? (Science daily: 8.4.2011)

A growing body of research suggests that caffeine disrupts glucose metabolism and may contribute to the development and poor control of type 2 diabetes, a major public health problem. A review article in the inaugural issue of Journal of Caffeine Research: The International Multidisciplinary Journal of Caffeine Science, a quarterly peer-reviewed journal from Mary Ann Liebert, Inc. publishers, examines the latest evidence, contradicting earlier studies suggesting a protective effect of caffeine.

James Lane, PhD, Duke University, describes numerous studies that have demonstrated caffeine's potential for increasing insulin resistance (impaired glucose tolerance) in adults that do not have diabetes, an effect that could make susceptible individuals more likely to develop the disease. In adults with type 2 diabetes, studies have shown that the increase in blood glucose levels that occurs after they eat carbohydrates is exaggerated if they also consume a caffeinated beverage such as coffee. This effect could contribute to higher glucose levels in people with diabetes and could compromise treatment aimed at controlling their blood glucose.

"More than 220 million people worldwide have diabetes, says Editor-in-Chief Jack E. James, PhD, School of Psychology, National University of Ireland, Galway, Ireland. "The

links that have been revealed between diabetes and the consumption of caffeine beverages (especially coffee) are of monumental importance when it is acknowledged that more than 80% of the world's population consumes caffeine daily. Dr. Lane's review of the topic gives the clearest account to date of what we know, what we don't know, and what needs to be done -- urgently!"

Diabetic

Diabetic? Forget pills, pop almonds (New Kerala: 3.5.2011)

As India grapples with a major public health problem, being home to an estimated 50.8 million diabetic population, the largest in the world, experts say consuming a few almonds daily can help combat the lifestyle disease.

Eating almonds has a positive effect on reducing low density cholesterol and also improves insulin sensitivity; so it does help in pushing diabetes away," says Ritesh Gupta, head of clinical operation at Fortis C-Doc Hospital.

"It is a healthy source of fibre, protein and calories and has been found to have a positive effect in reducing bad cholesterol and improved insulin sensitivity," Gupta told IANS.

Diabetes is caused when there is deficiency of insulin hormone, which controls blood sugar levels. Its symptoms include fatigue, excessive thirst and frequent urination.

With an estimated 50.8 million people living with the disease, India has the world's largest population of diabetics in the world, followed by China with 43.2 million, says the World Health Organisation (WHO).

The number in India is expected to go up to 87 million - 8.4 percent of the country's adult population - by 2030.

With India staring at a major public health threat due to diabetes and other lifestyle diseases, almond is now being hailed as the health nut.

"Indians are more prone to lifestyle diseases like diabetes. The increasingly sedentary lifestyle and fast food double up the risk. Almond, which has traditionally been part of our diet, is a high source of nutrition and helps push these diseases away," says Anoop Misra, director of Diabetes Foundation (India).

"A handful of almonds contains 164 calories and 7 gm of protein, which helps in fighting hunger pangs and helps you control what you eat. Almonds also help growing children in developing strong bones," he adds.

A study done by scholars from the University of Medicine and Dentistry of New Jersey, West Chester University, Pennsylvania, and Loma Linda University of California, all in the US, and published in the Journal of the American College of Nutrition also confirms that the nut can control diabetes if consumed regularly.

"A diet consisting of 20 percent of calories as almonds over a 16-week period is effective in improving markers of insulin sensitivity and yields clinically significant improvements in LDL-C (low density lipoprotein cholesterol) in adults with pre-diabetes," the study said.

"We have made great strides in chronic disease research, from evidence of effective treatment to evidence of effective prevention," said Michelle Wien, assistant research professor in nutrition at Loma Linda University's School of Public Health.

She was also the principal investigator for the study, which was conducted at the University of Medicine and Dentistry of New Jersey.

"Low density cholesterol is the cholesterol which blocks the arteries. According to the study, the intake of almonds had a significant effect on reducing the levels, along with improving insulin sensitivity," said Karen Lapsley, chief scientific officer of the Almond Board of California, which was an associate in the study.

"It's also very easy to consume, one can have it any time, so it merges well with the hectic lifestyle," Lapsley said.

Gupta, however, adds that indiscreet consumption of almonds alone will not help and it should be seen as a percentage of total calorie intake.

"It is not that one can eat anything and pop five almonds. It has to be seen as a percentage of total calorie intake. The rest of the diet is as important," he added.

Diabetics

Diabetics at Higher Risk of Tuberculosis Infection, Researchers Find (Science Daily: 26.5.2011)

People with diabetes have a three to five times higher risk of contracting tuberculosis (TB) than non-diabetics, according to researchers at The University of Texas Health Science Center at Houston (UTHealth).

Results of the study, which included 233 patients with TB who live in Texas and Mexico along the border, are published in the May issue of the Bulletin of the World Health Organization. It was funded by the National Institutes of Health.

"With the increase in diabetes patients in TB-endemic areas, our findings highlight the re-emerging impact of diabetes mellitus, known as type 2, on TB control in regions of the world where both diseases are prevalent," said Blanca Restrepo Ph.D., lead investigator and associate professor of epidemiology at The University of Texas School of Public Health Brownsville Regional Campus, a part of UTHealth. "There is a need to focus on identifying the opportunities to prevent TB in diabetes patients."

Study results found 25 percent of TB cases were attributed to the presence of diabetes. In contrast, only 6 percent of the TB cases were due to HIV.

"Physicians should be screening at-risk diabetic patients for TB and patients should be aware of their diabetes status," said Restrepo. "Opportunities are being missed for patients and physicians to work together to manage both diseases." At-risk patients are considered those who have diabetes and had recent contact with a TB patient, making them prime candidates for preventive TB treatment.

TB is a leading killer among bacterial diseases worldwide. In 2009, more than 9 million new cases were diagnosed and 1.7 million people died from the disease. The World Health Organization (WHO) suspects TB control is being undermined by the growing number of patients with diabetes mellitus in the world, which is anticipated to reach 438 million by 2030. Research suggests that diabetes depresses the immune response, which in turn facilitates infection with *Mycobacterium tuberculosis* and/or progression to symptomatic disease.

"This research confirms results from several other studies showing an increased risk of TB in people with diabetes and means that it is important that clinicians actively seek to diagnose diabetes in people with TB, and vice versa," said Knut Lonnroth, M.D., Ph.D., medical officer in the Stop TB Department at the World Health Organization. "WHO and several partner organizations are in the process of finalizing a Collaborative Framework for Care and Control of Tuberculosis and Diabetes, which will guide countries on how to prepare health services for coordinated management and prevention, especially countries with high burden of both diseases."

According to Restrepo, a combined diagnosis of TB and diabetes is becoming more evident in the Hispanic population, but this may also be the case in populations at higher risk for the two diseases such as American Indians and African-Americans.

The TB study group included 61 patients in South Texas and 172 in Northeastern Mexico.

The impact of diabetes on TB control varies by country. In South Texas, nearly all of the diabetic patients in the study were aware of having diabetes for at least six months before being diagnosed with TB, but in Mexico, 20 percent were not previously aware of their diabetes status.

In the United States, TB rates are disproportionately higher among racial/ethnic minorities, according to the Centers for Disease Control and Prevention. "Screening TB contacts for diabetes would be useful to identify individuals at high risk for TB who should be taking TB prophylaxis, and could also lead to earlier detection and better management of both diseases," said Restrepo. She said this study has implications in particular for countries with high prevalence of both diseases, such as Bangladesh, Brazil, China, India, Indonesia, Pakistan and the Russian Federation.

Restrepo and Lonnroth both said improved diabetes prevention and management with partial integration of TB programs worldwide will benefit the management of both diseases.

"TB clinics can reach out to a population that is medically underserved and provide new diabetes diagnosis to this population," Restrepo said.

Study participants were new TB cases diagnosed between March 2006 and September 2008 at clinics in Hidalgo and Cameron County Health Department's clinics and the Secretaría de Salud de Tamaulipas in Matamoros, Mexico. Diabetes diagnoses were confirmed using blood testing.

Diabetes

Cell phone tech to tackle diabetes (Business Standard: 2.8.2011)

MOBILE PHONES, INTERNET AND OTHER

AN interactive computer software programme appears to be effective in helping patients tackle Type 2 diabetes using their mobile phones, according to a new study by researchers at the University of Maryland School of Medicine.

According to the study, to be published in the September issue of Diabetes Care, a key measure of blood sugar control—the amount of hemoglobin A1c in a person's blood—was lowered by an average of 1.9 per cent over one year in patients using the mobile health software. The findings support the exploration of mobile health approaches to manage many chronic conditions, including diabetes.

The study says using mobile phones, the internet and other mobile communications technology to keep patients healthy may have broad applications to help patients and physicians manage many health conditions. The software examined in the research provided realtime feedback on patients' blood sugar levels, displayed medication regimens and served as a 'virtual coach'. A patient's blood sugar test results were sent wirelessly from a blood glucose monitor to a mobile phone.

If the level was too low or too high, the software on the phone prompted the person to take steps to correct it. The system also analysed blood sugar levels and other patient

information and sent computer-generated logbooks. It also suggested treatment plans to the patients' primary care doctor.

People with Type 2 diabetes either do not produce enough insulin to convert sugar into energy or their cells ignore the insulin. A key measure of blood sugar control is the amount of hemoglobin A1c in a person's blood. A1c is a molecule in red blood cells that binds itself to blood sugar. The higher the level of sugar in the blood, the higher the level of A1c.

The world at large runs on lithium ion batteries. New research at Rice University shows nano worlds may soon do the same. Pulickel Ajayan of the Rice lab has packed an entire lithium ion energy storage device into a single nanowire. The study was published in Nano Letters, the American Chemical Society journal. The researchers described testing two versions of their battery/supercapacitor hybrid. The first is a sandwich with nickel/tin anode, polyethylene oxide electrolyte and polyaniline cathode layers and the second packs the same capabilities into a single nanowire.

Diabetes

Beat diabetes with a wheat and rice free diet (New Kerala: 5.8.2011)

Forget the much advertised cornflake or the humble roti and rice -- they can kill. Workday menus of Indians living in big cities are being redefined by the fear of proliferating diabetes brought on by stress and poor diet, say leading lifestyle doctors and diabeticians.

With India expected to be home to 80 percent of the world's diabetic population by 2025, the buzzword is "low glycemic load foods". The glycemic index or GI is a measure of the effects of carbohydrate on blood sugar level.

Studies have proved that people who eat low-glycemic food over several years are less prone to type 2 diabetes and coronary heart diseases than those who love their morning platter of "parantha, poori and roti (Indian breads)" - the high glycemic delights.

"The meals should be kept free of flour, cornflakes, wheat and rice," Gaurav Sharma, a diabetologist, sports medicine and lifestyle doctor told IANS. They can kill with excess starch and gluten allergy, the newest wheat allergen on the pantry shelf which can aggravate the condition of diabetics.

"An ideal anti-diabetic breakfast, the most important meal of the day, should be a combination of eggs - fried, poached or scrambled in extra-virgin olive oil - accompanied by a tomato or mint dip followed by herbal or jasmine tea," he added.

Eggs do not increase cholesterol; the popular perception of eggs as a potential source of cholesterol is a myth, said the doctor who has treated several top sportspersons including Kapil Dev.

Sharma, who has been practising lifestyle medicine for the last two decades, has designed several anti-diabetes diet plans.

"Every Indian family with or without a history of diabetes must use at least three different varieties of cooking oils rich in the essential Omega-3 fatty acids, which help production of natural insulin," the doctor said.

"They can be olive oil, mustard oil, clarified butter, coconut oil or flaxseed oil," he added.

Breakfast is ideally followed by a light snack of nuts and tea after two-three hours. Three hours on, lunch should be a spartan affair.

"Eat at least two platters of curried vegetables cooked in Omega 3 rich oil, a portion of 'paneer' or cottage cheese cooked in a light gravy of spices and tomatoes, chicken or mutton, the amount of which should not exceed the size of the palm for it corresponds to the size of the stomach," Sharma recommended.

According to the National Institute of Nutrition, "the shift from traditional to modern foods, changing cooking practices, increased intake of processed ready-to-eat foods, intensive marketing of junk food and health beverages have affected people's perceptions to food as well as their dietary behaviour".

A study by the institute said: "The irrational preference for energy dense foods and those with high sugar and salt content pose a serious health risk."

Said nutrition expert Divya Sanglikar of Desidieter, a nutrition group: "The traditional Indian palette has always been considered healthy, second to Mediterranean food."

"But the fast-paced lifestyle and the boom in the food processing industry has been responsible for making people nutritionally lazy. Well-balanced 'thalis' (platters) are being replaced by takeaways and two-minute noodles, increasing the threat of diabetes and related complications," she added.

Diabetes-India.com, one of the oldest and the biggest online platforms campaigning for a diabetes-free life, advises that "traditional Indian diets with slight modifications are close to what is considered an ideal low diabetes diet".

"The basic advice is to avoid sugared foods," it prescribes.

The carbohydrate level should remain around 60-70 percent of the total calorie intake by a diabetes patient, while proteins should make up 12-18 percent of the total calories.

The portion of fats is best confined to 20-25 percent of the total calories, the Diabetes-India diet plan says.

The diabetes picture in the country is grim, said Sharma, quoting a new study conducted by an organisation in Chennai this year.

It revealed that Ernakulam topped the list of diabetes-ravaged cities with an incidence of 19.5 percent, followed by Thiruvananthapuram with 17.5 percent, Chennai 13.5 percent, Bangalore 13.5 percent and Delhi 10.5 percent.

According to global statistics, one person dies every 10 seconds of diabetes-related illnesses and two new diabetes cases are identified every 10 seconds.

Insulin pump

‘Insulin pump, monitor too can be hacked’ (The Times of India: 5.8.2011)

Even the human bloodstream isn’t safe from computer hackers. A security researcher who is diabetic has identified flaws that could allow an attacker to remotely control insulin pumps and alter the readouts of blood-sugar monitors. As a result, diabetics could get too much or too little insulin.

Jay Radcliffe, a diabetic who experimented on his own equipment, shared his findings before releasing them Thursday at the Black Hat computer security conference in Las Vegas. “My initial reaction was that this was really cool from a technical perspective,” he said. “The second reaction was one of sheer terror, to know that there’s no security around the devices which are a very active part of keeping me alive.”

Increasingly, medical devices such as pacemakers, operating room monitors and surgical instruments including deep-brain stimulators are being made with the ability to transmit vital health information from a patient’s body to doctors and other professionals. Some devices can be remotely controlled by medical professionals. Although there’s no proof that anyone has used Radcliffe’s techniques, his findings raise fears about the safety of medical devices as they’re brought into the Internet age.

Insulin pumps

Insulin pumps, monitors vulnerable to hacking (The Asian Age: 5.8.2011)

LAS VEGAS - Even the human bloodstream isn't safe from computer hackers.

A security researcher who is diabetic has identified flaws that could allow an attacker to remotely control insulin pumps and alter the readouts of blood-sugar monitors. As a result, diabetics could get too much or too little insulin, a hormone they need for proper metabolism.

Jay Radcliffe, a diabetic who experimented on his own equipment, shared his findings with The Associated Press before releasing them Thursday at the Black Hat computer security conference in Las Vegas.

"My initial reaction was that this was really cool from a technical perspective," Radcliffe said. "The second reaction was one of maybe sheer terror, to know that there's no security around the devices which are a very active part of keeping me alive."

Increasingly, medical devices such as pacemakers, operating room monitors and surgical instruments including deep-brain stimulators are being made with the ability to transmit vital health information from a patient's body to doctors and other professionals. Some devices can be remotely controlled by medical professionals.

Although there's no evidence that anyone has used Radcliffe's techniques, his findings raise fears about the safety of medical devices as they're brought into the Internet age. Serious attacks have already been demonstrated against pacemakers and defibrillators.

Medical device makers downplay the threat from such attacks. They argue that the demonstrated attacks have been performed by skilled security researchers and are unlikely to occur in the real world.

But hacking is like athletics. Showing that a far-fetched attack is possible is like cracking the 4-minute mile. Once someone does it, others often follow. Free or inexpensive programs eventually pop up online to help malicious hackers automate obscure attacks.

Though there has been a push to automate medical devices and include wireless chips, the devices are typically too small to house processors powerful enough to perform advanced encryption to scramble their communications. As a result, most devices are vulnerable.

Radcliffe wears an insulin pump that can be used with a special remote control to administer insulin. He found that the pump can be reprogrammed to respond to a stranger's remote. All he needed was a USB device that can be easily obtained from eBay or medical supply companies. Radcliffe also applied his skill for eavesdropping on computer traffic. By looking at the data being transmitted from the computer with the USB device to the insulin pump, he could instruct the USB device to tell the pump what to do.

Radcliffe, who is 33 and lives in Meridian, Idaho, tested only one brand of insulin pump — his own — but said others could be vulnerable as well.

Although an attacker would need to be within a couple hundred feet of the patient to pull this off, a stranger wandering a hospital or sitting behind a target on an airplane would be close enough.

Radcliffe also found that it was possible to tamper with a second device he wears. He found that he could intercept signals sent wirelessly from a sensor to a machine that displays blood-sugar levels. By broadcasting a signal that is stronger than the real-time, authentic readings, the monitor would be tricked into displaying old information over and over. As a result, a patient who didn't notice wouldn't adjust insulin dosage properly.

With a powerful enough antenna, Radcliffe said, an attacker could be up to half a mile away. This attack worked on two different blood-sugar monitors, Radcliffe said.

"Everybody's pushing the technology to do more and more and more, and like any technology that's pushed like that, security is an afterthought," Radcliffe said.

Radcliffe refused to identify any of the three device makers, in part out of concern for his own safety. He is concerned that the devices don't appear to have an easy way to be updated with new software to fix the problems. He said he intends to notify the manufacturers after Thursday's presentation outlining the weaknesses.

The hacking fears come on top of human errors and technical glitches tied to medical devices. The U.S. Food and Drug Administration has identified software and design errors as critical concerns in investigating hundreds of deaths potentially linked to drug pumps.

FDA officials declined to comment specifically on Radcliffe's findings, saying they hadn't seen the research. But the FDA said that any medical device with wireless communication components can fall victim to eavesdropping. It warns device makers that they are responsible for making sure they can update equipment after it's sold.

Industry officials downplay the potential threat.

"The risk to a patient with diabetes of having their monitors hacked is extraordinarily small, and there's a greater health risk of not monitoring than the risk of being hacked," said Wanda Moebius, a vice president at the Advanced Medical Technology Association, an industry group.

Few public studies have been done on the susceptibility of medical devices to hacking.

One such study, which appeared in 2008 from a consortium of academics, found that a popular type of device that acted as both a pacemaker and defibrillator could be remotely reprogrammed to deliver potentially deadly shocks or run out its battery.

The problem was the way the device transmitted data unencrypted and accepted commands wirelessly from unauthorized devices. One limitation of the study was that

researchers only examined an attack from a few centimeters away from the targeted device.

Yoshi Kohno, a University of Washington professor of computer science who was a co-author of that study, said that Radcliffe's new research reinforces the urgency of addressing security issues in medical devices before attacks move out of research labs.

"The threat hasn't manifested yet, so what they and we are trying to do is see what the risk could be in the future," said Kohno, who wasn't part of Radcliffe's research.

Radcliffe said the point of his research is not to alarm people. He said the issues he's discovered are important to address publicly as the medical industry moves aggressively toward more networked devices.

"It would only take one person to do this to kill someone and then you have a catastrophe," he said.

Website on diabetes

Website on diabetes launched in Ahmadabad (World Newspapers: 9.8.2011)

Chief justice of Gujarat high court, SJ Mukhopadhaya launched a website to create awareness and fight diabetes, at the AMA hall on Sunday.

The website, named www.stopdiabetesindia.com has been created by Swasthya, a city-based medical centre in association with national and international research organisations. The website will cover all aspects of the lifestyle disease and aims at creating awareness and answer people's query on it.

Dr Mayur Patel of Swasthya had conceived the website under his project 'Stop Diabetes,' which he had launched on November 14 last year.

Speaking on the occasion, justice Mukhopadhaya said, "Generally, I do not like to attend functions which are not related to law or judiciary. However, as this was a doctors' function, I agreed to come as I had started my career as a medical representative before joining law profession."

The chief justice further said, "Roaming till late in the night, habit of eating junk food, stressful work, habit of living in air condition rooms etc leads one to develop high levels of blood sugar."

Sharing his personal experience, Mukhopadhaya said, "Yoga and prayanam can be a remedy of the malady. I had a high level of blood cholesterol of 415 once but when I started yoga, I saw results in one month and it come down to 85."

Talking to media persons, Dr Patel said, "India is the diabetes capital of the world with 33 million patients having been recorded in 2003. Gujarat has the maximum number of people with diabetes in the country due to the eating habits. Now, it is even diagnosed among those in 40s and worst, even among school-going children. If proper preventive steps are not taken, the figure can escalate to 80.9 million by 2030."

The project will work towards improving health care delivery system to the people by training around 1,200 community doctors and about 2,000 nurses and other paramedical staff for early detection and proper management of diabetes, Dr Patel said.

Swasthya and Lions Club International, on Saturday, also held a diabetes camp at Maninagar wherein around 300 doctors were trained for treatment of diabetes around 700 people went under test for the disease. Suresh Shah, district governor of the Lions Club, also advised people to take care and prevent diabetes. Dr. Ina Mayur Patel welcomed the chief justice to the launch function.

Diabetes

Mystery solved: How fatty food causes diabetes 9The Times of India: 16.8.2011)

For the first time, scientists have discovered how fatty food trips a genetic switch in the body that can trigger diabetes, a finding they say could lead to a potential cure for the disease.

In studies on mice and humans, a team of researchers at the Sanford-Burnham Medical Research Institute in the US found that high levels of fat disrupted two key proteins that turn genes on and off. The "transcription factors" FOXA2 and HNF1A activate a pancreatic enzyme that in healthy people prevents diabetes developing, the 'Daily Mail' reported.

When the proteins stop working, the enzyme is shut down, which in turn upsets the ability of insulin-secreting beta cells in the pancreas to monitor blood sugar levels. Without this glucose sugar-sensing mechanism, blood sugar cannot be regulated properly. The discovery, published in the journal Nature Medicine, helps explain why Type 2 diabetes is so often linked to obesity and it could also lead to a potential cure for the condition, the researchers said.

Study leader Jamey Marth said: “Now that we know more fully how states of over-nutrition can lead to Type 2 diabetes, we can see clearly how to intervene. The identification of the molecular players suggests new therapeutic targets and approaches towards developing an effective preventative or perhaps curative treatment. This may be accomplished by beta cell gene therapy or by drugs that interfere with this pathway in order to maintain normal beta cell function.”

Diabetes

Diabetes: Some useful suggestions (The Tribune: 17.8.2011)

According to the recent estimates by the International Diabetes Federation, approximately 285 million people in the adult age group are suffering from diabetes. India leads the pack with 51 million diabetics, aptly called “The diabetes capital of the world”! In addition, about 8-15 per cent of the adults are in the prediabetic stage. If that is not all, Indians are developing diabetes at a much younger age than anywhere else in world. This affects a person’s most productive years of life adversely and hence the nation’s health and economy as a whole.

Type-2 diabetes occurs in genetically predisposed individuals who are exposed to certain environmental influences. The ongoing diabetes epidemic is the result of today’s lifestyle — abundance of processed food, sedentary lifestyle, obesity and mental stress. Indeed, epidemiological data suggest that nine of 10 cases of diabetes could be attributed to habits and forms of modifiable behaviour. Poor control of diabetes leads to severe complications in the long term. Diabetes mainly affects a patient’s kidneys, eyes, the nervous system and the heart. In fact, diabetes is the leading cause of end-stage renal disease, non-traumatic lower extremity amputation and adult blindness.

Following a healthy lifestyle can help prevent diabetes: This includes proper diet and regular exercise. About 7 per cent of body weight reduction in prediabetic overweight individuals can reduce the risk of development of diabetes by about 30 – 60 per cent.

How much total calories a day does one require?

A healthy person with moderate physical activity requires 25 - 30 kcal/kg of ideal body weight per day. Out of total calories, 55-60 per cent should come from carbohydrates, 25-30 per cent from fats and 15 per cent from proteins. Five hundred-1,000 fewer calories than estimated to be necessary for weight maintenance usually result in a loss of body weight by 0.5-1kg/week. For weight loss, either low-carbohydrate or low-fat, calorie-restricted diets are effective.

Glaucoma and Diabetes

Relationship between Glaucoma and Diabetes, Hypertension (Science Daily: 18.8.2011)

Many Americans suffer from diabetes and hypertension and, according to a study by researchers at the University of Michigan Kellogg Eye Center, these individuals may have an increased risk of developing open-angle glaucoma (OAG).

Joshua D. Stein, M.D., M.S., a glaucoma specialist at Kellogg, led a research team that recently reviewed billing records of more than 2 million people aged 40 and older who were enrolled in a managed care network in the United States and who visited an eye care provider one or more times from 2001 to 2007. The researchers found that people with diabetes alone had a 35 percent increased risk of developing OAG and those with hypertension alone had a 17 percent increased risk. For people with both diabetes and hypertension, there was a 48 percent increased risk of developing OAG, the most common form of glaucoma in the country.

The study focused on the possible associations between various components of metabolic syndrome -- a collection of conditions that includes obesity, hypertension, diabetes, and hyperlipidemia (high cholesterol and high triglyceride levels) -- that affects one fifth of the U.S. population. The Kellogg researchers also examined how each component increased or decreased the risk of glaucoma.

While the researchers found that diabetes and hypertension increased the risk of OAG, the study showed that hyperlipidemia actually reduced by 5 percent the risk for developing the disease. Further research is under way to evaluate whether it is the hyperlipidemia itself, the medications used to treat the condition, or both that reduces the risk of glaucoma. Findings from this research may eventually lead to novel treatments for glaucoma.

"Patients who have diabetes and hypertension are already known to be at elevated risk for eye conditions like diabetic retinopathy, a condition that harms the blood vessels in the retina," says Dr. Stein. "This study and others suggest that, for these patients, an increased likelihood of glaucoma is also a concern."

Glaucoma is a leading cause of irreversible blindness worldwide. In the United States, more than 2.2 million individuals have this disease. And, as the U.S. population ages, glaucoma diagnoses are expected to increase. Because OAG symptoms usually don't surface until the disease has progressed, understanding the risks associated with OAG -- elevated intraocular pressure, positive family history of glaucoma, increased age and non-

white race -- will help physicians identify which patients would benefit most from screening and monitoring.

"This study reinforces the importance of regular eye examinations for patients at increased risk of glaucoma, including those with diabetes and hypertension," says Dr. Stein. "

Diabetes and Predicaments

New Target for Treatment of Type 2 Diabetes and Prediabetes Identified (Science Daily: 23.8.2011)

Researchers at the Joslin Diabetes Center have shown that an enzyme found in the mitochondria of cells is decreased in the skeletal muscle of those with diabetes, a finding that could lead to the development of drugs to boost the activity of this enzyme in an effort to fight the disease.

A paper published online in the Proceedings of the National Academy of Sciences, showed that the enzyme, Sirt3, is decreased in the skeletal muscle of humans and animals with diabetes by at least half, compared to those without diabetes and that this may contribute to development of insulin resistance, one of the earliest manifestations of the disease. Sirt3 is found in the mitochondria, the power producers of cells that convert energy into usable forms.

"Ours is perhaps the first study to understand what is going wrong in the mitochondria of those with diabetes," said senior author C. Ronald Kahn, M.D., Head of the Joslin Section on Integrative Physiology and Metabolism and the Mary K. Iacocca Professor of Medicine at Harvard Medical School. "Many studies have shown that the mitochondria don't work well in those with diabetes. This points to a cause of why they don't work well."

Dr. Kahn said the study sought to look at how decreased Sirt3 levels might affect the metabolism of cells, particularly how it could affect insulin action in cells. "We know that one of the hallmarks of early diabetes is insulin resistance in muscle, but we didn't know what caused it," he said.

He said the study showed that when Sirt3 levels are low, as they are in the case of diabetes, the mitochondria of the cells are not as efficient in energy metabolism as they should be.

When the mitochondria become inefficient, they generate what are known as reactive oxygen species (ROS), chemically reactive molecules containing oxygen, which create insulin resistance in the muscles, he said.

"This is the first time this has been shown," Dr. Kahn said.

The goal for the future will be to find ways to restore levels of Sirt3 or increase the activity of the existing Sirt3, perhaps with a drug, in a bid to improve insulin resistance in the muscle and improve muscle metabolism, he said.

"It is a new target," he said.

Dr. Kahn noted that this study is one of the first demonstrations of a single defect that could affect mitochondrial metabolism and insulin signaling in the muscle.

"In further studies we will try to understand what proteins Sirt3 acts on," he said.

He noted that one of the earliest hallmarks of diabetes is insulin resistance in the skeletal muscle. As a result, a drug to boost Sirt3 levels could be useful in the treatment of prediabetes or in those newly diagnosed with the disease, he said.

"Agents which increase Sirt3 activity could, therefore, potentially reverse at least some of the adverse effects of type 2 diabetes," the paper concludes.

Co-authors included Enxuan Jing, lead author, as well as Brice Emanuelli, Jeremie Boucher and Kevin Lee, all of Joslin; Matthew D. Hirschey and Eric M. Verdin, both of Gladstone Institute of Virology and Immunology and the University of California, San Francisco; and David Lombard, formerly of the Department of Genetics at Harvard Medical School and currently at the Department of Pathology and Institute of Gerontology at the University of Michigan.

Dr. Verdin noted that by "uncovering the multi-faceted role of SIRT3, we are laying important groundwork to better combat this widespread disease at the cellular level."

The study was supported by research grants to Kahn and Verdin as well as a grant from the Ellison Foundation and the Mary K. Iacocca Professorship. The study also received support from the Joslin DERC cores laboratories.

Diabetics

Pressure changes in flight could affect diabetics? (The Times of India: 23.8.2011)

Changes in cabin pressure during flights may cause insulin pumps to deliver too much or too little of the medication, possibly putting extremely sensitive diabetics at risk, according to a study. Researchers led by Bruce King at John Hunter Children's Hospital in Newcastle, Australia wrote in the journal Diabetes Care decided to investigate after

learning of a 10-year-old girl with type 1 diabetes whose blood sugar got too low an hour after takeoff.

Diabetes, BP

20cr to be screened for diabetes, BP (The Times of India: 24.8.2011)

Hypertension and diabetes seem to be rampant in two of India's most modern metropolises, Bangalore and Chennai.

Union health minister Ghulam Nabi Azad said under his department's programme to test people for the twin diseases, in Bangalore, 14% and 21% were found to be suffering from diabetes and high blood pressure, respectively.

In Chennai, out of 3 lakh tested, 50,000 were found to be diabetic and another 60,000 hypertensive. Azad described the early results as "worrying".

Going by the ministry's latest initiative, 15-20 crore people will be screened for diabetes and hypertension this year. Initially, 100 most backward and inaccessible districts in 21 states and urban slums in 33 cities — with a population of more than 10 lakh — have been selected, where all adult males above 30 years and pregnant women of all age groups will be screened. At the outset, the scheme will be rolled out in Delhi, Kolkata, Mumbai, Chennai, Hyderabad and Bangalore.

"An integrated scheme, national programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke and the national programme for healthcare of the elderly, has been launched in 100 districts in 21 states," Azad said.

International Diabetes Federation estimates that India is home to an estimated 50.8 million diabetics, which is likely to increase to 87 million, or 8.4% of the country's adult population by 2030. India, however, isn't convinced with this estimate.

The alarming figures led the Indian Council of Medical Research to roll out its fact-finding Indian National Diabetes Study, or INDIAB. It will test one lakh blood samples collected, and also measure their glucose levels.

Earlier, a similar situation had arisen with India's HIV burden. Global estimates had said India's HIV patient burden was close to 5.2 million. In 2007, serological tests pegged it at 2.4 million.

Under a pilot study, INDIAB was conducted in four states — Maharashtra, Jharkhand, Chandigarh and Tamil Nadu — last year. After testing 16,000 people, preliminary results showed that diabetes prevalence in Maharashtra was 9.1% and 5.6% in urban and rural areas, respectively. It stood at 11.7% and 6.6% in urban and rural Tamil Nadu, and Chandigarh (13% urban) and (11.9% rural). The corresponding figures for Jharkhand were 11.4% and 2.8%. Now, ICMR will conduct the study in eight northeastern states, where it is preparing a lab and training manpower, and is assisted by the Regional

Medical Research Centre, Dibrugarh. Around 32,000 people will be tested from this region.

“We will roll out INDIAB. Around 17 states will be a part of this study except the north-eastern states and those which were part of our initial feasibility study. One lakh blood samples will be collected and tested for glucose levels. Every fifth subject will be tested for lipid parameters and ECG to see diabetes-related complications,” a Union health ministry official told TOI.

He added, “The study will first look at the actual prevalence of diabetes and pre-diabetes across states. Then, the prevalence of micro and macro-vascular complications in self-reported diabetics like its effect on organs will be analyzed. The final phase of the study will look at genetic molecular markers to see what could be predisposing Indians to diabetes that will help in early detection. INDIAB will be complete this in three years.”

Ghulam Nabi Azad

Anti-Diabetic Compound

New Class of Anti-Diabetic Compound Established (Science Daily: 5.9.2011)

In a joint study, scientists from The Scripps Research Institute and Harvard University's Dana-Farber Cancer Institute have established a new class of anti-diabetic compound that targets a unique molecular switch.

The finding paves the way for the development of anti-diabetic therapeutics with minimal adverse side effects plaguing currently available drugs such as Avandia (rosiglitazone), scheduled to be removed from pharmacy shelves this fall due to concerns about increased risk of heart attack.

The new study, led by Patrick R. Griffin, professor and chair of the Department of Molecular Therapeutics at Scripps Florida, Bruce Spiegelman, professor of cell biology at the Dana-Farber Cancer Institute, and Theodore Kamenecka, associate scientific director of medicinal chemistry at Scripps Florida, was published September 4, 2011, in the journal Nature. The study describes a new compound known as SR1664.

"In this study, we demonstrate that we have discovered novel compounds that work effectively through a unique mechanism of action on a well-validated clinical target for diabetes," said Griffin. "This unique mechanism of action appears to significantly limit side effects associated with marketed drugs. This study is a great example of interdisciplinary, inter-institutional collaboration with chemistry, biochemistry, structural biology, and pharmacology."

"It appears that we may have an opportunity to develop entire new classes of drugs for diabetes and perhaps other metabolic disorders," said Spiegelman.

Diabetes affects nearly 24 million children and adults in the United States, according to the America Diabetes Association.

A Viable Therapeutic Target

The study follows previous research by the authors published last year in *Nature* (Volume 466, Issue 7305, 451-456) that suggested an obesity-linked mechanism that may be involved in the development of insulin-resistance. In that research, the team found disruptions in various genes when a protein known as PPAR γ undergoes phosphorylation (when a phosphate group is added to a protein) by the kinase Cdk5, an enzyme involved in a number of important sensory pathways.

The new study confirms that blockage of Cdk5's action on PPARG is a viable therapeutic approach for development of anti-diabetic agents. The new SR1664 compound is a potent binder to the nuclear receptor PPARG, but does not activate gene transcription via the receptor's normal mechanism.

While Griffin stressed the difficulty of fully assessing side effects of new compounds such as SR1664, the new research is extremely positive in that it clearly demonstrated fewer of the major well-documented side effects, such as weight gain or increased plasma volume, from SR1664 as compared to Avandia in diabetic mice.

While both the mice treated with Avandia and those treated with SR1664 demonstrated improved blood sugar levels, those treated with Avandia showed weight gain and increased fluid retention within a few days of beginning treatment; those being treated with SR1664 showed none of these side effects. In cell culture studies, SR1664 also appeared to have little effect on bone formation, nor did it increase fat generation in bone cells, another side effect of current therapies such as Avandia.

While S1664 likely will not be developed as a drug, it now serves as a molecular scaffolding for the creation of similar compounds with potential to treat diabetes. "With data in hand showing that our compounds are as efficacious as the currently marketed PPARG modulators, while demonstrating a significant improvement of side effects in limited studies, we are now advancing newer compounds with improved pharmaceutical properties into additional studies," Griffin said.

The study was supported by The National Institutes of Health.

Diabetes

New compound to treat diabetes better with limited side effects created (New Kerala: 6.9.2011)

Scientists have created a new class of anti-diabetic compound that is expected to better the treatment procedure for diabetes with minimal adverse side effects.

The joint study, by scientists from The Scripps Research Institute and Harvard University's Dana-Farber Cancer Institute, suggested that this new compound known as SR1664 could open up a new dimension in the anti-diabetic therapeutics.

“In this study, we demonstrate that we have discovered novel compounds that work effectively through a unique mechanism of action on a well-validated clinical target for diabetes,” said researcher Patrick R. Griffin, professor and chair of the Department of Molecular Therapeutics at Scripps Florida.

“This unique mechanism of action appears to significantly limit side effects associated with marketed drugs,” he added.

While S1664 likely will not be developed as a drug, it now serves as a molecular scaffolding for the creation of similar compounds with potential to treat diabetes.

The study was published in the September issue of Nature.

Diabetes

Diabetes: New Drug Target That Stimulates Beta Cell Growth Identified (Science daily: 7.9.2011)

One of the holy grails in diabetes research is to discover molecules that stimulate beta cell growth and to find drugs that target these molecules. Now, JDRF-funded researchers in collaboration with the pharmaceutical company Hoffmann-La Roche, have done both, discovering not only a protein that regulates beta cell growth, but also a chemical compound that stimulates it. The work appears in the September 7 issue of Cell Metabolism.

The discovery, led by Markus Stoffel, M.D., Ph.D., a professor at the Swiss Federal Institute of Technology in Zurich, represents a significant advance in identifying a new drug target for beta cell regeneration.

The work builds on a discovery made five years ago, when Dr. Stoffel and his team first showed that a once obscure protein, called Tmem27, is localized on the surface membrane of beta cells, the insulin-producing cells that are located within islets in the pancreas. At the time, they found that increased levels of Tmem27 on beta cells were associated with increased islet mass in mice. They also found that if Tmem27 is cleaved, it left the protein completely inactivated.

"We hypothesized that if we could prevent Tmem27 from being cleaved and increase the levels of this protein, we could get more beta cell growth," says Dr. Stoffel, who is also a 2010 recipient of JDRF's Gerold & Kayla Grodsky Basic Research Scientist Award. "This observation gave us the rationale to look for what was inactivating Tmem27."

After screening possible molecules that could snip Tmem27, Dr. Stoffel and his team found the culprit: Bace2, an enzyme protein that, like Tmem27, also resides on the outer surface (known as the plasma membrane) of the beta cell. The researchers confirmed their theory by finding that mice that lacked Bace2 had larger islets and the beta cells in the islets increased in number, a process known as proliferation or regeneration. They also found that these mice were able to clear glucose from the blood more efficiently than control mice with Bace2.

Dr. Stoffel and his team next aimed to inhibit Bace2 in an effort to control and promote the growth of beta cells. To do so, they teamed up with scientists at Hoffmann-LaRoche who developed a chemical compound that could inhibit Bace2. When the scientists gave this compound to mice, they saw that it inhibited Bace2 and stimulated the growth of new beta cells. Importantly, Bace2, and not its close relative Bace1, which is implicated in other diseases, cleaves the Tmem27 protein, suggesting the potential for developing a Bace2 inhibitor as a diabetes-specific therapy.

In addition to identifying a new drug target for promoting beta cell regeneration, Dr. Stoffel's work may also help in developing tests to measure the amount of Tmem27 fragments in the blood -- a biomarker that could be used as an index of beta cell number.

Diabetics

Diabetics must be in Regular Touch with Their Doctor (Med India: 30.9.2011)

A recent insight has pointed out that diabetics benefit from regular interactions with their doctor.

According to researchers at Brigham and Women's Hospital (BWH), achieving ideal levels may be as simple as seeing your doctor. They found that frequent doctor-patient

encounters are associated with faster achievement of blood glucose, blood pressure and cholesterol treatment goals. The research will be published in the September 26, 2011, issue of Archives of Internal Medicine. Apart from monitoring a patient's hemoglobin A1C (a type of blood glucose measurement) levels every three months, there are no current recommendations in diabetes care guidelines indicating how often doctors should see their patients. These research findings may provide an answer, suggesting that encounters every two weeks may be appropriate for those whose diabetes are severely uncontrolled. Researchers looked at the electronic medical records (EMRs) of 26,496 patients with type 2 diabetes who had at least one instance of high hemoglobin A1C, blood pressure or LDL cholesterol ("bad" cholesterol) values. A doctor-patient encounter was defined as any note made in the EMR, which included face-to-face encounters, as well as remote encounters such as via telephone. All patients in the study were seen by primary care doctors for at least two years from January 2000 to January 2009. Researchers evaluated the length of time it took for high levels of hemoglobin A1C, blood pressure and LDL cholesterol to decrease to reach treatment goals. They also determined the mean doctor-patient encounter intervals within this time span. Patients who saw their doctor every 1 weeks achieved treatment goals sooner than those who saw their doctor every 3 months. Patients who saw their doctors every 1 weeks had a median time of 4.4 months (non-insulin patients) and 10.1 months (insulin patients) to reach their hemoglobin A1C treatment goals compared to 24.9 months (non-insulin patients) and 52.8 months (insulin patients) for those who saw their doctor every 3 months. Blood pressure level goals were reached at 1.3 months in the 1 week group vs. 13.9 months in the 3 month group. LDL cholesterol level goals were also reached sooner at 5.1 months vs. 32.8 months, respectively. For all values combined, the median time to reach treatment goals was 1.5 months vs. 36.9 months, respectively. Alexander Turchin, MD, MS, BWH endocrinologist and assistant professor at Harvard Medical School and the study's senior and corresponding author, attributes several interactions during these encounters for reaching target goals. "Physicians may be prescribing new medications or increasing the dose of existing ones," said Turchin. "Another process occurring is lifestyle counseling. Physicians are telling patients how they can improve their diet. They are telling their patients to exercise more and lose weight, which is going to help their diabetes control." Further analysis showed that doubling the amount of time between doctor-patient encounters increased the time it took to reach treatment goals. Time to reach hemoglobin A1C goals increased by 35 percent (non-insulin patients) and 17 percent (insulin patients). Time to reach blood pressure and LDL cholesterol treatment goals increased by 87 percent and 27 percent, respectively.

Diabetes

ICMR-INDIAB study provides new figures for diabetes (The Hindu: 30.9.2011)

New figures for diabetes prevalence in India indicate that the epidemic is progressing rapidly across the nation, reaching a total of 62.4 million persons with diabetes in 2011.

Phase one results of the Indian Council of Medical Research – India Diabetes (ICMR-INDIAB) Study have provided data from three States and one Union Territory, representing nearly 18.1 per cent of the nation's population.

When extrapolated from these four units, the conclusion is 62.4 million people live with diabetes in India, and 77.2 million people are on the threshold, with pre-diabetes.

These results have been published in an article authored by R.M. Anjana et al, published in the current issue of Diabetologia.

“This is the first truly national diabetes study done in India in the last 40 years after the last ICMR Study in the early 1970s,” explained V. Mohan, who heads Madras Diabetes Research Foundation, the national co-ordinator for the study.

‘Authentic new data’

The first phase of the ICMR-INDIAB study covered Tamil Nadu, Maharashtra, Jharkhand and Chandigarh, with a sample size of 16,000 persons.

“The results are amazing and provide evidence for increase in prevalence of diabetes not only in urban areas but also in rural areas. The study also provides authentic new data on the total number of people with diabetes in India,” Dr. Mohan added.

The study began in late 2008 and was completed by 2010. It factored in anthropometric parameters like body weight, BMI (body mass index), height and waist circumference, and also tested fasting blood sugar, followed by blood sugar after a glucose load (known diabetics exempted), and cholesterol for all participants.

Questions were also asked about food habits, physical activity, and smoking, alcohol usage, among others.

The prevalence of diabetes in Tamil Nadu was 10.4 per cent, in Maharashtra it was 8.4 per cent, in Jharkhand, 5.3 per cent, and in terms of percentage, highest in Chandigarh at 13.6.

The prevalence of pre-diabetes (impaired fasting glucose and/or impaired glucose tolerance) was 8.3 per cent, 12.8 per cent, 8.1 per cent, and 14.6 per cent, respectively.

Projections to be revised

Projections made in the past about the total number of diabetics in the country for the future may need to be revised. For instance, in May 2004, in *Diabetes Care*, volume 27, Sarah Wild et al proposed that India would have 79.4 million people with diabetes in 2030.

Nineteen years ahead of that deadline, India has 62.4 million, and a further 77.2 million (potential diabetics) in the pre-diabetes stage.

“According to the *Diabetes Atlas* of 2009, there were 50.8 million people with diabetes in India. In just two years, this figure has gone up by 12 million. Obviously, diabetes in India is progressing exponentially. Also, we see that it has shifted to the 25-34 years age group,” Dr. Mohan explained.

“The epidemic is likely to stabilise in the population at about 20-25 per cent or so. The numbers of pre-diabetics will drop. We also expect that by then, the epidemic will shift to the economically disadvantaged groups, going by the experience of nations in the West,” Dr. Mohan added. Also, he explained that there was a huge window of opportunity for prevention, considering the number of modifiable risk factors among the pre-diabetes group.

The three-phased study, when concluded, hopes to have done similar analyses for all the States and union territories in India.

Keywords: ICMR-INDIAB study, diabetes, health issue

Eye Diseases

Eye

Particle in the eye may lead to vision loss (The Tribune: 3.8.2011)

Ramasra reported to the eye doctor exactly one month after he got a particle in the eye while working on a grinder. For one month the only treatment he gave to himself was rubbing the eye or trying to get the particle removed from his fellow workers. He went to the doctor only when most of the vision was lost from the affected eye. At this stage the doctor was as helpless as the patient, since the cornea of the eye had turned totally opaque.

Dust, plant matter, sand and other particles can easily enter the eye, especially in windy conditions. This is more likely in this country where a large population is working either in the agricultural sector or in the unorganized sector like construction work. Even industrial workers are not adequately protected. In many cases, natural tears are sufficient to wash small particles out of the eye. When the particle is embedded or when a large particle enters the eye, it is essential to remove it from the eye to prevent potentially serious eye damage. If you cannot remove the particle or the pain and redness persist after removing a particle from your eye, you should seek early professional help.

It would be pertinent to note that the particle in the eye and other forms of eye injuries in the farm/unorganised sector result a large percentage of blindness, which is preventable. However, the country is not well equipped to provide surgical cure to most of these hapless victims when the cornea becomes opaque. In India where most of the population is exposed to the risk of eye injury, wearing eye protective glasses can be mandated as a part of the National Rural Health Mission

How to remove the particle?

Blink your eye to trigger tear production. Do not rub your eye, as doing so can cause the particle to rub against the inside of your eye, causing more pain and damage. Wash your hands before attempting to remove a foreign body to prevent introducing bacteria. Lift the upper eyelid and splash tap water against the affected eye to flush out the particle on the cornea or trapped under your upper eyelid. Use a wet cotton swab to remove a visible, floating particle from your eye. Hold open your upper or lower eyelid, depending on the location of the particle, and then gently touch the end of the cotton swab to the piece of debris. It should stick to the cotton swab for easy removal. Seek urgent medical attention if you are unable to flush the particle out of your eye or remove it with a cotton swab. Trying to remove a particle with soiled hands or dirty linen or when you cannot see it or

it is embedded in the cornea can cause damage and hence in most cases it would be safer to take the patient to an eye specialist.

Hazards on the farm

Farmers working on farmland actually face great risks—exposure to chemicals, infections, allergens, dust, flying objects and even farm equipment. Any one of these danger sources can lead to an eye injury by accident. The farm equipment can generate soil, rocks, as well as foreign objects into the air. These particles in the air are dangerous for a bystander or the farmer who operates them. An eye injury caused by these hazards can be devastating. Best protection is afforded when goggles are worn with face shields. To ensure a proper fit, some safety glasses now have adjustable frames. The temple bars can be adjusted to achieve the best fit for both safety and comfort.

A separate set of eye protection glasses are necessary for workers in the industrial, agricultural and construction sectors. Eye protection devices must be properly maintained. Scratched and dirty devices reduce vision, may cause glare and may contribute to accidents.

The writer is a Chandigarh-based eye specialist. Email drkumar16@gmail.com

Cataract

Even 45-yr-olds now getting cataract? (The Times of India: 23.8.2011)

The age of onset of cataract among Indians may have dipped by almost a decade. Doctors report that cataract — clouding of the eye's natural lens and the main cause of blindness in the world — earlier affected those above 60 years. Increasingly, it is being seen among those in their mid-40s.

According to Dr Mahipal Sachdev, chairman of Centre for Sight, the age of onset of cataract among Indians is 45 years as against 55 years among westerners.

“Cataract in Indians is increasingly being diagnosed among the younger population. We don't know why. It could be due to the overall poor nutrition levels, excessive exposure to ultraviolet light, increased diarrhoea and dehydration episodes,” Dr Sachdev said. Besides, in case there is a family history of early cataract, the children would get it five years earlier than their parents, he said.

“Because it is being reported among the younger generation, we are not waiting for the cataract to mature. If the visual blur is interfering with the people's daily life, we are conducting the cataract surgery immediately. Earlier, we would wait for the cataract to mature,” he added.

India is home to 12 million blind people, 70% of whom develop it owing to cataract. India does about 5 million cataract surgeries annually, which are the highest in the world. Union health minister Ghulam Nabi Azad said India conducted 10 lakh cataract surgeries in 2009 under the national programme for control of blindness. Last year, 12 lakh surgeries were done. Ministry officials say 75% of blindness cases are those of avoidable blindness.

Fortunately, cataract surgery in India is set to become even more accurate. Femtosecond laser — originally used for vision correction surgery — is being used in India to treat cataract. According to experts, the laser allows extreme precision in surgery. Dr Sachdev said Femtosecond would greatly reduce the surgeon's "skill element required", making "the whole procedure computer controlled".

H1N1 infections

Flu/H1N1 infections

Flu/H1N1 infections, not vaccine, triggers narcolepsy (New Kerala: 23.8.2011)

A rise in H1N1 infections and colds could trigger a rare sleeping disorder, according to a new research

The findings show that a peak in narcolepsy cases occurred five to seven months after a peak in H1N1 infections and flu in the country.

The study, however, found no correlation between vaccination and narcolepsy among the patients studied in China.

“Together with recent findings, these results strongly suggest that winter airway infections such as influenza A (including H1N1), and/or *Streptococcus pyogenes* are triggers for narcolepsy,” Mignot, a professor of psychiatry and behavioral sciences, and his colleagues wrote in the paper.

“The new finding of an association with infection, and not vaccination, is important as it suggests that limiting vaccination because of a fear of narcolepsy could actually increase overall risk,” the authors wrote.

Experts believe that a person has a genetic predisposition to the disease, and some environmental factor kicks his or her immune system into action leading to narcolepsy.

They looked at 906 patients in Beijing who had been diagnosed with the sleeping disorder between 1998 and earlier this year, and found that the onset was seasonal.

Onset was least frequent in November and most frequent in April; there was a five- to seven-month delay between the seasonal peak in flu/cold or H1N1 infections and the peak in narcolepsy onset occurrences.

The team also found a threefold increase in disease onset, but only 5.6 per cent of the patients studied said they had been vaccinated.

The study was recently published in *Annals of Neurology*, a journal of the American Neurological Association and Child Neurology Society.

Heart Diseases

Heart attack

Bear bile aids heart attack survivors (The Times of India: 3.8.2011)

In ray of hope for millions of heart patients worldwide, scientists have claimed that a chemical, also found in bear bile, may help the recovery of people who have had a heart attack.

The study shows that UDCA could prevent abnormal heart rhythm or arrhythmia, both in people who've had a heart attack, and in fetuses. It alters the electrical properties of myofibroblast cells, which are present in the foetal heart and in patients who've suffered heart attack, says the team. "These findings are exciting. Our results from the lab suggest that UDCA could help the heart muscle conduct electrical signals more normally," said Dr Julia Gorelik, the study's lead author, was quoted by the 'BBC' as saying. It is hoped that a clinical trial will demonstrate whether the results of this new research translate to patients with heart failure, say the scientists.

Plastic heart

New lease of life: Plastic heart helps escape death (The Times of India: 3.8.2011)

Surgeons claim to have carried out a ground-breaking artificial heart transplant operation on a 40-year-old man, suffering from end-stage failure of both chambers of his heart. During a six-hour successful operation, surgeons at Papworth Hospital in the UK replaced Matthew Green's damaged heart with a device that they say will serve the role of both ventricles and heart valves, 'The Daily Telegraph' reported.

The device provides a blood flow up to 9.5 litres, eliminating symptoms and effects of heart failure. The artificial heart will be powered by a 'freedom portable driver', worn like a backpack. A team, led by Steven Tsui, carried out the surgery. Green suffered from arrhythmogenic right ventricular cardiomyopathy "Matthew's condition was deteriorating rapidly and we discussed with him the possibility of receiving this device, because without it he may not have survived the wait until a suitable donor heart could be found for him. The operation went extremely well and Matthew has made an excellent recovery.

“I expect him to go home very soon, being able to do a lot more than before the operation with a vastly improved quality of life, until we can find a suitable donor heart for him to have a heart transplant,” Dr Tsui said.

A jubilant Green added: “Two years ago I was cycling nine miles to work and nine miles back every day but by the time I was admitted to hospital I was struggling to walk even a few yards.

Heart

Be kind to your heart (The Tribune: 4.8.2011)

Simple measures should be taken from an early stage in life to prevent a crippling and even life-threatening condition like vascular disease from developing

VASCULAR disease is a major health problem in India. One in 20 people over 50 years of age have it. The total number of cases are over 42 million. More than half of those affected may not even know about the disease till it is too late.

Vascular disease is not just "poor circulation." It comes in various forms: peripheral arterial disease affects the arteries taking blood to the arms and the legs, carotid artery disease affects the arteries taking blood to the brain, and renal artery disease limits the blood flow to the kidneys causing high blood pressure or renal failure.

Arterial disease is most often caused by atherosclerosis (hardening of the arteries). When atherosclerosis develops, the normally smooth linings of the arteries become narrow and rough from the buildup of plaque, which is made up of cholesterol and calcium deposits.

The severity of the blockage can be assessed by a diligent history taking a good clinical examination followed by noninvasive tests.

Thinkstockphotos/Getty Images

Noninvasive Tests

A number of noninvasive tests are available to determine the presence and/or extent of vascular disease. In fact August is International Vascular Month and various camps have been organized to detect and treat patients of vascular disease.

Ankle-Brachial Index - The most common test for PVD is the measurement of blood pressure with a special ultrasound stethoscope and machine at the ankle and its comparison with that at the elbow - the ankle-brachial index (ABI). This is a painless and fairly sensitive test which gives some idea about the severity of the disease. It also is

useful in following the patient's progress after medication or surgery. The comparison of the two numbers determines if the patient has peripheral vascular disease and if more tests are needed.

Vascular Ultrasound - This simple, noninvasive test is very important to evaluate the arteries and veins and is the first choice for evaluation.

Computed Tomography Angiography - A CT scan is a common radiologic test, which can be tuned to study the blood vessels. This test is very important for assessing aneurysms of the aorta and other vessels.

Magnetic Resonance Angiography - Magnetic resonance imaging, commonly known as MRI, makes images of the body using a very strong magnet. The images can be focused to provide images of the arteries.

The German Epidemiological Trial on Ankle-Brachial Index (getABI) concluded that peripheral artery disease (PVD) should be treated in the same way as patients with heart disease, as PVD patients are currently undertreated. GetABI showed that PVD patients have a substantially increased risk of death-dying, on average, 10 years earlier than their peers-and that asymptomatic PVD patients are as much at risk as symptomatic ones, a vital fact that was not previously appreciated.

Invasive Tests

Depending on the results of the noninvasive tests that have been performed, your physicians may order angiograms for further evaluation of the disease.

Angiography - The most accurate test of the blood vessels is an angiogram. In this test, a small needle is put through the skin and into an artery at the top of the leg. A small plastic tube is then slid into the arterial system. X-ray contrast is then injected into the arterial system so that X-ray images of the vessels can be taken. During angiography, additional images can be obtained, using intravascular ultrasound (IVUS). A small ultrasound device is advanced into the arterial or venous system. The IVUS is useful for measuring blood vessels and for obtaining images of atherosclerotic plaque and other abnormalities.

CT Angiography : This is a simple noninvasive test. The CT machines today are much more sophisticated and can give results as good or better than the conventional angiography with no injection into the arteries.

Treatment Options

Individual treatment options depend on a number of factors that will be explained by the physician. One size does not fit all in managing the disease. Often a combination of risk reduction, medicines, less invasive treatment options and surgery provides the patient with the best chance for a good outcome.

Risk Factor Modification / Management: For patients with mild or early stages of vascular disease, lifestyle modification and medical management of risk factors can slow down the progression of disease to the point that the individual may never need surgery or endovascular intervention.

Lifestyle changes include

Stopping smoking - **MOST IMPORTANT**

Managing diabetes, high blood pressure and high cholesterol levels

Regular graded exercise - including yoga

Following a heart healthy diet.

In addition, anti-platelet medications (Aspirin or Plavix), anti-hypertensive medications, blood vessel dilators and lipid-lowering medications all may be used in the medical management of vascular disease.

If the cause is an acute blood clot it may respond to medicines which dissolve the clot. This means the use of thrombolytics (clot busters) or a minor surgical procedure - embolectomy - to remove the clot.

Endovascular Interventions - These procedures are minimally invasive and require only a small puncture in the groin, very similar to Angiography. A balloon is inflated at the blockage and a spring (stent) is used to prop the artery open. Now vascular surgeons are getting more skilled at tackling even major disorders eg abdominal aortic aneurysms with minimally invasive or noninvasive procedures with success.

Surgical options

Surgery is a time tested and reliable option for most vascular disorders:

Vascular bypass - This procedure uses synthetic material or a portion of a person's own vein to route blood around a blockage in an artery. This is the most common surgical technique used in treating peripheral artery disease. The bypass material is sewn into the blood vessel above the blockage and then sewn below the blockage. This creates a new pathway for the blood to travel through. Bypass can be used to treat blockages in the legs, kidney arteries and aorta. A world first surgery documented in the Limca Book of World Records was invented by the author to prevent gangrene of the leg by transplanting an artery from the hand.

Endarterectomy - This is a procedure in which the blood vessel is opened and plaque is removed or scraped out of the artery to restore blood flow through the vessel. The artery then is closed with a patch that makes the vessel wider. This works best for narrow areas or complete blockages of an artery. This procedure is used to treat blockages in the carotid arteries, which feed blood to the brain, and is sometimes used for other blood vessels in the upper leg.

Aneurysmectomy - This involves placing graft material in an aneurysm so that blood flows through the graft. The aneurysm collapses against the wall of the graft, and is no longer at risk for rupture. This is used for treatment of any type of aneurysm.

Preventing PVD

In the early stages the use of dietary modifications - basically, a low-fat vegetarian diet, weight reduction (if overweight), graded exercise, along with the use of blood thinners, vessel dilators and cholesterol reducing drugs (statins) - help to prevent the progression of the blockage and encourages the development of collaterals.

Regular exercise is the most consistently effective treatment for PVD. Exercise programmes include simple walking regimens, leg exercises and treadmill exercises under expert supervision three or four times a week. Avoidance of smoking and all other former of tobacco use is mandatory if a permanent solution is to be got.

In diabetes the risk of narrowing of the arteries by a build-up of fat and cholesterol (atherosclerosis) is much more than in non-diabetics. The patient must inspect his feet between toes and pressure areas using a mirror regularly. He must wash his feet daily with soap and lukewarm water. He must avoid tight-fitting shoes and very hot water, hot water bottles or chemicals (to treat corns) on the feet.

Thus, simple measures should be taken from an early stage in life to prevent a crippling and even life-threatening condition from developing.

Dr Bedi is Head, Cardio-Vascular Endovascular & Thoracic Surgery, at the Christian Medical College & Hospital, Ludhiana.

Risk Factors

Cigarette smoking is the No 1 risk factor for developing vascular disease

Obesity
Diabetes mellitus
High cholesterol and lipids
Heart disease
High-stress lifestyle
Older than age 50
Sedentary lifestyle
High blood pressure

symptoms

(Patients with any of these disorders may also have no symptoms):

Peripheral Artery Disease:

Leg pain with exercise known as claudication
Leg swelling
Weakness or tiredness in the legs
Sores on feet or legs that won't heal
Carotid Artery Disease:

Temporary loss of vision in one eye, or blurred or double vision
Confusion
Loss of balance or coordination
Numbness or weakness on one side of the body

Slurred speech or difficulty speaking
Change in ability to use arms and legs
Stroke

Abdominal Aortic Aneurysm:

Often no symptoms
Sudden onset of abdominal or back pain
Renal Artery Disease:

High blood pressure (hypertension)
Acute renal (kidney) failure
Mesenteric Artery Disease:

Abdominal pain, especially after eating
Unwanted weight loss
Venous disease:

Leg swelling
Sores on lower legs that do not heal
Leg pain
Dilated Varicose leg veins

Are you at risk?

Take this short quiz to see if you could be at risk for peripheral vascular disease (PVD).

Are you age 50 or older?
Yes No

Do you smoke?
Yes No

Do you have diabetes?
Yes No

Do you have high blood pressure?
Yes No

Do you have high cholesterol?
Yes No

Do you have a family history of heart disease or vascular (blood vessel) disease?
Yes No

Are you overweight?
Yes No

Are you sedentary with little or no exercise?
Yes No

If you answered yes to even one of these questions, you could be at risk for PVD. A simple checkup by your doctor should be done.

Clogged arteries

Clogged arteries — take care, scientifically (The Tribune: 17.8.2011)

My recent tryst with clogged heart arteries and associated problems makes it imperative that, being a doctor, I separate best-selling myths and little-known facts associated with this disease.

That an individual shall be involved in a disease precipitated by the clogging of his heart arteries is dominantly determined by his genes and his personality. These million buck - yielding diet and exercise programmes (for their initiators, remember Atkin's) finally say only two things: you move and you eat less, like your much less automobile-dependant and television-loving ancestors did.

Remember that Winston Churchill died on the pot at 91 years of age. Stress, obesity, smoking, drinking and intolerant desposition be damned.

Remember, this too, that not so long ago nuts (like almonds) and peanut butter were only mentioned to be condemned as a component of our diets. Now they hold the place of pride in all diet charts, and lo and behold, dark chocolate and alcohol are God's own benediction for hearts on a desperate hunt for panaceas to run more.

Atherosclerosis (the official name of the artery clogging phenomenon) is the predominant culprit in leading individuals to death and disability.

The term is derived from Greek, where thickening of the arterial wall (sclerosis, 'hardening') and accumulation of lipid (athere, 'gruel') categorise the basic disease.

Now, to predict which of us is in the run to get this disease, leading us to contribute to damaging world statistics of death due to cardiac disease is a difficult proposition as the facts exhibit.

Myocardial infarction (the dreaded heart attack) is the most common diagnosis in hospitalised patients. The death rate (mortality rate) with acute myocardial infarction is 30 per cent, with more than half the people dying before they reach the hospital (this happens in the industrialized First World countries, but the statistics are more gruesome back home). With the recent state of the art treatment modalities available to

industrialised countries, inhabitants and to the rich everywhere, one in 25 of these still die within the first year of the episode. The availability of this treatment is not even in the realm of dreaming-about-it scenario of 94 per cent of our population.

The enigma of unpredictable nature of atherosclerosis is confounding.

It develops in time and space, and occurs over decades. The growth of this gruel is discontinuous rather than being scientifically linear — it has periods when it lies low (silent) and suddenly it gallops. The reasons for its silence and galloping are yet unexplained. Where and which heart artery it chooses to place itself (this gruel) and where it gallops is not understood contemporarily.

The heterogeneity of this disease, its macabre uncertainties, causes, natural history and clinical manifestations are difficult to explain at this juncture of understanding.

Now this is the icing on the cake of uncertainty of this dreaded disease process. Atheromas are deemed to be obstructing disease processes causing blood flow limitation or arterial occlusion leading to death (sometimes too suddenly, in the prime of life). However, in its full glory atherosclerosis can also cause ectasia and development of aneurysmal disease with an increase in lumen caliber. Hey, presto! Then you have all the gruel in the artery but more blood is actually flowing through your dilated artery.

This confounds all analysis. Myths and myriad magic cardiac remedial bullets flow all around the concerned, worried global community.

The writer is a Ludhiana-based radio-diagnosis expert.

Heart fat promotes coronary disease

More evidence that 'heart fat promotes coronary disease'(New Kerala; 17.8.2011)

A study has found more evidence supporting the role of fat around the heart in promoting atherosclerosis.

New results from the Multi-Ethnic Study of Atherosclerosis (MESA) has showed that pericardial fat is more strongly related to coronary artery plaque than either body mass index (BMI) or waist circumference.

When plaque forms in the arteries, it deposits in an irregular manner, causing thickening of the artery wall on one side, but not the other. The ratio of the thick side to the thin side is referred to as plaque eccentricity and is a strong indicator of heart disease.

While previous studies have looked at the relationship of pericardial fat to atherosclerosis in patients with severe coronary disease, this is the first study to determine the association of pericardial fat on coronary artery plaque burden in asymptomatic individuals.

"The individuals in this study had no symptoms and were otherwise healthy," said senior author David A. Bluemke, M.D., Ph.D., director of Radiology and Imaging Sciences at the National Institutes of Health (NIH) Clinical Care.

"They did not have significant coronary artery narrowing. Yet, despite this, they had coronary plaque that could be detected by MRI," added Bluemke.

For the study, 183 individuals without clinical cardiovascular disease were recruited from the Baltimore and Chicago field centers of MESA, a study funded by the NIH.

"Pericardial fat is located behind the sternum, around the heart, and we cannot see it except with CT or MRI," said Bluemke.

"In some people, extra fat forms preferentially in this area. We do not know why. However, extra fat around the heart is generally associated with being overweight or obese," added Bluemke.

The results showed that pericardial fat volume correlated significantly with the degree of plaque eccentricity in both men and women. After adjustment for BMI, waist circumference, traditional risk factors, C-reactive protein level and coronary calcium content, the relationship between pericardial fat and plaque eccentricity remained significant in men, but not in women.

"The findings indicate yet another reason that obesity is bad for us," said Bluemke.

"It is particularly bad when the fat forms around the heart, since the heart fat appears to further promote coronary artery plaque," added Bluemke.

The study has been published online in the journal Radiology.

Heart Disease

Heart Disease Risk in Adulthood More for Undernourished Children (Med India: 25.8.2011)

Undernutrition in younger years is associated with an increased risk of coronary heart disease in later life, a study found.

The study of women who were children, teenagers or young adults during the Dutch famine in 1944-45 has shown that undernutrition, particularly in the adolescent years, is linked with an increased risk of coronary heart disease in later life.

The research, published online today in the European Heart Journal [1], provides the first direct evidence that acute undernutrition during the time that children are growing up can have an important impact on their future health. The authors of the accompanying editorial [2] say that it underlines the importance of policy makers and health professionals taking this into account when designing and implementing disease screening and prevention programmes.

The study authors, from the University Medical Center Utrecht and the University of Amsterdam, investigated 7845 women who were aged between 0-21 and were living in The Netherlands at a time when a combination of circumstances at the end of the Second World War resulted in severe food shortages in the west of The Netherlands; official daily rations for the general adult population dropped from 1400 calories in October 1944 to between 400-800 calories at the height of the famine from December 1944 to April 1945. After six months of starvation, The Netherlands was liberated, abruptly ending the famine.

The researchers recruited the women to the study [3] between 1993-1997 through a breast cancer screening programme, and followed them up to the end of 2007. They divided the women into three groups: 1) unexposed – women who reported being "hardly" exposed to hunger and weight loss during the famine; 2) severely exposed – women who reported being "very much" exposed to hunger and weight loss; and 3) moderately exposed – the remaining women whose famine experience was somewhere between these two experiences.

Strokes

Even 5-year-olds prone to strokes (The Times of India: 5.9.2011)

Rate Of Incidence In 5-14 Age Group Up By 31%; Unhealthy Lifestyle To Blame

In a startling finding, a new research has shown that children as young as five years are now having strokes in the US and blamed unhealthy lifestyles as the main reason behind the trend.

The stroke rate among five to 44-year-olds has gone up by about a third in the past 10 years, found the researchers at the US Centers for Disease Control and Prevention.

The researchers, who analysed hospital data of millions of patients between 1995 and 2008, also found that high blood pressure, diabetes and obesity were common in stroke patients, the BBC reported. During this period, the rate of ischemic stroke, which is caused due to blood clots, was found to have gone up by 31% in five to 14-year-olds, from 3.2 strokes per 10,000 hospital cases to 4.2 per 10,000. While, the increase was 30% in people aged 15 to 34 years, it was 37% in patients between the ages of 35 and 44, the researchers found.

In all age groups the increase was greater in men than in women, they said. Figures for haemorrhagic stroke, caused by bleeding on the brain, showed decreases in age groups except the five to 14-year-olds, but the researchers said: “The increase in ischemic stroke far outweighs the decreases.”

Detailing their study in the journal *Annals of Neurology*, the researchers said the prevalence of hypertension, obesity and tobacco use had increased in stroke patients. More than half of 35 to 44-year-olds who had an ischemic stroke also had hypertension, they said. “Urgent public health initiatives are needed to reverse trends in modifiable risk factors associated with stroke in adolescents and young adults,” they concluded. Dr Lorna Layward, from the Stroke Association in the UK, said: “People usually associate strokes with older people, but a quarter of all strokes happen to people of working age, and around 400 children have a stroke every year in the UK.

Bat’s saliva can cure stroke victims?

The saliva of vampire bats, which feed on blood, can save lives of stroke victims, new research shows. The saliva has a compound that can thin blood and dissolve clots in the brain. Currently, most types of strokes need clot-busting shots within four hours of the attack for effective treatment. But a drug derived from proteins in bats’ saliva can have the same effect for up to nine hours. Researchers who carried out a previous smaller study said the drug was “the biggest breakthrough” in stroke treatment in two decades. The difference implies that drug Desmoteplase could be administered to stroke victims while asleep, the Telegraph reports.

Heart Transplant

Researchers Develop New Way to Predict Heart Transplant Survival (Science Daily: 6.9.2011)

Johns Hopkins researchers say they have developed a formula to predict which heart transplant patients are at greatest risk of death in the year following their surgeries, information that could help medical teams figure out who would benefit most from the small number of available organs.

"Donor hearts are a limited resource," says John V. Conte, M.D., a professor of surgery at the Johns Hopkins University School of Medicine and the senior author of the study. "Now, we have a simple-to-use tool that is highly predictive of survival after a heart transplant, and can help guide organ allocation decisions."

Conte and his colleagues, writing in the September issue of *Annals of Thoracic Surgery*, pulled together a series of risk factors already associated with poor outcomes, such as age, race, gender, the cause of a patient's heart failure and whether he or she was on dialysis, and then assigned a number of points to each factor. The sum of those points created a score. The higher the score, the higher the risk of death one year after transplant.

Some factors were weighted more heavily than others, such as female gender (three points); African-American race (three points), and the need for dialysis in the time between being put on the transplant waiting list and getting a transplant (five points).

Patients with the lowest scores -- between zero and two -- had a 92.5 percent chance of being alive 12 months after surgery.

Patients with so-called IMPACT scores -- the acronym the researchers came up with for the Index for Mortality Prediction After Cardiac Transplantation -- above 20 points had a less than 50 percent chance of survival one year after surgery. Every point on the scale increased the chance of death within one year by 14 percent.

To develop and test the validity of IMPACT, Conte and his team analyzed data provided by the United Network of Organ Sharing comprising information from all heart transplants -- 21,378 of them -- conducted in the United States between 1987 and 2010.

More research is needed to learn what role is played by factors other than the recipient's risks, Conte says. Results of their study suggest, for example, that an organ coming from a donor over the age of 50 or one that has been outside the body for more than four hours also increases the risk of death in the recipient, he says.

More than 3,000 people are on the waiting list for a heart transplant in the United States, and many will die before they can get a new heart. Only about 2,000 heart transplants are performed in the U.S. annually. Currently, determining who gets an available heart takes into account how long a patient has been on the list and how sick they are. There is no standardized consideration of other factors that may predict patients' outcomes, as is the case in determining which patients receive available lungs for transplant. Incorporating the IMPACT score would add another dimension to the conversation about who gets a heart transplant, says Conte, surgical director of heart transplantation at Johns Hopkins.

"As clinicians, we make an educated risk of what the risk is going to be," he says. "This tool provides a quantitative way to assess the risk."

The other researchers involved in the study -- all from Johns Hopkins -- are Jeremiah G. Allen, M.D.; George Arnaoutakis, M.D.; Timothy J. George, M.D.; Stuart D. Russell, M.D.; and Ashish S. Shah, M.D. Eric S. Weiss, M.D., M.P.H., a former general surgery resident at Hopkins, was also involved.

Heart attack

Listen to your heart (The Times of India: 9.9.2011)

Cardiologist Rajeev Rathi tells you how to recognize the common signs of an impending heart attack, and suggests ways you can safeguard yourself from heart disease

Coronary heart disease or CHD is one of the major causes of death in our country. According to WHO estimates, it will soon be responsible for a third of all deaths in India. This is an extremely large number, considering that we are a 'third world' country where most deaths are supposed to occur with diarrhoea, malaria and pneumonia. It is always wise, therefore, to know symptoms and signs of heart disease. Heart muscles get their oxygen and nutrition via coronary arteries or the 'pipes' that carry blood. Over the years, cholesterol in blood gets deposited in these pipes, narrowing their passage. When a part of the artery becomes critically narrowed, blood supply beyond that point decreases and heart muscles undergo 'ischemia' as they are both starved and smothered.

Heart protein

Heart protein may be therapeutic target for halting colon cancer (New Kerala: 15.9.2011)

A study has found that a protein critical in heart development may also play a part in colon cancer progression.

Investigators from Vanderbilt-Ingram Cancer Center and the Vanderbilt Eye Institute suggests that the protein BVES (blood vessel endocardial substance), which also is key in regulating corneal cells, may be a therapeutic target for halting colon cancer metastasis.

The study further suggests that BVES may be important more broadly in many, or most, epithelial cancers.

Ophthalmologist Min Chang, M.D., studied the healing process in the cornea, which is perhaps the most highly regulated epithelium in the body.

From collaborative studies with David Bader, Ph.D., who discovered BVES and showed its importance in heart development, Chang found that BVES was highly expressed and regulated in corneal cells.

When BVES is disrupted in corneal cells, they become disorganized, almost "cancer-like," noted Chang, an assistant professor of Ophthalmology and Visual Sciences and co-author on the study.

Chang then brought these findings to the attention of colleague Christopher Williams, M.D., Ph.D., assistant professor of Medicine and Cancer Biology and co-author on the study.

"When he described these cells, it sounded a lot like the way cancer cells looked when they were undergoing metastasis. So it seemed reasonable to look in cancer for BVES-dependent phenotypes," Williams said.

Chang and Williams teamed up with the lab of Daniel Beauchamp, M.D., to assess BVES expression in human colorectal cancers. They found that BVES levels were very low in all stages of colon cancer.

They also noted decreased BVES levels in many other types of epithelial cancers (including breast) and in several colorectal cancer cell lines.

In cell experiments, the researchers showed that treating cells with a "demethylating" agent (the drug decitabine, which is currently used to treat myelodysplastic disorders) restored BVES expression.

When BVES was expressed in colorectal cancer cell lines, they became more epithelial in nature and their tumour-like characteristics (in cell experiments and in animal models) decreased.

These findings suggest that treatment with agents to increase BVES levels might provide a way to decrease aggressive behaviours of colorectal and other epithelial cancers.

The findings appear in the October issue of the Journal of Clinical Investigation.

Yellow patches

Yellow patches around eyelids indicate risk of heart problems (New Kerala: 16.9.2011)

A new study has found that raised yellow patches of skin (xanthelasmata) around the upper or lower eyelids are markers of an individual's increased risk of having a heart attack or suffering from heart disease.

The study, led by Professor Anne Tybaerg-Hansen at the University of Copenhagen, also concludes that white or grey rings around the cornea (arcus corneae) are not linked to an increased risk.

Previous research has established that both xanthelasmata and arcus corneae are deposits of cholesterol.

However, around half of the individuals who have either or both conditions will not test positively for high cholesterol in a blood test.

The scientists surveyed 12,745 individuals, aged between 20 and 93, and were free of heart disease when the study began.

They were followed from 1976-8 until May 2009 with 100percent complete follow-up.

At the beginning of the study 563 of participants had xanthelasmata and 3,159 had arcus corneae.

During the follow-up 1,872 of the participants had a heart attack, 3,699 developed heart disease, 1,498 had a stroke, 1,815 developed cerebrovascular disease and 8,507 died.

The results show that in all age groups for both men and women, the risk of having a heart attack, developing heart disease or dying within a ten year period increased in individuals with xanthelasmata.

In contrast, the results show that arcus corneae is not a significant independent risk predictor for heart attack or heart disease.

The study was published on bmj.com.

Heart Problem

Have a heart! Consume less edible oil to protect it (WorldNewspapers: 30.9.2011)

It is time to do some soul searching for Gujaratis! As we observe World Heart Day today, people in Gujarat need to curb their eating habits and cut on the consumption of edible oil to protect their heart.

DNA has found that per capita consumption of edible oil in the state is 40 kg which is equivalent to per capita consumption of Pakistan and developed country, US.

This statistic looks more menacing when one compares it with the national consumption. India's per capita consumption is a meager 12.5kg, which is just one third of state's consumption.

In other countries like China, the per capita consumption of edible oil is 23kg, in Indonesia it is 25kg and in Europe, it is 30kg.

Global average per capita consumption of edible oil stands around 20kg.

"The countries, where per capita consumption is 40kg, are considered to be extremely high. Gujarat's edible oil consumption also stands at an extremely higher stage," said CEO of Adani Wilmar Ltd and member of Solvent Extractors' Association of India, Atul Chaturvedi.

"Gujarat has become diabetes capital of the world, thanks to the highest edible oil consumption of the state," said Chaturvedi.

"Every year, the per capita edible oil consumption in India and Gujarat is increased by 5%. By 2015, it is estimated that India's per capita edible oil consumption will increase to 15kg while of Gujarat, it is estimated to rise to around 48kg," he said. Talking about consumption pattern, vice-president of trading at Adani Wilmar, TK Kannan said that most of the Gujarat consumes cottonseed oil.

Heart

Is your heart in the right place? (The Tribune: 30.9.2011)

India loses about 30 lakh people per year to heart disease. According to WHO, cardiovascular diseases will be the largest cause of death and disability in India by 2020. If this does not serve as a wake-up call, then what will?

Dr Aashish Contractor

If we take the threat of heart disease seriously, we need to act and act fast. It's important to trace the problem to its source and tackle it from there. As a developing nation we cannot bear the huge economic burden of deadly lifestyle diseases like diabetes and heart problem.

The government is already struggling to tackle the healthcare issues. At present, it spends just 1 per cent of its gross domestic product on public health leading to a public health infrastructure which is sorely deficient. Apart from developing world health problems and communicable diseases, India now has to grapple with the dual burden of chronic diseases that accompany unhealthy lifestyles-diabetes and heart disease — which are eating into the finances of the individuals and the country.

One can take heart from the fact that heart disease can be prevented as it is related to the lifestyle of the patient. Some of the risk factors for heart disease that can be modified are diabetes, high blood cholesterol, consumption of tobacco, high blood pressure, physical inactivity, obesity and stress. The focus should be on attacking these risk factors.

A smoker's risk of having a heart attack is twice more than that of a non-smoker. Smoking speeds up the development of plaque in the arteries. It also reduces the level of the good cholesterol (known as HDL), and increases the stickiness of blood cells causing blood clots inside the arteries. Stubbing out that cigarette can be the first step to protecting oneself from heart disease.

Diet and exercise are known to play a key role in controlling the menace. Exercise helps protect against heart disease. It's important to know that every extra step one takes during the day builds up the "health balance" and helps prevent disease. Incorporating 30 minutes of exercise in daily life can lead to immense benefits.

It is also important to maintain a healthy weight, according to one's height. Studies have shown that healthy eating and exercise lead to improved health parameters, even in the absence of weight loss.

Eating right is as important as exercising. One should stay away from diet fads and stick to 'sensible diets' that result in long lasting benefits. Several servings of vegetables and fruits, oil lowest in saturated content and several small meals in a day are ways to eat right. The intake of simple sugars needs to be kept to a minimum, while consuming more

of complex carbohydrates. What is also required is a regular check-up of parameters. Most of the risk factors for heart disease are silent and therefore one needs to keep a regular watch over weight, glucose levels, blood pressure etc to pre-empt the disease.

One can combat the disease at the grass root level by simply being more aware and cautious about the risk factors and symptoms. But existing cases of heart disease and those in the danger zone need governmental help as well. The population of the country must get an opportunity to attain the highest-possible level of health. Access to quality, affordable healthcare is absolutely essential especially for the poor and marginalized population.

Many lifestyle diseases have their origin in childhood. Unhealthy eating habits among children lead to lifestyle diseases like obesity, diabetes, heart disease later in life. This calls for the need to educate children about the ill effects of unhealthy snacking. The Centre recently asked state governments to ban sale of junk food and carbonated drinks on schools premises. The Union health and family welfare ministry wants guidelines to be framed to serve good quality food like dal, roti, sprouts etc in schools and colleges.

More needs to be done to curb childhood obesity and related problems like heart disease. People in the metros are not only hard pressed for time but also for open spaces to exercise. A study of 4000 Indian children in 15 cities indicated that 23 per cent of 5 to 14 year olds in urban schools were overweight, while nearly 11 per cent were obese. Overweight children are at a greater risk of developing diabetes and heart disease.

Open spaces in the city are few and far between. The existing ones are getting more crowded than ever, leading to children spending more time in front of their TV and computer screens. Civic administration of cities needs to give heed to the development and maintenance of open spaces for the citizens.

A holistic view of the disease would lead to holistic measures being taken. Programmes to combat NCDs are under-funded in India at present. As the world discusses this growing malaise at a world forum, India needs to chalk out its own plan to combat it.

Heart-disease triggers

Smoking

Smoking is the one of the most important preventable causes of premature death. A smoker's risk of having a heart attack is twice more than that of a non-smoker. Smoking speeds up the development of plaque in the arteries, reduces the level of the good HDL cholesterol, and increases the stickiness of blood cells causing blood clots inside the arteries.

Hypertension

High blood pressure or hypertension is often referred to as the "silent killer." The reason for this is that people often suffer severe problems related to hypertension, without being aware that their pressure is high. . It is a common misconception that your systolic BP should be your age plus 100. This is a myth.

A high blood pressure has been defined as either the higher number, called systolic pressure being over 140 or the lower number, called diastolic pressure being over 90. However, your ideal Blood Pressure should be below 120/80.

High Cholesterol

If LDL or bad cholesterol is too high in your blood, some of it sticks to the walls of blood vessels and is absorbed. The end result is large fatty deposits in the blood vessels which cause the vessels to become narrow , stiff, narrow and less responsive to triggers to expand and constrict, reducing the blood flow to the heart and other organs. This leads to heart diseases and potentially a heart attack. Therefore it is important to make lifestyle changes, exercise regularly, eat healthy and minimize the sources of bad fats.

Diabetes

Indians have one of the highest genetic risks for diabetes. It is a very serious disease in itself and leads to complications in the eyes, kidneys, and blood vessels, besides being one of the major risk factors for heart disease. In clinical practice we are observing more patients (and at younger ages) with Syndrome X, also called the 'Metabolic Syndrome', in which high blood sugar, high blood pressure, a large waistline, and abnormal lipid values are all clustered together.

1 Diabetes is diagnosed on the basis of your fasting glucose levels. A level of more than 126 mg/dl indicates diabetes. However, this should be confirmed by another test done on a different day.

1 Normal fasting blood sugar should be 70 -100 mg/dl

Obesity

As India is becoming more 'prosperous' so are the waistlines of its citizens. Obesity can lead to diabetes, high blood pressure, as well as other complications such as arthritis. A sensible diet, combined with an exercise programme is the best way to lose weight. Crash diets do not work in the long term, and may actually be harmful for the body.

Stress

The role of stress in the development of heart disease is not clearly defined as it cannot be 'measured' by any test, but it is advisable that you keep your stress levels as low as possible.

The triggers of heart disease can be controlled by leading a healthy life. This should include a healthy diet which lowers cholesterol and blood pressure and also keep obesity in check. Regular physical activity of some kind is also beneficial in keeping heart disease at bay. One should try to maintain the ideal Body Mass Index or healthy weight for a sustained period of time. Alcohol should be consumed in moderation and tobacco consumption should be stopped immediately.

The key is to stay away from risk factors of heart disease. The more risk factors a person has, the greater the possibility of developing heart disease.

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Heart smart by age
Dr Harinder Singh Bedi

No matter how old (or young) you are, the only way to stay on top of your game is to know your risk factors and take the right steps to avoid problems down the road. Here is everything you need to know to guarantee your ticker stays stronger longer.

In Your 20s

There is a common problem among men in their twenties: they don't know they're vulnerable. Your twenties are the perfect time to establish heart-healthy diet and exercise habits that'll extend your expiration date and keep those extra years healthy and worth living too. That means 30 minutes of aerobic exercise five times a week and maintaining a normal blood pressure, healthy weight and lipid profile.

Your 20s Checklist:

1 30 minutes of aerobic exercise five times a week. Useful hint : bhangra is the best heart healthy aerobic exercise

1 Annual physicals

1 EKG

1 Echocardiogram if indicated

1 Blood pressure: 119/ 79 mm Hg or lower

1 Lipid profile: Triglycerides less than 150 mg/dL , LDL between 70 - 100 mg/dL and HDL greater than 40 mg/dL

1 Fasting blood sugar between 70-100 mg/dl

1 Have a hobby / sport which interests you - this is important for overall health and a good rounding of personality

1 Learn yoga - this is one stress buster which you can continue doing for the rest of your life

In Your 30s

Although most heart conditions are strongly hereditary, they may not manifest till the 30's. So along with your standard health check, schedule another echocardiogram 10 years after the first one (if the first was normal) -especially if you're regularly weight lifting, wrestling, playing football, cricket or participating in any sport with short bursts of activity or have a profession which entails stress (actually which one doesn't ? !!). Men older than 35 should also have an electrocardiogram (EKG), which traces the electrical waves of the heart every five years.

Your 30s Checklist

1 30 minutes of exercise five times a week

1 Annual physicals

1 Echocardiogram, 10 years after the first

1 Blood pressure: 119/79 mm Hg or lower

1 Lipid profile and blood sugar : as before

It has been seen that happily married couples have a lower incidence of heart disease - so make sure that you get along well with your spouse! This is also the time that you should pass on healthy lifestyle habits to your children.

In Your 40s

When you hit 40, your doctor should additionally start monitoring the overall degree of inflammation within your body with C-reactive protein (CRP) testing. The higher your CRP level, the higher your risk of cardiovascular disease. But there's no need to make an extra appointment for this one-just an additional tick on the same lab form as the blood test that checks your cholesterol levels measures CRP levels. The best way to keep CRP levels in check? Regular exercise.

Your 40s Checklist:

1 30 minutes of exercise five times a week

1 Annual physicals

1 Echocardiogram, 10 years after your last one

1 EKG, 5 years after your last one

1 Cholesterol: LDL less than 160 mg/dL and HDL greater than 40 mg/dL

1 Blood pressure: 119/79 mm Hg or lower

1 Lipid profile and blood sugar : as before

1 C-reactive protein: Less than 1 mg per liter

In Your 50s

Fifty is the typical age men develop coronary heart disease. An exercise stress test -- sometimes called a treadmill test, monitors how well your heart handles work. If this test is positive or if you have symptoms (chest pain) your doctor may decide on getting an angiogram done.

Your 50s Checklist:

1 30 minutes of exercise five times a week : less strenuous than before, less of high impact

1 Annual physicals

1 Echocardiogram, 10 years after your last one

1 EKG, 5 years after your last one

1 Exercise stress test (tread mill test or TMT)

1 Lipid profile and blood sugar : as before

1 C-reactive protein: Less than 1 mg per liter

1 A nuclear perfusion scan and a CT angiogram in carefully selected cases

Post-retirement

One is still quite young at age 60 years. Physical and mental activity must continue - though at a slightly more dignified pace - although there are quite a few 'elderly' people I know (including my father) whose level of enthusiasm and activity beats most 'younger'

people like me! Make sure you have some form of exercise - just a brisk walk for 20 minutes - has heart healthy advantages.

At Any Age

If you experience chest pain or shortness of breath, get to the hospital right away. These are the two primary symptoms of heart disease and should never go unchecked. A good percentage of heart attacks can be prevented and the morbidity and mortality associated with this disease can be greatly reduced by lifestyle changes, control of the risk factors and surgery where indicated.

The writer is Head, Cardio-Vascular Endovascular & Thoracic Surgery, at the Christian Medical College & Hospital, Ludhiana

Coronary artery disease

Coronary artery disease (The Times of India: 13.4.2011)

Coronary artery disease & yoga

Due to excessive deposition of cholesterol and fat under the inner smooth lining of the blood vessels, plaque is formed, which restricts the flow of blood, oxygen and nutrients to the heart

The coronary heart disease (CHD) also called coronary artery disease (CAD) is one of the leading causes of death all over the world. Due to excessive deposition of cholesterol and fat under the inner smooth lining of the blood vessels (coronary arteries), plaque is formed, which restricts the flow of blood, oxygen and nutrients to the heart. Thus, due to lack of nourishment to the heart, hypertension, angina (pain in the chest region) and heart attack occur.

Causes:

High blood pressure, high cholesterol in the diet and blood, smoking, diabetes or high blood sugar, lack of exercise or sedentary habits, obesity, stress, heredity, age, gender and a combination of the above risk factors (this increases the risk of heart attacks manifold)

Symptoms

- Chest pain - The pain is usually very severe and occurs in the centre of the chest with radiation to the left arm. The pain lasts for 15 to 30 minutes and sometimes can radiate to the left jaw or the right arm. Sometimes, the pain may be absent and there may be an uncomfortable pressure on the chest
- Shortness of breath or breathlessness
- Sweating
- Weakness
- Dizziness
- Nausea or vomiting
- Unusual heaviness in

Coronary artery disease

Coronary artery disease & yoga (The Times of India: 20.4.2011)

The Health Rejuvenating Exercises (HRE) for the neck involve rubbing your hands vigorously and massaging the back and front portions of your neck, and then bending your neck backwards and forwards

The Health Rejuvenating Exercises (H R E) for coronary artery disease are as follows:
For neck:

- Rub your hands vigorously and massage the back and front portions of your neck
- Then bend your neck backwards and forwards, left and right (ear and shoulder should touch both the sides)
- Rotate the neck clockwise & vice versa five times each
- For shoulders:
- Keep your arms hanging straight with the fist closed. Raise the shoulders up while inhaling and bring them down while exhaling

- Rotate the shoulders from backwards to forwards and vice versa
- Bend your arms, keeping the fingers straight and touch the shoulders. Rotate the arms clockwise & anticlockwise five times each For chest:
- Bend both the arms bringing palms to the chest with middle fingers meeting at the middle of the sternum.
- Inhale and extend the left hand, exhale and bring the hand to its position. Repeat the exercise with the right hand.
- Keep the hand in front on the thighs. Inhale and raise the left arm touching the ear without bending, bring the arm down and exhale. Repeat it with the right arm and then with both the arms For waist: Keep the feet apart according to the shoulders' width; hands should be at the sides of the body
- Stand raising your hands while inhaling and then at 30 degrees bend from the waist to the left and inhale and exhale three times. Come back to the normal posture. Repeat this on the right side
- Lock the fingers, raise the hands and repeat the above exercise
- Raise the arms to the shoulder level, keeping the palms facing each other. Twist from the waist to the left and then right and repeat the above exercise For thigh and hip:
- Stand straight and keep the legs apart — about 15/20cm Strike the buttocks with the heel alternately For knees
- Let your left heel hit the hip in the standing position. Then stretch forward feeling a jerk in the knee. Do it with the right leg as well. Repeat it five times —Adhyatma Sadhana Kendra

High Blood Pressure

Blood Pressure

Blood Pressure Drugs may help Fight Heart Disorder (Med India: 2.8.2011)

Drugs that are taken to combat high blood pressure may help fight serious heart disorder, suggests Scottish research.

Aortic stenosis - when the main valve between the heart and the rest of the body becomes narrowed - is one of the most common forms of valve heart disease in the developed world, affecting around 5 per cent of the population and growing.

Now research by the University of Dundee and NHS Tayside has found that by taking blood pressure drugs, patients with the disease could be less likely to suffer heart problems or die.

Chim Lang, professor of cardiology at the University of Dundee, and his team studied the records of patients in Tayside with aortic stenosis who have undergone heart scans over the past 20 years.

The results showed a lower risk of death or suffering a complication such as a heart attack or stroke among those taking blood pressure drugs compared with those who were not.

"Aortic stenosis is a growing problem. Physicians have previously not known whether to continue these ACE Inhibitor medications or not," said Lang.

"On the one hand, a fall in blood pressure may not be helpful, but, on the other hand, these drugs offer many protective benefits.

"We observed that patients with aortic stenosis who were taking these medications had a better outcome. This observation, however, needs to be confirmed by prospective clinical trials," added Lang.

The study has been published in the Journal of the American College of Cardiology.

High Blood pressure

Common virus causes high blood pressure? (The Asian Age: 16.8.2011)

HIGH BLOOD pressure could be caused by a common virus, according to a study carried out by a team of Chinese doctors which could lead to better treatment for millions of people around the world.

The team from Beijing Chaoyang Hospital's cardiology centre says it has found the first evidence of a link between the human cytomegalovirus and the most commonly occurring form of hypertension, or high blood pressure. The virus infects most people at some time during their lives, but frequently causes no symptoms, so goes undetected.

One of the report's authors, Yang Xinchun, told AFP the findings could eventually lead to the development of a vaccine to control or prevent high blood pressure. "If we can get conclusive evidence of the relationship, we can get better medical vaccines and remedies for hypertension," said Yang, head of the cardiology centre.

Common blood

Common blood clot in veins is life threatening (The Tribune: 24.8.2011)

Washington: Results from a new study have revealed that patients with clinically diagnosed superficial vein thrombosis (SVT), a blood clot in the veins just beneath the skin that commonly resolves on its own without treatment, are at an increased risk of developing venous thromboembolism (VTE), a dangerous, often life-threatening condition. Recent studies have shown that patients diagnosed with SVT using ultrasound to confirm the presence of a clot showed an increased risk of VTE. However, it was unclear whether patients with "clinically diagnosed" (without the use of ultrasound) SVT also had an increased risk for VTE. VTE is a clotting disorder that includes both deep-vein thrombosis (DVT) and pulmonary embolism (PE).

Ladybird blood

Ladybird blood may help fight TB: A (The Times of India: 23.9.2011)

toxic ladybird that threatens to wipe out native species may hold the key to fight against tuberculosis, malaria and drug-resistant MRSA infection, scientists say. In laboratory

tests, researchers at the University of Wurzburg in Germany found that a sticky blood-like substance produced by the harlequin ladybird killed germs from TB to MRSA and the malaria parasite.

Kidney Disease

Kidney Disease

Rogue Receptor Opens Door for Rare Kidney Disease (Science daily: 26.9.2011)

Effects of a particularly devastating human kidney disease may be blunted by making a certain cellular protein receptor much less receptive, according to new research by scientists from North Carolina State University and a number of French universities and hospitals.

The findings take a major step toward suggesting a beneficial treatment for rapidly progressive glomerulonephritis (RPGN), a rare but debilitating kidney disease that causes renal failure and death in humans.

In a paper published online in Nature Medicine, the researchers show that blocking the ability of the epidermal growth factor (EGF) receptor -- an important component in wound healing -- to bind with certain molecules in the kidneys of mice can eliminate the harmful effects of a mimic version of RPGN.

EGF receptors act like important keyholes on a cell's surface, says Dr. David Threadgill, professor and head of NC State's Department of Genetics and a co-author of the paper. Certain keys, or in this case molecules, can fit with the receptor and "open the door" to a cascade of cellular processes leading to inflammation, which can be good when your body needs to heal a wound or a cut. It's bad, however, when the inflammation runs amok, as when RPGN takes hold.

How important are EGF receptors in RPGN? When EGF receptors were taken out of the equation -- through special mice from Threadgill's lab that were genetically engineered without EGF receptors -- the disease was unable to take hold and degenerate kidney tissues.

The study also showed that certain drugs that inhibit EGF receptors -- think of them as pieces of gum in the keyholes -- not only prevented mouse kidneys from degrading but also reversed the harmful effects four days after mice were exposed to the RPGN mimic.

"EGF receptors are essential components for life, but are implicated in not only RPGN but also a number of cancers like colon cancer and breast cancer," Threadgill says. "They must be tightly regulated. If we can inhibit these receptors for short periods of time, we may be able to stop out-of-control cell proliferation and inflammation and thus prevent or treat certain cancers or diseases."

Leprosy

Leprosy

Health officials from 16 states discuss leprosy (New Kerala: 5.8.2011)

Health secretaries of the central government and 16 Indian states with highest leprosy cases in a bid to address the menace, a statement said Thursday.

"The annual global toll due to leprosy is attributed to 16 countries and India being the highest global contributor of new cases with over 1,20,000 annual cases," said the statement.

"The conference was aimed at discussing ways to improve the coverage of leprosy control activities ensuring that the disease burden reduces in all endemic areas," added the statement.

In 2006, India attained the significant milestone of achieving national and state level elimination of the disease except in Bihar, Chhattisgarh, Dadar and Nagar Haveli. However, it resurfaced later and now attributes to more than 65 percent of the global burden of leprosy with 1 to 1.2 lakh new cases every year, said the statement.

Nata Menabde, WHO representative to India stated: "We believe that collaborative partnerships with international leprosy agencies and multi-sectoral coordination with other ministries are extremely important in achieving the goal of district level elimination."

Meanwhile, sustained efforts are still required at the state and district levels though significant progress was made during the 11th Five Year Plan in reducing leprosy burden in the country from 1,69,709 cases in 2005 to 126,800 new cases in 2010, said the statement.

The government in partnership with major international leprosy agencies and WHO has developed a result-based programme for the 12th Five Year Plan to diagnose disabilities caused due to leprosy in early stages.

"About 209 districts with high number of leprosy cases will be targeted and followed up over a period of time. Innovative approaches like involvement of faith-based organisations, child-to-child approach in spreading the leprosy message, and basic screening have also been included," said the statement.

Liver Disease

Liver Disease

Childhood Obesity and Liver Disease a Serious Public Health Concern In England (Medical News Today: 4-7-2011)

Up to half-a-million overweight/obese children in England have a significant risk of developing "fatty liver disease", Professor Martin Lombard, the country's National Clinical Director for Liver Disease has warned.

Fatty liver disease, also known in this case as non-alcoholic fatty liver disease, is a condition in which fat accumulates in the liver, it can cause inflammation and liver scarring. Many patients have no signs or symptoms. Severe fatty liver disease is sometimes called non-alcoholic steatohepatitis. In severe cases the condition can progress to liver failure.

Prof. Lombard said that excessive fat in liver cells undermines its proper function, raising the risk of having a stroke or heart attack. The risk of cirrhosis of the liver and diabetes later in life is high.

Fatty liver disease can have many causes, including obesity, diabetes, corticosteroids, some poisons (such as carbon tetrachloride and yellow phosphorus), Cushing's syndrome, and hyperlipidemia (high fat levels in blood). It can also be caused by long-term high alcohol consumption, in which case it is called Alcoholic Liver Disease - there are three stages: Alcoholic fatty liver disease, Alcoholic hepatitis, and Cirrhosis.

Fatty liver disease during childhood is mainly caused by overweight/obesity.

Prof. Lombard warns that up to 60,000 English ten-year-old kids may be at risk of having too much fat in their livers, significantly raising their risk of having serious health problems later on in life. The outlook for the country is even more alarming when figures include 4 to 14 year-olds, he added.

According to official government statistics, childhood obesity rates in England appear to be leveling off. However, the total number of overweight children remains excessively high. Almost one fifth of all four-year-olds and a third of 10-to-11 year-olds are obese or overweight. Among this generation of children, "non-alcoholic fatty liver disease could be a silent killer", Lombard warned.

Professor Lombard said:

"The unfortunate problem with liver disease is you don't get any symptoms at all until it's at an advanced stage. So you get cirrhosis and then you have complications that arise from that cirrhosis which can be very serious. So it's not until that late stage that you get any symptoms at all. Parents should be concerned about children who are overweight as they will be at risk of developing fatty liver. If they don't become more active and lose the weight as they go on, then they become overweight adults and have a range of other risk factors as well."

Many UK experts fear that obesity/overweight could eventually overtake alcohol as the main cause of cirrhosis. Liver diseases and conditions are costing the National Health Service more and more of its resources each year.

The main problem with fatty liver disease is that symptoms tend not to appear until the condition is well advanced.

Prof. Lombard said the risk of liver disease is heightened by another factor - England has a high incidence of binge drinking and alcohol abuse among young adults and teenagers. If children enter their late-teen or early-adulthood years with existing liver problems and start experimenting with alcohol, their condition could worsen rapidly.

Malaria

Malaria Treatment

Text Messages Improve Malaria Treatment (Med India: 5.8.2011)

In rural Africa, sending text message reminders to healthcare workers can improve the implementation of national guidelines for treating malaria. The intervention led to more patients receiving accurate antimalarial treatment.

The study, published today in *The Lancet*, was carried out by researchers at the Kenya Medical Research Institute (KEMRI)-Wellcome Trust Research Programme in Nairobi.

Within Africa, the adherence to national malaria treatment guidelines by health workers is vital in making sure that patients stick to and correctly complete malaria treatment doses. Failure to do so can not only affect the patient's recovery from the disease, but can also increase the likelihood of the malaria parasites becoming resistant to the drugs. However, despite the relatively simple guidelines, failure by the health workers to adhere to the guidelines has been widely reported across the continent.

To help improve health workers' practices, researchers at the KEMRI-Wellcome Trust Research Programme carried out a randomised controlled trial looking at the impact of sending SMS text message reminders to health workers' personal mobile phones.

For five working days, two text messages (one at 09:00 and one at 14:00) were sent daily to every health worker's mobile phone. The same process was repeated every week for six months. The messages included both information from the guidelines and inspirational quotes. For example:

Message one (Monday morning): Check ALL sick children <5yrs for any severe signs! Also check for fever, cough, diarrhea, pallor & any other problem. Quote: "Persistent work triumphs"

Killer malaria

Killer malaria loses sting this monsoon (World Newspapers: 18.8.2011)

After making headlines during the monsoon last year, malaria cases have seen a dip this year. Although the health centres and hospitals are registering a considerable number of malaria patients, it has not been alarming like 2010.

The BMC health officials say that there is a 60% drop in malaria positive cases. This monsoon has seen 16 deaths due to malaria.

In August, so far there has been four deaths including that of a 50-year-old woman from Lower Parel on Monday.

Dr Ramesh Chaturvedi, head of the department of preventive and social medicine department, Sion Hospital, said, “This time it has been either raining non-stop or there has been long dry spells. And there has been less accumulation of water.”

Apart from malaria, the city is also getting very few cases of dengue and chikungunya. “Dengue cases were also on rise in the city last monsoon. The Parel and Lalbaug areas had a majority of dengue cases last year. But this monsoon, we are hardly getting dengue positive cases,” said an official from Haffkine Institute, Parel.

Dr Pratit Samdhani, consulting physician at Jaslok hospital, said, “This year we are getting more cases of stomach ailments like severe diarrhoea. Malaria figures are not at all alarming.”

Last year in May, the city had 3,405 positive cases of malaria and three deaths. The number rose to 4,503 in May 2011 but no deaths were recorded.

Malaria, typhoid

After malaria, typhoid cases in Ahmedabad on rise touch 10-year high (World Newspapers: 24.8.2011)

The city doesn't seem to get enough of its share of health problems. A few days back, it was jaundice taking a toll on people's health and now it is typhoid. The incidence of typhoid in January-August in Ahmedabad has been the highest in the last ten years. Apart from water-borne diseases, mosquito-borne illnesses are also on the rise.

According to data provided by the civic body, 839 patients of typhoid have been treated to date in 2011 with the addition of five more patients on Friday.

In the last ten years, average cases of typhoid registered in the city stand at 395 per annum. Going by this data, the number of typhoid cases has doubled when compared with the average of the last ten years. Last year, the city had registered 778 patients of typhoid.

Physicians blame people with bad personal hygiene for catching infection. Unhygienic food from roadside stalls and eateries combined with the laid back attitude of the civic body increases the spread of typhoid and malaria in city. "People like to eat outside home at food stalls where the vendors fail to maintain hygiene and this is why typhoid cases in city are on the rise," said Jashwant Darbar, former president of the Ahmedabad Family Physicians Association.

Both, members of the opposition and ruling parties have taken up the issue of contaminated water in the past, but all in vain. The administration, engineering and health departments have all tried to resolve the issues in their own ways, but have not met with the desired results.

The administration wing blames the age old water pipeline network and illegal water connections in the city for the contamination of drinking water.

Darbar said the figures declared by the civic body are of patients admitted in AMC-run hospitals only. If the patients treated at private hospitals, both indoor and outdoor patients are taken into consideration, then the number of cases will increase at least ten times, he added.

Dr Suresh Patel, chairman of AMC's health and solid waste management committee, said the civic body has intensified raids on eateries and destroyed food products prepared in unhygienic conditions. He admitted that the number of typhoid and jaundice cases has increased but said it could be due to more number of people covered under AMC's survey and continuous checking as well as growth of population in the city.

Malaria Mosquito

Malaria Mosquito is Disappearing, Say Researchers (Med India: 26.8.2011)

Mosquito carrying malaria parasite has disappeared from villages in south of Sahara, say researchers. Researchers couldn't identify the reason behind it. There are several

hypotheses but without proper data they cannot say whether malaria is being eradicated or whether it is just resting up before returning with renewed vigour.

"Many of our fellow malaria researchers think that the fall in countries such as Tanzania, Eritrea, Rwanda, Kenya and Zambia shows that all the control programmes are working, particularly the use of mosquito nets," says Associate Professor Dan Meyrowitsch from the Department of Health Services Research at the University of Copenhagen, and continues:

"That just isn't the whole story. For more than ten years we have been collecting and counting the number of mosquitoes in Tanzanian villages. The number in our traps fell from 5300 in 2004 to just 14 in 2009, and these were from villages without mosquito nets."

Dan Meyrowitsch explains that the 99 % fall in the malaria mosquito population during the end of the 1990s seems to be connected to a fall in precipitation. This may be due to global climate changes.

"From 2003 to 2009 the volume of precipitation was more stable, but the rain was more chaotic and fell outside the rainy season. And this may have disturbed the natural cycle of mosquito development," he says.

"Of course it is great that the number of malaria-related fatalities among children has fallen drastically in the last five or six years, but we need to know why!"

Malaria

2 Ahmedabad localities in the grip of malaria (World Newspapers: 6.9.2011)

Two residential societies in Hatkeshwar area of the city, Maheshwari and Gayatri Nagar societies, are in the grip of malaria.

Not just a few, but around 80% of the residents are suffering from malaria, Falciparum or vomiting.

People have been unwell for the past week. Some are in a serious condition and have been put on IV fluids. Said Sumitra Patil of Gayatri Nagar Society, "My husband is suffering from fever since the last week. The drinking water in our area contains a lot of impurities, maybe that is why most of us are unwell." Sumitra herself was down with fever earlier but she recovered.

A resident of Maheshwari Society, Alkaben Mali, 31, said that she has been suffering from Falciparum for the last week. Deadly diseases like malaria and Falciparum have targeted not only adults but also young children.

Varsha Barot said her four-year-old son was down with malaria for the last few days. Two other boys - Arjun Parimal, 7, and Jignesh Dhobi, 4, are suffering from fever and vomiting.

The residents complain about dirty water supplied since the last 10 days and unhygienic conditions which prevail in the monsoon.

"Garbage is put outside the entrance gate which gets damp after rain. Also, cows litter the place leading to mosquito breeding and flies," complained Ravi Kadam, a resident. The place gets so bad during monsoon that students refuse to go to school as they will have to pass through unhygienic, stinking and waterlogged area.

In Gayatri Nagar Society 1, of the 74 row houses, there are around 30 houses which have at least one patient. There are some joint families where four to five members are suffering from malaria.

Similarly, in adjoining Gayatri Nagar Society 2, of the 20 houses, 15 families have patients suffering from either malaria, Falciparum or vomiting.

Of the 52 houses in Maheshwari Society 1, around 30 houses each have at least one patient. The worst situation is in Maheshwari Society 2, where out of 23 houses, around 20 houses have at least one sick person. The residents also complained that after many suffered from vomiting they had complained about dirty drinking water but no action had been taken by Ahmedabad Municipal Corporation.

The assistant health officer of east zone, Dr Arvind Patel said, "In that area door-to-door service for garbage collection is available. AMC officials have given cards to each household mentioning the time garbage will be collected." Some people insist on collection in the morning which is not possible. Because of this they throw garbage in the open creating unhygienic conditions. "Still, if the whole society has fallen sick, I'll look into the matter," he added.

The municipal commissioner, Guruprasad Mohapatra said, "We agree that malaria cases have increased in the city and state and are taking aggressive measures to control it." He said that domestic surveillance will be conducted twice a month now instead of once.

"Also, now each ward has hand-held fogging machines and vehicular fogging machines are also more in number. We have also intensified larvae checking at various spots and have purchased expensive larvicides for mosquito control. Moreover, we have increased the manpower for verification and cross checking after the work is completed. We are monitoring the number of cases in private hospitals as well," said Mohapatra.

Malaria

Malaria shot to become a reality soon (The Times of India: 16.9.2011)

An experimental malaria vaccine tested on children in Burkina Faso has shown “a high level of efficacy” in protecting against the disease, a study published in the United States said on Wednesday. The study was initially planned to study the safety and immune response of the vaccine, known by the name MSP3.

“However, as malaria attacks were documented as part of the safety follow-up, the investigators decided to explore the protective effect of the vaccine,” said report appearing in Thursday’s New England Journal of Medicine.

“Results indicate a high level of efficacy.”

In the study, 45 children aged 12-24 months were randomized into three groups receiving doses of either 15 or 30 micrograms of the experimental malaria vaccine, or the control vaccine against Hepatitis B. “Comparing the groups, they found a striking difference,” the study said.

It found children who received the new vaccine at either dose had incidence rates three to four times lower than children who did not, “yielding efficacy rates of 64-77% protection against clinical malaria,” the article said.

Non-communicable diseases

Non-communicable diseases

Govt set to expand scope of non-communicable diseases (The Tribune: 23.8.2011)

The government is set to expand the scope of Non Communicable Diseases (NCDs) to deal with its rising burden. For the 12th Five Year Plan, the Health Ministry is planning to propose the inclusion of three new diseases - Chronic Obstructive Pulmonary Disease (COPD), Chronic Kidney Disease (CKD) and Epilepsy - to the existing National Programme for Prevention and Control of Non Communicable Diseases which so far covers only cancer, diabetes, cardiovascular disease and strokes.

Discussions around the inclusion of these three NCDs in the national screening programme for early detection are almost final, and negotiations with stakeholders are also going on to see if genetic blood disorders like thalassaemia, hemophilia and sickle cell disease can also be covered under the prevention programme.

The decision to include the COPD and the CKD under the national programme follows from the fact that while the COPD is emerging as a major cause of healthcare burden worldwide and the only leading cause of death which is increasing in prevalence, the

CKD is now the third largest killer globally after cancer and heart diseases.

In India, more than 2,00,000 kidney failures occur every year. In six out of 10 patients of chronic kidney disease, diabetes and hypertension are the underlying causes. Likewise, the COPD is estimated to be the cause of around 7 per cent of all deaths in India and its leading risk factor is tobacco consumption which is also a major risk factor for cancer.

“It, therefore, makes sense to include the COPD and the CKD to the national screening programme which is currently running in 100 districts of 21 states. In the 12th Plan, this programme will be spread across all the 650 districts,” Health Ministry sources said, ahead of tomorrow’s national summit on NCDs.

The two-day summit will set the tone for India’s positioning in the forthcoming United Nations General Assembly’s High Level Meeting on NCDs on September 19 and 20. Heads of Governments will attend the meeting which will formulate a global response to the rising NCD burden. By 2030, NCDs are projected to claim 52 million lives

worldwide; people with these diseases often die young with 9 million dying under the age of 60 years.

India, too, is experiencing a rapid health transition with the rising burden of NCDs which are emerging as the leading cause of death, accounting for over 42 pc of all deaths with considerable loss in potentially productive years (aged 35-64 years) of life.

According to a WHO report of 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability in India by 2020. It is estimated that the overall prevalence of diabetes, hypertension, Ischemic Heart Diseases (IHD) and Stroke is 62.47, 159.46, 37.00 and 1.54, respectively, per 1000 population of India. There are an estimated 25 Lakh cancer cases in India, with 8 lakh detected annually.

The cost implications of NCDs to society are enormous and run into thousands of crore of rupees.

Polio virus

WHO: New Pak Polio virus threatens world. (The Asian Age: 22.9.2011)

Pakistan is dubbed as the “epicentre“ of global terrorismNow, the terror-affected country is the hotbed of a deadly strain of polio which threatens to spread globally if not checked. A deadly strain of polio has spread to China from Pakistan and travellers to and from Pakistan should be fully protected by vaccination, the World Health Organisation (WHO) warned countries on Tuesday ahead of the Haj season.

“Wild poliovirus type 1 (WPV1) genetically linked to virus currently circulating in Pakistan has been isolated in China,” the World Health Organisation said here.

The United Nations health agency said it rates as “high“ the risk of further international spread of WPV from Pakistan, particularly given the expected large-scale population movements associated with Umrah and the upcoming Haj pilgrimage in the coming months.

Pakistan is affected by nationwide transmission of WPV1, and is the location of the only wild poliovirus type 3 (WPV3) case in Asia in 2011, the WHO said.

As on September 13, Pakistan had reported 84 cases, compared to 48 cases for the same period in 2010, it said.

“In security-compromised parts of the Federally Administered Tribal Areas (Fata), and in particular in Khyber agency, upwards of 200,000 children have been regularly missed during SIAs conducted during the last two years,” the WHO said.

Thyroid

Thyroid malfunctioning

Is your thyroid malfunctioning? (The Times of India: 23.8.2011)

Senior physician R S K Sinha describes the diseases of the thyroid gland and shows you how to recognise symptoms of hypothyroidism and options available to treat it

Thyroid malfunction affects health, so one must understand how this small butterfly-shaped gland in the lower part of the neck works. The gland produces triiodothyronine (T3) and thyroxine (T4) hormones, which help oxygen to get into body cells making your thyroid the master gland for metabolism. Desired levels of thyroid hormone in the body are maintained by the Thyroid Stimulating Hormone (TSH) secreted by the pituitary gland and circulated in the blood. Secretion of TSH is dependent on T3 and T4 levels and on Thyrotropin-releasing Hormone (TRH) released by the hypothalamus. Thyroid problems are seven times more common in women than men. Risk of thyroid disease is higher in pre-menopausal women, in those over 60, or who have just had a baby or have a family history of thyroid.

Thyroid gland disease

These are of three types: Abnormality in the shape and size of the gland like goiter, swollen painful gland/contracted gland; overactivity (hyperthyroidism)/ underactivity (hypothyroidism); goiter with hyperthyroidism or hypothyroidism. Hypothyroidism is the commonest and occurs when the thyroid gland is underactive or improperly formed at birth or is surgically removed, or becomes incapable of producing enough hormone. A common cause of hypothyroidism is the autoimmune disease, Hashimoto's disease. Symptoms of hypothyroidism show up as a slowdown in metabolism such as fatigue, depression, modest weight gain, cold intolerance, excessive sleepiness, dry, coarse hair and skin, constipation, muscle cramps, increased cholesterol, lack of concentration, aches and pains, and swelling of legs. Later, patients report puffiness around eyes, slow heart rate, and drop in body temperature. Thyroid problems increase risk of heart disease, depression, anxiety, sexual dysfunction and infertility. Diagnosis through a blood test is important. If a decrease of thyroid hormone occurs, the pituitary gland reacts by producing more TSH and the blood TSH level increases to encourage hormone production. This TSH increase usually precedes a fall in thyroid hormones. TSH

levels are usually elevated in primary hypothyroidism. Treatment: Hypothyroidism requires life-long therapy. Pure, synthetic T₄ is widely available in various strengths for supplementation without side-effects if used in proper dosage.

Tuber Clauses

TB diagnosis

Evolve better testing for early TB diagnosis: NGOs (The Hindu: 5.8.2011)

Non-governmental organisations working in the field of health on Thursday asked the government to develop better testing technology for early diagnosis of tuberculosis. The demand comes in the wake of rising number of cases of HIV-TB co-infection, which is the major cause of death among HIV-affected people.

Global Health Advocates (GHA) and the Indian Network for People living with HIV/AIDS (INP+) made recommendations to the National AIDS Control Organisation, which will device a National Strategic Plan in September for the fourth phase of the National AIDS Control Programme (NACP-IV) to be run from 2012 to 2017.

The recommendations, developed from seven nation-wide consultations, cover three main areas: prevention of TB among HIV infected people; improved Anti Retroviral (ART) treatment and early diagnosis checking for resistance to first-line ARTs for people living with HIV/AIDS as well as with TB-HIV co-infection; and mainstreaming HIV into the health system.

Among the major recommendations of TB-HIV consultations are rollout of the molecular based NAATs (Nucleic Acid Amplification Tests), which provide early diagnosis of pulmonary TB and Extrapulmonary TB. Currently, less than 5 per cent of the People Living with HIV (PLHIV) in India are automatically tested for TB.

“Steps should be taken to introduce isoniazid preventive treatment (IPT) for those PLHIV who are eligible and should be protected against becoming ill with TB,” Mamta Jacob of GHA said, adding the health care provider should check the HIV or TB patient's blood samples for any corresponding infection.

India has 1.8 million new cases of TB annually, almost one-fifth of the world's new cases. HIV prevalence among adult population in 2007 was 0.34 per cent and in 2008 it was 0.29 per cent. The number of PLHIV in the country was estimated at 2.27 million in 2008, while it was 2.31 million in 2007.

Blood test to detect TB

Blood test to detect TB is unreliable: WHO (The Hindustan Times: 9.8.2011)

The World Health Organisation (WHO) has termed the commonly used methodology to detect tuberculosis (TB) as unreliable with Indian health ministry deciding to issue an advisory to hospitals to discontinue popular blood tests. The blood tests are conducted on about two million people every year to detect tuberculosis, of which the WHO says about half of the results are wrong. Both private and government hospitals in India use blood tests to detect TB.

"They are a waste of time, and they are a waste of money, and very importantly, they put at risk those people who suffer from TB," Mario Raviglione, director of WHO's Stop TB department said, while releasing a negative policy recommendation for the tests.

This comes after the WHO started investigating the blood tests in 2005 after governments reported increase in prevalence of TB despite machinery to provide medical aid to the patients.

"The tests may have failed to detect TB and by the time it got detected it was too late," said a senior health ministry official.

After a six year long analysis, the WHO termed the tests as a money making business centered on selling substandard tests on unreliable results. The WHO also found that some companies had remarketed the tests under different names after the earlier versions were found to be giving imperfect results.

The doctors were also getting financial incentives to conduct the test based on detection of antigens produced by *Mycobacterium tuberculosis*, the organism that causes TB.

The WHO also warned that consequences of such inaccurate diagnoses were significant as TB goes untreated and individuals are not only at risk of death but also unknowingly transmit the disease to others.

"Antibody response is a poor indicator because the various types of mycobacteria share antigens, and other infections raise similar antibody responses," said a report published in Science Magazine this week.

In place of blood tests, the WHO has recommended use of standard microscopy or a new molecular testing system called GeneXpert.

"The advantage of GeneXpert is that you can immediately diagnose TB and determine whether that TB is drug resistant or not," the WHO said.

The new test provides results in two hours compared with the weeks required to complete a traditional TB culture diagnosis. However, the testing equipment costs US \$ 20,000.

Although Health ministry has not suggested any alternative it wants medical associations across India to look for affordable alternatives in wake of the WHO finds.

TB

TB shot found promising in animal tests (The Hindu: 8.9.2011)

A tuberculosis (TB) shot developed by researchers has proved both potent and safe in animal studies.

TB kills an estimated 1.7 million people every year globally, according to the World Health Organisation (WHO). It estimates that nearly 20 lakh people in India develop tuberculosis each year, of which 8.7 lakh are infectious cases.

"Producing effective TB vaccines requires a better understanding of mechanisms used by M tuberculosis (the bug that causes TB) to evade our body's immune responses," said William Jacobs.

Jacobs, professor of microbiology & immunology at Einstein College of Medicine, said the currently used Bacille Calmette-Guerin (BCG) vaccine has been notoriously inconsistent in protecting against TB.

To figure out how M. tuberculosis hoodwinks our immune system, Jacobs and colleagues worked with a sister species, M. smegmatis -- lethal to mice at high doses but does not harm people, the journal Nature Medicine reports.

Researchers modified M. smegmatis through ESX-3 genes, which helps TB bugs outwit the immune system, according to an Einstein statement.

When high doses of the modified M smegmatis bug were infused into mice, they cleared the infection - eliciting the same response as a successful TB vaccine. But M. tuberculosis could not be manipulated in this way to make a vaccine.

Jacobs and colleagues found a way around this stumbling block. They took the modified M. smegmatis bug and inserted the similar set of ESX-3 genes from M tuberculosis.

These M. smegmatis bacteria were then infused into mice, which once again fought off the infection.

And eight weeks later, when the mice were challenged with high doses of *M. tuberculosis*-which kills mice as well as people-these "vaccinated" mice lived much longer than control mice: an average survival time of 135 days vs. 54 days.

"Most notably," said Jacobs, "those vaccinated animals that survived for more than 200 days had livers that were completely clear of TB bacteria, and nobody has ever seen that before."

Vector-borne Diseases

Vector-borne Diseases

Children learn about vector-borne diseases (Hindustan Times: 7-7-2011)

THE TEACHERS AND SCHOOL HEALTH SCHEME MEMBERS WILL HAVE A CHECKLIST OF MEASURES FOR THE YELLOW CARDS.

The Municipal Corporation of Delhi (MCD) has roped in students to tackle the problem of vector-borne diseases. The civic body has been campaigning hard and has launched a virtual attack on dengue and malaria but since the operations required sending an official to every doorstep, it needed some help from the common people.

Moreover, government buildings are seldom covered under MCD drives. To address the problem, the MCD has come up with a unique programme, in which a school health scheme has been constituted and as part of it a doctor and a nurse would be stationed in each MCD run school. This panel would raise awareness among the students about vector-borne diseases and give students a yellow card on which they would be given homework, so that they are able to discuss whatever they learn back home with their parents and friends.

The students will also be urged to take up work like checking air coolers, overhead tanks, backyards of the school building etc.

“This scheme would help prevent mosquito breeding by involving students. It is called dengue homework scheme. Earlier, I was skeptical about its success but it has got good response from parents and students,” said Dr VK Monga, chairman, public health committee, MCD.

“By following simple measures for maintaining health and hygiene, the problem of vectorborne diseases can be solved to a great degree,” explained Dr NK Yadav, municipal health officer. Around 10 lakh children study in MCD-run schools across Delhi. If information is spread by word of mouth, about one-fourth of Delhi will be educated about these diseases.

Drugs and Medicine

Anti-smoking drugs

Anti-smoking drugs may up heart attack risk by 72% (The Times of India: 5-7-2011)

Washington: People who take help of anti-smoking drugs to kick the butt are 72 per cent more prone to serious heart attacks than those who take sham medications, a new study led by an Indian-origin scientist has claimed.

Researchers at Johns Hopkins Medical Institutions in the US found that healthy and middle-aged smokers who take varenicline, the widely-used smoking cessation drug on the market, had a 72 per cent increased risk of being hospitalised with a heart attack or other serious heart problems.

“People want to quit smoking to reduce the risk of cardiovascular disease but in this case they’re taking a drug that increases the risk for the very problems they’re trying to avoid,” said lead researcher Sonal Singh, an assistant professor of internal medicine at Johns Hopkins.

In the study, published in the Canadian Medical Association Journal, Singh and his colleagues analysed 14 doubleblind, randomised, controlled clinical trials involving more than 8,200 healthy people who received either varenicline or a placebo. Varenicline made by Pfizer is sold in many countries including India under the brand-name Chantix. PTI

Ayurvedic Medicine

AYURVEDIC MEDICINE MAKERS GO NORTH (Business Standard: 7-6-2011)

Ayurvedic medicine manufacturers from across the country, who at one time sourced a wide range of medicinal plants from Karnataka, have begun moving their manufacturing units to northern India. They have been forced to do so by the growing scarcity of such plants in the state, caused mainly by rapid urbanisation and deforestation.

The states that have benefitted are Bihar and Uttarakhand, which are closer to the Himalayas and produce a large number of medicinal plants and herbs. Chhattisgarh is also a beneficiary of this trend.

Himalaya Drug Company, headquartered in Bangalore, has set up a new plant in Chhattisgarh. Charak Pharmaceuticals, which had a unit in Maddur near Mysore, has closed this and shifted it to Nagpur in Maharashtra. Dhoot Papeshwar is another Karnataka company that has shifted its manufacturing facility.

Karnataka is home to 179 ayurvedic manufacturers, of which 119 are small and medium enterprises. There are not enough raw materials for all of them, said Laxminarayana Shenoy, state programme officer at the National Rural Health Mission (NRHM). “Till about five years ago, we had rich sources of raw materials in Karnataka, like Amalaki (Amla or Indian gooseberry), Ashwagandha ,

Alalekai ,Amrutaballi (Sida Cordifolia), Brahmi and Arjuna plants. But due to deforestation, we are not getting some of these medicinal plants in our state. Although Amla grown in other states is inferior to that grown in Karnataka, our manufacturers are sourcing it from Chhattisgarh because it is available at low prices,” he said.

The Chhattisgarh government provides a subsidy to farmers for growing medicinal plants. It also gives incentives like tax concessions to industries for manufacturing. The cost of labour is also very low there compared to Karnataka. Workers are paid `4060 per day in Chhattisgarh as against `250 per day in Karnataka.

Some raw materials like Hing (Asafoetida) are sourced from Afghanistan, since it is not available in India. Some companies are even going up to Nepal to procure herbs and plants, Shenoy said.

Kartik Pandit, a manufacturer of ayurvedic medicine in Nanjangud (near Mysore) said, “We were dependent on medicinal plants from the Western Ghats in Karnataka for many decades. But due to forest department restrictions we are going to Nepal, Madhya Pradesh and Uttarakhand. If the farmers come forward to grow the plants, we are ready to buy from them.” The Karnataka state forest department has imposed restrictions on entry into forests. Some products like Alalekai – a raw material for making medicines to treat gastro-intestinal diseases – are available only in forests. Other states have no restrictions on sourcing medicinal plants from forest areas, Pandit said.

“We have asked the state forest department to allow us to go into the forests to procure this material. The department should form an agency through which it can procure medicinal plants grown only in forest areas and sell them to manufacturers in a legal way,” Shenoy said.

Quoting the World Health Organisation (WHO), which has recognised ayurveda as traditional medicine, he said the industry size is estimated at `8,000 crore (the cosmetics industry is considered part of this and contributes about

₹5,000 crore). The industry is growing at 15-20 per cent annually. By 2020, the ayurvedic industry is expected to reach a size of ₹15,000 crore.

In an effort to make available the required medicinal plants, the Karnataka government is embarking on a massive programme to encourage farmers to grow endangered species of medicinal plants. Considering the huge demand for medicinal plants in both India and export markets, the government has also announced programmes to increase cultivation of medicinal plants.

The state forest department's Agri-forest support scheme will enable ayurvedic and Unani medicine manufacturers to enter into contract farming agreements with farmers to grow some of the plants through scientific methods.

The department is distributing saplings at a subsidised rate of ₹10. It has identified trees like neem, tamarind, sandalwood and mango, among others.

The Karnataka government has set up the Medicinal Plants Conservation Authority (MPCA), which is developing protected forests for medicinal plants in 13 selected locations in the state.

"About 90 per cent of the raw materials used in the preparation of ayurvedic medicine are sourced from forest areas. Due to huge demand for traditional medicine and the growth of the cosmetics industry there is a need for growing these plants in a systematic way. The Karnataka government is preparing an action plan for the growth of the industry," Shenoy said.

BP pills

BP pills may lower risk of death from heart disorder (New Kerala: 1.8.2011)

A Scottish research has suggested that patients with a serious heart disorder could be helped with drugs usually taken to combat high blood pressure.

Aortic stenosis - when the main valve between the heart and the rest of the body becomes narrowed - is one of the most common forms of valve heart disease in the developed world, affecting around 5 per cent of the population and growing.

Now research by the University of Dundee and NHS Tayside has found that by taking blood pressure drugs, patients with the disease could be less likely to suffer heart problems or die.

Chim Lang, professor of cardiology at the University of Dundee, and his team studied the records of patients in Tayside with aortic stenosis who have undergone heart scans over the past 20 years.

The results showed a lower risk of death or suffering a complication such as a heart attack or stroke among those taking blood pressure drugs compared with those who were not.

“Aortic stenosis is a growing problem. Physicians have previously not known whether to continue these ACE Inhibitor medications or not,” said Lang.

“On the one hand, a fall in blood pressure may not be helpful, but, on the other hand, these drugs offer many protective benefits.

“We observed that patients with aortic stenosis who were taking these medications had a better outcome. This observation, however, needs to be confirmed by prospective clinical trials,” added Lang.

The study has been published in the Journal of the American College of Cardiology.

Multivitamins

Multivitamins may not help smokers (New Kerala: 3.8.2011)

Smokers who take multivitamins while puffing many cigarettes daily should beware: there is no evidence that the pills will protect them against cancer.

This has been revealed by Wen-Bin Chiou of the National Sun Yat-Sen University in Taiwan who led a study.

In the first of two experiments, 74 daily smokers were given a placebo (not an actual medicine) but half were told they had taken Vitamin C supplement, the journal Addiction reports.

Those who thought they had taken vitamin smoked almost twice as much as those who knew they had taken a placebo. They reported greater feelings of invulnerability.

The second experiment was an expanded version of the first, with 80 participants taken from a larger community.

Smokers who thought they had taken a multivitamin again smoked more than the other group.

But this time, researchers found that the amount of extra smoking rose if the smoker expressed a conscious belief that multivitamins increased health.

New Drug-resistant Salmonella

New Drug-resistant Salmonella Identified (Med India: 4.8.2011)

Scientists discovered a drug-resistant strain of salmonella resistant to antibiotics, notably ciprofloxacin.

The researchers called on national and international health authorities to take measures against the superbug "before it spreads globally," as did another another variant in the 1990s.

Over the last decade, the virulent new strain, known as S. Kentucky, has shown up in parts of Europe, Africa and the Middle East, according to the study, published in the Journal of Infectious Diseases.

People can be infected with salmonella by eating under-cooked meats and eggs, with symptoms including diarrhea, fever, and abdominal cramps. Most cases are not severe, but some can lead to hospitalisation and even death.

Nearly 500 people in France, Britain and Denmark were infected with S. Kentucky between 2000 and 2008, reports the study, led by Francois-Xavier Weill and Simon Le Hello at the Pasteur Institute in Paris.

In France, "we have seen the number of (drug-resistant) cases multiplied by 10 in 10 years," Weill told AFP by phone.

The fact that about ten percent of the patients in European countries had not recently travelled abroad suggests possible contagion within Europe, but most infections there are thought to originate from consumption of contaminated imported foods.

The S. Kentucky strain was isolated in chickens and turkeys from Ethiopia, Morocco and Nigeria, suggesting that poultry is a key agent of infection, the study said. Cases were also reported in Egypt, mainly between 2002 and 2005.

Antibiotic

Antibiotic Useful for Localized Treatment of Bone Wear (Science Daily: 10.8.2011)

Total joint replacement surgeries can help relieve joint pain common in people with conditions like osteoarthritis. But sometimes, the debris from prosthetic joints leads to aseptic loosening, or disintegration of surrounding bones. In 2009, a Wayne State

University researcher determined that the anti-inflammatory antibiotic erythromycin can prevent and treat such disintegration. There was one caveat, however: there are side effects associated with long-term usage of erythromycin.

But Weiping Ren, M.D., Ph.D., associate professor of biomedical engineering in WSU's College of Engineering, has found a solution. Erythromycin can be administered directly at the site of bone breakdown, rather than orally, so the whole body is not affected. The details of Ren's study are published in the August 2011 issue of *Clinical Orthopaedics and Related Research*.

"Although oral erythromycin reportedly inhibits inflammation in patients with aseptic loosening, long-term systematic (oral) erythromycin treatment is not recommended," said Ren.

Used primarily for its antimicrobial properties, erythromycin is used to treat conditions like respiratory tract infections and whooping cough, both caused by harmful bacteria. In addition to fighting bacteria, erythromycin reduces inflammation, making it a successful treatment for aseptic loosening.

"But long-term systemic use of erythromycin raises concerns about various side effects, including bacterial resistance, liver damage and gastrointestinal discomfort," said Ren. "We hypothesized that it may be advantageous to restrict erythromycin delivery to the inflammatory tissue around the implant to avoid these side effects."

To test his idea, Ren implanted metal pins coated with erythromycin in the inflamed tissue surrounding the prosthetic joint. He measured bone growth and implant stability, both indicators of how well the prosthesis integrates with the bone, and analyzed microscopic images of the periprosthetic tissue -- the affected tissue surrounding the prosthesis.

Ren found that at very low doses -- about a quarter of the dose used for killing bacteria -- erythromycin effectively reduces aseptic loosening inflammation. "At the same time, we confirmed that oral erythromycin can be effectively delivered into the periprosthetic tissues, supporting our hypothesis that oral erythromycin can be used as one of the nonsurgical treatment methods to extend implant longevity," said Ren.

By extending implant longevity, localized erythromycin will safely treat aseptic loosening and reduce the likelihood that patients with the condition will need revision surgery. "Medical insurance costs will be greatly reduced, because revision surgery is much more expensive than primary surgery," said Ren.

Ren collaborated with David C. Markel, M.D., chairman of the Detroit Medical Center-Providence Hospital orthopaedic residency program and chief of orthopaedic surgery at Providence Hospital in Southfield, Mich.

The current study was funded by the Orthopaedic Research and Education Foundation. Ren also received funding through the Blue Cross Blue Shield of Michigan Foundation's McDevitt Excellence in Research Award for his 2009 study published in Bone.

Anti-Cancer Drug Therapies

Promise Shown in Development of Anti-Cancer Drug Therapies (Med India: 10.8.2011)

Research has paved way for developing new anti-cancer drug therapies.

Researchers have gained a new understanding of the way in which growing tumours are fed and how this growth can be slowed via angiogenesis inhibitors that eliminate the blood supply to tumours.

"The central role of capillary sprouting in tumour vascularization makes it an attractive target for anticancer therapy. Our observations suggest, however, that targeting just this mode of blood vessel formation may not be sufficient to result in a significant antitumor effect," commented lead investigators Sandor Paku, PhD, Semmelweis University, Budapest, and Balazs Dome, MD, PhD, Medical University of Vienna.

Investigators from the Semmelweis University, the National Institute of Oncology, and the National Koranyi Institute of Pulmonology, Budapest, Hungary, and the Medical University of Vienna, Vienna, Austria, used electron and confocal microscopy to examine tumour tissue in mice in which malignant tumour cells had been introduced.

They proposed a novel mechanism for the development of tissue pillars (the most characteristic feature of intussusceptive angiogenesis, in which a vessel folds into itself to form two vessels).

Moreover, they demonstrated a significant increase in pillar formation after treatment with the angiogenesis inhibitor vatalanib. Their observations support the notion that inhibition of just a single tumour vascularization mechanism can trigger alternative ones.

"It is well established now that tumours can obtain sufficient blood supply from alternative vascularization mechanisms (such as intussusceptive angiogenesis) to grow without capillary sprouting (known as the key mode of new vessel formation in cancer). Therefore, antiangiogenic therapies should be tailored depending on the angiogenic phenotype in each single tumour, and the targeting of non-sprouting angiogenic mechanisms in cancer seems to be a rational strategy. Our study provides new understanding of cancer-induced intussusceptive angiogenesis and may serve as a basis for the development of novel drugs targeting this type of blood vessel formation," they added.

The study has been published The American Journal of Pathology.

Hyperactive child and homoeopathy

Hyperactive child and homoeopathy (The Tribune: 10.8.2011)

Are you worried about your child's hyperactivity? Is your child constantly moving around? Is he too fidgety? Does he constantly move his legs and arms? Does he have difficulty in waiting for his turn while playing with other kids? Is he having concentration issues while studying — gets easily distracted? If so, then your child may be having attention deficit hyperactive disorder, commonly called ADHD.

Recent researches have shown a great beneficial role of homoeopathic medicines in treating such hyperactivity in children. The greatest benefit that homoeopathy offers while treating ADHD is that its medicines are very safe and do not slow down other activities. Neither are they addictive; this means that once the treatment is over, the medicines can be safely withdrawn.

ADHD refers to a condition in the childhood (it may continue in the adulthood as well) where the child may be physically hyperactive and having concentration issues. Kids are naturally playful and active, which makes it difficult for the parents to find out whether their child is naturally active or having a problem. Thus, for a child to be called hyperactive or suffering from ADHD, medical science has defined certain criteria to diagnose this disorder.

Hyperactive disorder can be divided into usually three kinds: Hyperactive — impulsive behaviour, where kids are physically hyperactive and have less impulse control. Inattentive type — where they have difficulty in sustaining attention while studying, playing and doing other activities. Combined type — here they have both physical hyperactivity and the low attention span.

The hyperactive-impulsive type is marked by symptoms of constant fidgety behaviour or moving and squirming frequently. The child has difficulty in remaining in his seat and often leaves his seat suddenly during his school class and can wander away outside the classroom. Running and climbing can be very excessive. The child always seems to be on the go. Excessive talking can be another symptom of ADHD. He or she blurts out answers even before the question is finished. The child may have difficulty in waiting for his turn while playing. In the inattentive type, the symptoms are: the child often makes careless mistakes in school work, homework and other activities. Sustaining attention while studying, playing or other activities is very difficult and gets easily distracted. Instruction following is very difficult for the child. He may seem to be “too absorbed” in

his activity while being spoken too. The child may often avoid activities that require prolonged or sustained mental effort.

What exactly causes ADHD is still unknown; but there are certain factors which tend to contribute to the development or modification of ADHD behaviour. These factors are altered brain function and anatomy, genetic factors, maternal smoking and drug use in pregnancy, childhood exposure to toxins such as lead and food additives such as artificial colouring or food preservatives.

Researches around the world have proved the supremacy of homoeopathic medicines in treating hyperactive disorder in kids. Homoeopathic medicines Hyoscyamus, Veratrum Album, Tarentula and Stramonium have been proved by researches to be effective in treating ADHD. Kindly note that the names of the above mentioned medicines are meant for information only and they should not be used without consulting the physician.

Drugs

Drugs aplenty, but not for common man (The Tribune: 18.8.2011)

The Indian pharmaceutical market, in spite of supervision and control by the Centre and state authorities concerned, needs several reforms to suit the Indian consumer

DURING the last three decades, pharmaceuticals have shown an explosive growth all over the world. After eatables, cosmetics and textiles, pharmaceuticals are rapidly surging ahead to become the third largest industry in several developed countries, thanks to health awareness propagated by World Health Organisation (WHO).

In India, we have not lagged behind. Our pharmaceuticals, in spite of tough competition, have got entrenched in the eastern, mid-eastern and in several western markets. Some of our pharmaceutical multinationals have already acquired an edge over several well-established foreign multinationals. Our pharmaceutical export revenue is increasing year after year. We are very much in the global market.

In India more than 40 thousand pharmaceutical manufacturers of all grades are flooding the market with nearly 50 thousand patent as well as 200 thousand generic drugs and formulations of all types. This number is rapidly increasing every year.

The global market harshly enforces specifications and quality control in all respects, retail dispensing, pricing and presentation etc, according to the norms laid down by the respective authorities concerned.

However, the Indian pharmaceutical market, in spite of supervision and control by the Centre and state authorities concerned, needs several reforms to suit the Indian consumer.

The price of pharmaceuticals is the single most pinching problem which makes them out of reach for those who need them the most. It is an irony of paucity in the midst of plenty. About 35-40 per cent of Indians are below the poverty line; 50 per cent are in the middle income group. Only 10 per cent are an affluent chosen few. The cost of a strip of 10 capsules/tablets being not less than Rs 50-60, it is hardly affordable for 70-80 per cent of Indians. The National Rural Health Mission and Health insurance schemes for those below the poverty line, for several reasons, have not taken off and have made no tangible dent so far.

The margin of profit in most pharmaceutical formulations and patents is between 100 and 500 per cent. Rigid and intimate scrutiny and price control, both at the Centre and the state levels, is imperative. MOU with multinationals for foreign direct investment should restrict the margin of profits for the price control of products. Preference to generic drugs over patented ones, simple cheaper retail dispensing, packing and packaging can considerably reduce cost and prices. Each strip, vial or bottle should display in a bold print readable without a magnifying glass, the generic name of the drug and its dose. In most cases the name of the manufacturer and the name of the drug covers most of the space.

Quality control

Various pharmacopeias — Indian, British, US etc — lay down specifications for each pharmaceutical. After the initial batch, on which the license for the pharmaceuticals depends, subsequent batches tend to compromise on specifications and quality. Therefore, the drug is either less potent, or gives severe side-effects.

Therapeutic index (lethal dose divided by effective dose) of every drug is governed by internationally accepted norms. The higher the index, the safer the drug. There should be no side-effects like anaphylactic shock, allergic reactions affecting gastro-intestinal tract, cardio-vascular system and skin rashes. A safe drug with a high therapeutic index should have no side-effects and no contra-indications and antagonism.

These specifications need to be scrutinised for every batch of every drug manufactured by every manufacturer for a foolproof quality control. Is this being done diligently and strictly by those responsible for it? This becomes a big question mark, when several fatal or severely affected cases are reported from hospitals frequently, attributed to drug and vaccine administration, wherein quality control has been compromised.

Lately, some foreign multinationals have been permitted to get their pharmaceuticals manufactured in India on a contract basis by Indian manufacturers. It may add to the Indian economy, but little tangible cost benefits have accrued to the consumer. Intensive quality control norms need strict surveillance in such cases.

Spurious drugs

The menace of spurious drugs infiltration into the pharmaceutical market is a cancer which needs ruthless suppression and excision. Nearly 1-5 per cent of pharmaceuticals are spurious at present. If this is not nipped in the bud, it will grow parallel with the pharmaceutical industry, quicker than parallel black money economy.

Ninety per cent of patients who don't respond to routine therapy are victims of spurious drugs. Most antibiotics, vitamins and minerals, pain killers and injections are prone to spurious imitation.

We need a regular, well-organised pharmaceutical intelligence establishment at the Centre, the states and every pharmaceutical industrial township with a network of whistleblowers.

The drug control authorities fully satisfy themselves before a drug is approved for marketing. Even then, at times, certain drugs prove harmful on mass consumption. Such drugs are promptly banned and are required to be withdrawn by the manufacturers/stockist from the retail market. In spite of clear ban orders and public announcement by the authorities concerned, there is hardly a chemist shop not continuing to retail such drugs. Do drug inspectors know and check the availability of such drugs at chemist shops?

Strong antibiotics

Except for drugs like opium and a few more which under legislation can be sold by the chemist on a prescription by a registered doctor only, all other drugs, including even the strongest antibiotics, are on-the-counter readily available retail items, without any medical prescription. So much so that many chemists even prescribe drugs to the customers and thus add to the ever increasing number of quacks.

The Health Minister of India in a public statement on August 2 has expressed serious concern about on-the-counter issue of drugs, especially antibiotics, by the chemists without medical prescription. Hopefully, some action will be taken.

Drug prescription

Some non-allopathic practitioners are prescribing allopathic drugs to the patients. This practice is questionable. Each drug has its own pharmacological and pharmaco-kinetic action, contra-indications and antagonism. It is dangerous to prescribe drugs without such knowledge.

It is time that a comprehensive legislation dealing with all aspects of pharmaceuticals, superseding piecemeal legislations is enacted for efficient governance and control of India's pharmaceutical boon, so that it does not become a bane.

The writer is Chairman and Managing Director of BCS Katarias Foundation and Health Care India, which is operating several free rural and slums health care centres

Supplement Health

Elders can supplement Health Cover with Savings (The Economic Times: 25.8.2011)

High premiums deter senior citizens from opting for large covers. A medical corpus will come in handy

For over two decades, Champaklal Shah and his wife have had mediclaim policies from New India Assurance for . 3 lakh each. The annual premium for both the policies in the initial years was just . 3,000. But, now, for the same cover, they pay around . 25,000.

Shah is not pleased with the increase in premium on his health policy as he has been paying his premiums regularly for 20 years. At the same time, he is scared to discontinue his policy because he doesn't know when he would actually require the cover.

One of the main reasons that triggered the loading is his increasing age. Shah is in his 70s and his wife is 65.

Most senior citizens see a sudden spurt in their premium — it may be either because of their advanced age or because of loading of premium after a large claim or a spate of claims made on the policy. Taking note of such instances, the Insurance Regulatory and Development Authority (Irdi) has come out with guidelines on renewal of health premium for senior citizens. “The loading of premiums, if justified for renewals of mediclaim policies issued to senior citizens, shall not exceed 50-75% of the premiums charged prior to the revision,” it has said.

WHY IS IT EXPENSIVE?

The premiums have increased by almost 30% in the past two to three years due to rising medical inflation and healthcare costs.

“Insurance is all about covering the risk and offering the right cover to an individual. From the company’s perspective, it has to factor in the risk of age, which includes the possibility of ailments. Hence, senior citizens end up paying a higher premium, because they carry higher risk factor due to the higher age. For example, if you paid 1.5% of the sum assured as a premium at the age of 25, the premium amount can shoot up to 8% of the sum assured when you become 60. The loading is a function of the increase in age. A large claim can also be another crucial factor in determining premium,” says Rahul Aggarwal, CEO, Optima Insurance Brokers.

“Senior citizens' policies usually have the co-pay clause, which means the policy holder will bear a fixed percentage of expenses in case a claim arises. The balance is settled by the insurer,” says Pankaj Mathpal, CFP, managing director, Optima Money Managers. “General insurance contracts are short-term contracts. An insurer can change the policy terms and you may have to renew the policy as per the revised terms,” says Mathpal.

FOR SENIOR CITIZENS WITH A MEDICLAIM

Thanks to the spiralling premium cost, most senior citizens are left wondering if they have to renew their policies. This is because many individuals believe that instead of

paying a premium, if they saved and invested the amount, they will be able to build a corpus to take care of their medical bills. But, most experts don't encourage that notion.

"This question haunts even those who are not senior citizens. For senior citizens, I feel there is no option but to renew your existing policy due to the lack of credible alternatives. After all, this is not a category that is exactly being chased by insurance companies," says Jayant R Pai, certified financial planner (CFP) and vice-president, Parag Parikh Financial Advisory Services.

"Medical costs are high and senior citizens are more susceptible to medical ailments. Therefore, not having a medical cover is not an option," says Suresh Sadagopan, CFP, Ladder 7 Financial Advisories.

The increase in premium for senior citizens may be due to the fact that they have jumped to the next age band — health insurance premiums change with age bands. The premium for the 35-45 age band, for example, will be different from that for the 45-55 age group. So the person who had bought the policy at, say, 40 and has been paying a premium for 15 years without making a claim, may see the premium go up when he reaches 55. This is because the insurance company feels that the age group is more prone to making large claims. Sure, in this example, the person may get a better rate because of his track record and claim-free bonus. But everyone need not be that lucky.

The premium can also go up because of loading of the premium by the insurance company if there has been a large claim or a number of claims on the policy. As you can see, there is not much one can do in these situations.

It is better to pay the extra amount and continue with the cover. Remaining without a health cover can be extremely risky for elderly individuals.

FIRST-TIME MEDICLAIM BUYERS

The insurance company does not have your medical history on its records. This gives the company the liberty to charge a premium that is higher than the amount charged from existing customers because it has no idea about your health or claim record.

NON-COVERAGE OF PRE-EXISTING DISEASES

This clause is present in all health policies irrespective of the age of the policyholder. But it becomes an issue for senior citizens as the chances of them having pre-existing diseases (diseases prior to commencement of the policy) are higher. The insurer will not entertain any claim related to pre-existing illnesses in the first few years of the policy. The New India Assurance, for instance, covers pre-existing diseases in its senior citizen policy after 18 months of continuous insurance with the company. Further, pre-existing conditions like hypertension, diabetes mellitus and related complications are covered after 18 months of continuous insurance but only on payment of additional premium.

SHOULD A SENIOR CITIZEN BUY A MEDICLAIM?

Despite all these, being without medical insurance is not a good idea any longer as one single visit to a hospital itself can drain a person financially. Though it might be costly to buy a medical insurance at a later stage, not taking an insurance is not an option. The

insurance would cost between 6% and 8% of the sum assured. Also, it will have terms and conditions that may vary from medical covers issued to younger people.

BACK IT UP WITH YOUR SAVINGS

“Every individual should build healthcare corpus along with a health insurance policy. Healthcare corpus should be used only when insurance cover is not sufficient. Health insurance should not be avoided even if you are building health care fund. In case a person builds healthcare fund and does not buy health insurance and if health care fund is exhausted then it may become difficult to build the corpus again,” Mathpal adds.

“Medical insurance is a must as medical costs are skyrocketing. What seems like a decent corpus may be adequate for just one admittance in the hospital in future. Hence, don’t scrimp on medical insurance at all and keep the medical corpus intact and keep topping it up,” Sadagopan adds.

How to Budget for a Home

Pharmacy council against

Pharmacy council against opening of new colleges (The Hindu: 6.9.2011)

As the mushrooming of pharmacy colleges has created an “imbalance,” the Pharmacy Council of India (PCI) has urged the Union government not to permit the opening of new colleges in the country, except in the northeast, Bihar, Jharkhand and Chhattisgarh.

PCI chairman B. Suresh said this while talking to reporters on the sidelines of the ongoing World Congress of Pharmacy and Pharmaceutical Sciences 2011 and the 71st International Congress of FIP (International Pharmaceutical Federation) here on Monday.

The foremost challenge in pharmacy education was the number of institutions in the country. The PCI had written to the Union Health Ministry recommending a ban on the opening of new colleges for the “time being.” Asked till when the PCI wanted the ban, he said: “for about five years.”

Preliminary clearances

At present, more than 700 pharmacy degree colleges were functioning in the country; the highest number of 300 being in Andhra Pradesh. As many as 300 colleges in the country were operating on the basis of preliminary clearances given by the All India Council for Technical Education (AICTE) and a conduct of courses permission by the PCI.

Mr. Suresh said the PCI had made it clear to these colleges to comply with the standards and get approvals. Around 40,000 pharmacy graduates passed out each year, of whom 50 per cent would get absorbed. One of the problems in pharmacy education was regulation by both the AICTE and the PCI. The PCI had urged the government to remove this dual regulation. Mr. Suresh expressed the hope that the issue would be sorted out, once the National Accreditation Regulatory Authority for Higher Education was established.

'Indirect accreditation'

The PCI was planning to introduce quality assurance systems in every pharmacy college by the next academic year. Describing quality assurance as an "indirect accreditation," he said initially it would be recommended, but made obligatory after five years. This was basically aimed at ensuring uniform standards, irrespective of whether the colleges were located in urban or rural areas.

Generic drugs

Will generic drugs become dearer? (The Asian Age: 6.9.2011)

In a determined bid to overturn the crucial Section 3(D) of the Indian Patent Act, the Swiss pharma company Novartis will go before the Supreme Court on Tuesday to undermine a key public health safeguard designed to prevent drug companies from patenting known medicines. This has alarmed the medical community dealing with cheap generic drugs which provide a lifeline for millions of patients both in India and other developing nations.

A worried Dr Amit Sengupta of People's Health Movement pointed out, "If Novartis succeeds in weakening the interpretation of Section 3(d) for the purpose of obtaining a patent on a specific salt of the anti-cancer drug imatinib, it would force India to grant far more patents than it currently does or is required to under international trade rules."

The move is being challenged by the Indian Cancer Patients Aid Association.

They point out that a hike in price of a cancer drug will immediately affect lakhs of cancer patients.

"This game change will impact 30 per cent of the generic drug industry who will no longer be permitted to produce older medicines," Dr Amit Sengupta warned.

"Already, they are not permitted to produce new drugs which remain patented for a minimum period of two decades. Once competition on generic drugs ends, prices of cancer, TB, HIV-AIDS, cardiovascular and other noncommunicable diseases will shoot up," Dr Sengupta added.

The Supreme Court case is the final act in a legal battle.

In 2006, the Indian patent office rejected Novartis patent application for imatinib. In 2007, the Madras high court rejected Novartis plea and in 2009, the Indian Patents Appellate Board also rejected this application.

Leena Menghaney, India manager of the Medecins Sans Frontieres (MSF) campaign pointed.

A recent survey in the Sassoon Hospital here showed that 20 out of 3,172 patients were carrying the superbug, NDM-1 gene. Sixty-six per cent of the patients also showed multidrug resistance. While it is not a cause for immediate worry, experts say, the high level of resistance to drugs could mean that soon there will be no antibiotics which can fight diseases.

Renu Bharadwaj, Dean of the BJ Medical College which conducted the study on the 3,172 patients over two months, said many such 'superbugs' existed and NDM-1 (New Delhi metallo-beta lactamase-1), a bacterium with multidrug-resistant gene, was the newest genetic mechanism.

"The reason for the emergence of this mechanism is that there has been a large-scale misuse of antibiotics, resulting in high resistance. There is need for a more disciplined use. We need to preserve the antibiotics available to us. International monitoring is necessary," she told The Hindu.

The British medical journal The Lancet, in a report in August 2010 said NDM-1 was found in sewage and drinking water samples in Delhi. The causes of NDM-1 could also be that there was immunodeficiency among patients, Dr. Bharadwaj said. "NDM-1 can be treated with the anti-bacterial drug, Colistin, which is very expensive."

It was unclear how many independent surveys were undertaken in the country after the report was out, Dr. Bharadwaj said. "However, no epidemic can spread due to NDM-1. We need to be careful about how we use the antibiotics."

The study in the Sassoon Hospital also showed that 181 patients were found resistant to the highest level of antibiotics, Carbapenems. The group of Carbapenem antibiotics is usually highly resistant to most beta lactamases.

Dr. Bharadwaj said Pune was not a peculiar case, and a similar study anywhere could produce similar results.

According to her, the fact that antibiotics are available over the counter in India adds to the concern.

Her anxiety is shared by Sharad Agarkhedkar, president of the city unit of the Indian Medical Association. Speaking to The Hindu, he said: "There is no antibiotics policy in India. They are freely available which can be dangerous in the long-run. When they are

prescribed by doctors, very often the patients don't complete the entire dose, increasing the chances of relapse.”

Dr. Agarkhedkar said the use of antibiotics for minor infections like viral fevers should be avoided. He also advocates the need for training among doctors to avoid wrong and inadequate dosage.

- Patients are asked not to take antibiotics for minor infections such as viral fevers
- Study at Pune hospital shows 181 patients were resistant to Carbapenems

First anti-stroke pill

First anti-stroke pill in 50 years goes on sale

London: A pill being hailed as the biggest breakthrough in stroke prevention in 50 years is on sale today. More than a million Britons could benefit from Pradaxa, which is up to a third more effective than warfarin, the gold-standard blood-thinner, when it comes to preventing strokes. The 2.50 pounds once-a-day drug is the first of a new generation of anti-clotting medicines. Pradaxa could vastly improve patients' quality of life by allowing them to eat what they want without fear of upsetting the levels of medication in their blood and triggering a stroke or haemorrhage. It would also remove the need for the frequent blood tests associated with warfarin, which is also used as rat poison. Now, Pradaxa, which is also known as dabigatran etexilate, can be used to thin the blood in people with atrial fibrillation, in which erratic beating of the heart raises the odds of stroke five-fold.

Cancer drugs

Chatter between cells can lead to cancer drugs (The times of India: 7.9.2011)

Cells chat with one another, discussing what kind they will become — a neuron or a hair, bone or muscle. This breakthrough opens the way to develop cancer drugs that target these transactions and halt production of cancer cells.

Because cells continuously multiply, it's easy to imagine a cacophony of communication.

But David Sprinzak, Tel Aviv University suggests cells know when to chat and when to shut up and let other cells carry on. Sprinzak, working with California Institute of Technology researchers, has uncovered the mechanism that allows cells to switch from sender to receiver mode or vice versa, the journal Public Library of Science Computational Biology reports.

His breakthrough opens the way to developing cancer drugs that target these transactions, inhibiting or encouraging information flow among cells and halting production of cancer cells. IANS

Women at risk of cancer must get ovaries removed

Older women who are at high risk of developing breast or ovarian cancer should consider having their ovaries removed, a leading expert in Britain suggests. According to Prof Gareth Evans of Manchester University, ultrasound and blood test screening for ovarian cancer is not reliable and so women who with a family history of the disease should consider the operation to lower risk of developing tumours.

Pain Killers

Latest on Pain Killers: Cochrane Review (Med India: 7.9.2011)

An evaluation of the effect of commonly used pain killers used at specific doses is published in the latest edition of The Cochrane Library and will help doctors and patients to make evidence informed decisions of which pain killers to use.

The Cochrane Review of data relating to about 45,000 patients involved in approximately 350 individual studies also identifies pain killers for which there is only poor or no reliable evidence.

Acute pain occurs when tissue is damaged either by an injury or as a result of surgery. The pain felt after surgery happens because tissues become inflamed, and giving pain killers is a critical component of good patient care. Managing pain well helps keep a patient as comfortable as possible and aids their recovery.

Working at the Oxford Pain Research Unit at Oxford University, Dr Andrew Moore and colleagues analyzed the findings of 35 Cochrane Reviews of randomized trials testing how well different pain killers work when used against postoperative pain.

"Our aim was to bring all this information together, and to report the results for those drugs with reliable evidence about how well they work or any harm they may do in single oral doses," says Moore.

A key finding was that no drug produced high levels of pain relief in all patients. "If the first pain killer a person tries doesn't seem to be working, then a doctor should look to find an alternative reliable drug and see if it is more effective in that individual patient. There are plenty of options that have a solid evidence base," says Moore.

Dose

'Dose' of excess weight increases risk of diabetes (New Kerala: 8.9.2011)

A new University of Michigan Health System study has revealed that the "dose" of obesity—how much excess weight a person has, and for how long— is an important risk factor for developing type 2 diabetes.

Our study finds that the relationship between weight and type 2 diabetes is similar to the relationship between smoking and the risk of lung cancer," said study lead author Joyce Lee, M.D., M.P.H., a paediatric endocrinologist at U-M's C.S. Mott Children's Hospital.

"The amount of excess weight that you carry, and the number of years for which you carry it, dramatically increase your risk of diabetes," Lee stated.

The researchers found that a measure of degree and duration of excess weight was a better predictor of diabetes risk than a single measurement of excess weight.

Lee and colleagues also found that black and Hispanic compared with white individuals had a higher risk for diabetes, for a same amount of excess weight over time.

Based on the latest findings, Lee suggests obesity prevention and treatment efforts should focus on adolescents and young adults, especially racial minorities.

The study appeared online in the September issue of the Archives of Paediatric Adolescent Medicine.

Yeast Infections

New Drugs Hope for Dangerous Yeast Infections (Science Daily: 8.9.2011)

Researchers are a step closer towards creating a new class of medicines and vaccines to combat drug-resistant and deadly strains of fungal infections, following a new study published in the Proceedings of the National Academy of Sciences.

Yeast infections are the fourth most common cause of infection acquired by people in hospitals, although in healthy people they are most usually associated with vaginal or oral yeast infections known as thrush. In extreme cases in vulnerable patients, such yeasts can circulate in the bloodstream and spread throughout the body, causing systemic

candidiasis. This is life-threatening in around half of patients when the infection spreads in this way.

Researchers from Imperial College London have now found out yeast cells identify and attach to human tissue in order to colonise it and cause an infection. They have identified the key features in this process and now plan to create and test prototype drug-like molecules that interfere with the yeast and prevent the infection from taking hold.

There are already treatments that are effective at suppressing yeast infections and eliminating them from medical equipment, but microorganisms are constantly evolving to outsmart existing drugs and many strains of yeast have already become completely resistant to antifungal treatments. Scientists are seeking new ways to effectively kill them or prevent infection.

"Most healthy women will have thrush or other mild yeast infection at some point in their lives, but what is less well known is that yeasts can be lethal, and a major health concern for vulnerable hospital patients," said Dr Paula Salgado from the Department of Life Sciences at Imperial College London, one of the main investigators who carried out the research. "What I find most concerning is the fact that we don't seem to have an effective way to control the most severe cases of these infections. Our work allows us to understand the details involved and provide vital clues to develop new drugs and clinical applications."

Lead author of the research, Dr Ernesto Cota, and his colleagues from the Department of Life Sciences and the Centre for Structural Biology used data from high field magnets in Imperial's state-of-the-art Nuclear Magnetic Resonance (NMR) Centre as well as large x-ray research facilities across Europe to study a protein called Als adhesin on the surface of the yeast *Candida albicans*, in order to explore the role it plays in helping the yeast recognise human tissues.

To help visualise the fine details of the recognition mechanism, they probed the structure of this fungal protein attached to a complementary human cell molecule using powerful x-rays at the UK's national synchrotron facility, Diamond Light Source, in Oxfordshire. This allowed the researchers to fully identify which tiny part of Als adhesin attaches the yeast cell to human tissues and the exact features of that interaction.

"We have shown the unique way that *Candida albicans* has evolved to recognise and latch on to a wide variety of human cells. Als adhesin proteins give the yeast an ability to thrive throughout the human body, which is what makes it such a dangerous infection," said Dr Cota. "We hope this new knowledge will allow us to create drug-like molecules that prevent the yeast cells from taking hold, by blocking this specific molecular mechanism."

The researchers say their findings pave the way for commercial vaccines and anti-fungal compounds that are effective against a wide range of infection-causing fungi. The next step is to test small, drug-like compounds in the laboratory to analyse whether they

behave as expected. These could then be developed into the first stages of new treatments.

"This work is exciting because it shows the great amount of insight that can be gained through interdisciplinary collaborations," said another author, molecular microbiologist Dr Lois Hoyer from the University of Illinois at Urbana-Champaign, who first discovered and characterized the Als adhesins. "The new data transform this field of study and highlight the next set of questions that can be answered by combining the structural biology in Dr Cota's group with the cellular biological expertise in my laboratory."

The study was funded by the Biotechnology and Biological Sciences Research Council (BBSRC) in the UK and the National Institutes of Health (NIH) in the United States.

Painkiller

Painkiller may double miscarriage risk: Study (The Times of India: 8.9.2011)

London: Taking painkillers such as ibuprofen during pregnancy may double a woman's risk of miscarriage, a new study said.

Researchers at the University of Montreal who looked at a group of painkillers called Non-Steroidal Anti Inflammatory Drugs (NSAIDS) found that women who took them just before they conceived until the 20th week of pregnancy were 2.4 times more at the risk of miscarriage.

The NSAIDS drugs included over-the-counter naproxen. Aspirin is also in this category but it was not included in the study, while paracetamol is deemed safe, the Daily Telegraph reported. Researchers surveyed over 47,000 women aged 15 to 45 years. They were asked whether they had taken the painkillers at any time in the first 20 weeks of pregnancy. PTI

Cancer Drug

New Strategy for Dealing with Resistance to Targeted Cancer Drug (Med India: 12.9.2011)

Scientists at Dana-Farber Cancer Institute and colleagues overseas have discovered a pair of backup circuits in cancer cells that enable the cells to dodge the effect of a widely used cancer drug. Jamming those circuits with targeted therapies may heighten or restore the drug's potency, according to a study published in the Sept. 7 issue of Science Translational Medicine.

The research focused on the drug cetuximab, an antibody that interferes with cancer cell growth by blocking a structure known as the epidermal growth factor receptor (EGFR). Cetuximab is effective in many patients with colorectal cancer or squamous cell cancer of the head and neck, but the benefits rarely last longer than a year, and some patients receive no benefit from the drug.

Until now, scientists haven't known why cancers that initially respond to cetuximab become resistant to it, or how to overcome such resistance.

In the new study, researchers led by Pasi Janne, MD, PhD, of Dana-Farber and Kimio Yonesaka, MD, PhD, formerly of Dana-Farber and now at Kinki University School of Medicine, in Osaka, Japan, found that in some cetuximab-resistant cancer cells, a protein known as ERBB2 was actively sending "grow" signals, circumventing the "stop growing" signals triggered by cetuximab. The researchers discovered that ERBB2's activity sprang from an oversupply of the protein's parent gene, Her2/neu, or by a related protein, ERBB3, when prompted by high levels of the protein heregulin. In both cases, the new growth messages are unaffected by cetuximab.

Drug policy

Gujarat's VS Hospital formulates new drug policy (World Newspapers: 15.9.2011)

The VS Hospital committee has formulated a new drug policy and formed two separate committees, one for drug selection and the other for drug purchase.

In addition, citizens will now be able to purchase 273 medicines and drugs at a subsidised rate there. Earlier, only 216 drugs were available at concessional rates. Also, out of these 216, around 1/3rd of the medicines which were outdated and had better substitutes, have been removed in the new policy.

Mayor Asit Vora said, "The previous drug policy had some demerits like late delivery and supply and big companies did not apply for the rate contract of the central medical stores. But with the new policy, there will be lot of efficiency in provision of medicines at the hospital store."

In the earlier policy, he said, the hospital superintendent had the power to purchase medicines by window shopping of Rs50,000 in case of emergency. This has been increased to Rs1 lakh. For effective work and transactions, there will also be a separate bank account for the purpose.

Vora further said that the new store will come up near the hospital's No 8 barricade. He further said that presently it will only be for VS Hospital. Later on, other hospitals can also avail of the benefits. Though the policy has been formulated, citizens will have to wait for a month before it is implemented.

New diabetes pills

New diabetes pills' link to pancreatic cancer risk needs further probe (world Newspapers; 21.9.2011)

Two new drugs used to treat Type 2 diabetes could significantly increase the risk of developing pancreatitis and pancreatic and thyroid cancer, a new study has warned.

Researchers from the Larry L Hillblom Islet Research Center at UCLA examined the US Food and Drug Administration's database for adverse events reported between 2004 and 2009 among patients using the drugs sitagliptin and exenatide.

They found a six-fold increase in the odds ratio for reported cases of pancreatitis with these drugs, compared with four other diabetes therapies they used as controls.

In addition to the six-fold increase in reported cases of pancreatitis, the researchers also found a 2.9-fold greater rate of pancreatic cancer in patients using exenatide and a 2.7-fold higher rate of pancreatic cancer in patients on sitagliptin, compared with the other therapies.

Additionally, they found a statistically significant increase in the risk of thyroid cancer among the exenatide group, but not among the sitagliptin group.

The researchers, however, cautioned that more studies were needed to conclusively establish the link.

"We undertook these studies because several studies in animal models by several investigators had suggested that this form of therapy may have unintended actions to promote growth of the ducts (tubes) in the pancreatic gland that convey digestive juices from the pancreas to the gut," said Dr Peter Butler, director of the Hillblom Center and a study co-author.

"This is a concern if it happens in humans since it might be expected to increase the risk for pancreatitis and pancreatic cancer. While the FDA data base has limitations, it does have advantages in being very large, openly accessible and independent from companies that market the drugs.

“Taken together the animals studies and the FDA data base analysis suggest that further work needs to be undertaken to at least rule out that this now widely available new drug class for diabetes does not increase the risk of pancreatic cancer,” Butler added.

The study has been published in the journal Gastroenterology.

Drug

Wonder drug from shark chemical? (The Times of India: 21.9.2011)

Compound Found In Liver Can Help Fight Dengue, Yellow Fever, Hepatitis

In what may revolutionize human medicine, scientists claim to have found evidence that a compound in the liver of sharks can be used as a drug to protect people from a number of diseases.

A team, led by Michael Zasloff at Georgetown University, says the antibiotic — squalamine, already known to be safe for use in humans as an antiviral agent — could be used as a new type of drug to treat a broad spectrum of diseases from dengue and yellow fever to hepatitis B, C and D.

“To realize that squalamine potentially has broad antiviral properties is immensely exciting, especially since we already know so much from ongoing studies about its behaviour in people,” the ‘Daily Mail’ quoted Dr Zasloff. The scientists found that in both laboratory and animal experiments squalamine produced antiviral activity against the human pathogens found in the diseases such as some forms of hepatitis which cannot currently be treated. Along with offering medical advances, this discovery may solve the mystery of how sharks with primitive immune systems can so effectively fight viruses that plague all living creatures, say the scientists.

Zasloff said: “I believe squalamine is one of a family of related compounds that protects sharks and some other ocean vertebrates, such as the sea lamprey, from viruses. “Squalamine appears to protect against viruses that attack the liver and blood tissues, and other similar compounds that we know exist in the shark likely protect against respiratory viral infections, and so on. We may be able to harness shark’s novel immune system to turn all of these antiviral compounds into agents that protect humans against many viruses. That would be revolutionary.”

Cancer 'wonder drug'

Cancer 'wonder drug' launched in Britain (New Kerala: 21.9.2011)

A pill that can help prostate cancer patients live about five months longer was launched in Britain Wednesday.

The drug, Zytiga, developed by British scientists, can increase life expectancy even in men with advanced, aggressive cancers, the express.co.uk reported.

The drug cost 3,000 pounds and is yet to be approved for NHS (National Health Service) prescription.

Until then, patients can ask their doctors, or approach the Cancer Drugs Fund or their Primary Care Trust, for the drug.

Zytiga works by cutting off the tumour's supply of testosterone, stopping it from growing.

It can be used in up to 80 percent of patients with drug-resistant prostate cancer who have already tried -anti-hormonal therapies and chemotherapies, the Express said.

Blood Pressure Drugs

Blood Pressure Drugs May Lengthen Lives of Melanoma Patients (Science Daily: 22.9.2011)

Beta-blocker drugs, commonly used to treat high blood pressure, may also play a major role in slowing the progression of certain serious cancers, based on a new study.

A review of thousands of medical records in the Danish Cancer Registry showed that patients with the skin cancer melanoma, and who also were taking a specific beta-blocker, had much lower mortality rates than did patients not taking the drug.

The report, published in the current issue of the journal *Cancer Epidemiology, Biomarkers & Prevention*, summarized the work of a team of researchers at Ohio State University's Institute for Behavioral Medicine Research (IBMR) and the Comprehensive Cancer Center.

If the results are confirmed in a planned clinical trial, this might be an additional adjunct treatment for cancer patients facing a poor prognosis.

At the center of this research is the fact that certain molecules that play important roles in the immune system also appear to promote both tumor growth and metastasis, the shedding and spreading of tumor tissue to other parts of the body.

"The work started with some earlier studies where we discovered that certain tumor cells had receptors to two specific catecholamine stress hormones -- epinephrine and norepinephrine," explained Ron Glaser, professor of molecular virology, immunology and medical genetics and director of the IBMR.

"When either of these hormones bind to the tumor cell receptors, it stimulates the production of vascular endothelial growth factor (VEGF), interleukin-8 (IL-8), interleukin-6 (IL-6) and certain matrix metalloproteins -- all molecules known to stimulate blood flow to tumors, enhancing their growth, and promoting metastasis."

The earlier studies first used tissue from a nasopharyngeal carcinoma cell line, and later from both multiple myeloma and melanoma cell lines. When treated with the beta-blocker propranolol, all cells stopped producing the tumor-enhancing molecules. Similar work by other scientists showed similar results with ovarian cancer tissues.

Then the team turned to Stanley Lemeshow, a professor and dean of the College of Public Health at Ohio State. Lemeshow had previously partnered with colleagues in Denmark and knew that country had a vast database of patient information, including records of all Danish cancer patients for decades, as well as pharmacy records of all drugs prescribed for those patients.

"These databases can be linked together and by doing so, you have the ability to find patients with melanoma who had previously been prescribed beta-blockers," Lemeshow said.

The researchers looked at melanoma patients who had taken beta-blockers and at those who hadn't to determine whether the former group exhibited longer survival.

"Among patients diagnosed with melanoma, those who were taking beta-blockers when their cancer was diagnosed experienced longer survival than those patients who weren't taking the drug," Lemeshow said.

"Their chance of surviving for a specified number of years improved by 13 percent."

When the researcher looked at all causes of death among melanoma patients -- not just melanoma -- their chances of survival were improved by 19 percent.

"We're talking about survival time, here. They simply lived longer."

Eric Yang, an associate member of the IBMR and assistant research professor of internal medicine, said that epinephrine and norepinephrine may stimulate, or induce, the production of these tumor-promoting molecules.

"The idea is that if you treat a patient with beta-blockers, then you can counteract 'epi' and 'norepi' and lower the amounts of those molecules that induce tumor progression, perhaps halting it," Yang said.

That's the idea behind the clinical trial the researchers hope to begin soon.

"That's what has us so excited," Glaser explained. "This drug is relatively inexpensive. It isn't chemotherapy so you don't lose your hair or get sick. It doesn't kill the cancer cells, but it may slow the disease.

"This would be adjunct therapy that could be provided in addition to the normal chemotherapy patients receive."

"So far, we've found an association between beta-blocker use and survival time for melanoma patients," Lemeshow said. "The clinical trial should give us even stronger evidence."

New diabetes pills

New diabetes pills' link to pancreatic can two new drugs used to treat Type 2 diabetes could significantly increase the risk of developing pancreatitis and pancreatic and thyroid cancer, a new study has warned. (Science Daily: 22.9.2011)

Researchers from the Larry L Hillblom Islet Research Center at UCLA examined the US Food and Drug Administration's database for adverse events reported between 2004 and 2009 among patients using the drugs sitagliptin and exenatide.

They found a six-fold increase in the odds ratio for reported cases of pancreatitis with these drugs, compared with four other diabetes therapies they used as controls.

In addition to the six-fold increase in reported cases of pancreatitis, the researchers also found a 2.9-fold greater rate of pancreatic cancer in patients using exenatide and a 2.7-fold higher rate of pancreatic cancer in patients on sitagliptin, compared with the other therapies.

Additionally, they found a statistically significant increase in the risk of thyroid cancer among the exenatide group, but not among the sitagliptin group.

The researchers, however, cautioned that more studies were needed to conclusively establish the link.

“We undertook these studies because several studies in animal models by several investigators had suggested that this form of therapy may have unintended actions to promote growth of the ducts (tubes) in the pancreatic gland that convey digestive juices from the pancreas to the gut,” said Dr Peter Butler, director of the Hillblom Center and a study co-author.

“This is a concern if it happens in humans since it might be expected to increase the risk for pancreatitis and pancreatic cancer. While the FDA data base has limitations, it does have advantages in being very large, openly accessible and independent from companies that market the drugs.

“Taken together the animals studies and the FDA data base analysis suggest that further work needs to be undertaken to at least rule out that this now widely available new drug class for diabetes does not increase the risk of pancreatic cancer,” Butler added. ncer risk needs further probe.

Drugs

Coming soon: Drugs that will stop breast cancer from recurring (New Kerala: 23.9.2011)

A new study has suggested that some novel drugs that are being developed as remedies to other cancers will also be able in future to stop breast cancer from coming back.

Though hormone therapies, such as tamoxifen, that target a protein responsible for tumour growth, have dramatically improved the treatment of breast cancer, the therapies do not work in all patients.

Medical researchers at the University of Leeds have now pointed the finger at a key protein, named FGFR3, that they believe helps breast cancer to become resistant to hormone treatments.

"The options available for treating breast cancers that return are relatively limited at the moment. It is therefore of utmost importance to identify the factors that cause this resistance to help promote the development of novel drugs that can be used to target recurrent breast cancers," said Dr Darren Tomlinson, lead author of the research.

"Drugs are currently being made to target this protein – FGFR3 - in other types of cancers. Our work suggests that these drugs could potentially be made available to treat some breast cancers too and help tackle this problem of resistance," he added.

Drug - prostate cancer

Drug for prostate cancer coming soon? (The Times of India: 26.9.2011)

A new drug is offering fresh hope for people with advanced prostate cancer, as early results of its trial showed it can prolong survival significantly. Patients who were given the new drug called Radium-223 Chloride - known as Alpharadin TM - found that it eased pain and caused minor side effects.

It was found targeting tumours accurately using alpha radiation, which doctors conducting the study said is the most effective form of radiation to eliminate cancer because it limits damage to surrounding tissue.

"It's more damaging. It takes one, two, three hits to kill a cancer cell compared with thousands of hits for beta particles," Dr Chris Parker, who led the trial at the Royal Marsden Hospital, said.

The doctors also said the drug will also do less damage to surrounding tissue because it accurately targets cells. Speaking at the 2011 European Multidisciplinary Cancer Congress in Stockholm, he said: "They have such a tiny range, a few millionths of a metre. So we can be sure that the damage is being done where it should be."

Envirmental Health

Air Pollution

Traces of Ancient Air Pollution Detected in Egyptian Mummies (Med India: 7-6-2011)

Around 15 mummies, which provide sufficient evidence that ancient Egyptians were exposed to air pollution, have been uncovered by researchers.

They have found particulates in the lungs of all the mummies, including a 1,800-year-old one found in Dakhleh Oasis, a remote outpost in southwest Egypt that supports the evidence.

Particulates or tiny microscopic particles that irritate the lungs have been linked to a wide array of modern-day illnesses, including heart disease, lung ailments and cancer.

The particulates are associated with post-industrial activities, such as fossil-fuel burning.

The 15 mummified lungs examined so far showed particulates and the levels of them are not much below those expected in modern-day lungs.

"I would say it would be less than modern day, but not much less," the LiveScience quoted Roger Montgomerie, a doctoral student at the KNH Centre for Biomedical Egyptology at the University of Manchester as saying.

This is "quite bizarre if you think about it, considering we have the mass burning of fossil fuels and an awful lot of pollution that has been going on since the industrial revolution," he added.

Studies have shown that while ancient Egypt was a pre-industrial society, its people did engage in cooking, metalworking and mining, all activities that can generate air pollution.

Furthermore, the Egyptian climate with its deserts and sandstorms would have whipped up any grounded particulates into the air where they could easily be inhaled.

This research has been presented at the 12th annual Current Research in Egyptology conference in the United Kingdom.

Pollution

Pollution linked to higher heart attack risk (The Times of India: 22.9.2011)

Beware! Traffic fumes can take a toll on your life, for a new study, led by an Indian-origin researcher, has found that air pollution raises one's risk of heart attack for up to six hours after exposure.

Krishnan Bhaskaran and colleagues at the London School of Hygiene and Tropical Medicine have found that even moderate levels of pollution from traffic can carry an extra risk, the 'British Medical Journal' reported.

The researchers have based their findings on an analysis of almost 80,000 heart attack cases and the level of pollution to which they were exposed.

In the study, they found rising air pollution was linked to a rise in heart attacks up to six hours after exposure.

But there was no increased risk after the sixhour period, with number of heart attacks then falling to a lower level than expected, the 'Daily Mail' reported.

The researchers reviewed 79,288 heart attack cases from 2003 to 2006 and exposure, by the hour, to pollution levels.

Family Planning

Gender Inequality

Women, Interrupted (The Economic Times: 7-7-2011)

In rich and poor countries alike, the infrastructure of justice is failing women, says a UN Women report. Legal reform is only a start, the report argues – laws must be implemented to translate into true equality. Across the board, existing laws are too often inadequately enforced keeping many women from reporting cases of gender inequality

Injustice towards women, it seems, has no boundaries. Justice remains out of reach for millions of the world's women, a flagship report launched today by UN Women warns. 'Progress of the World's Women: In Pursuit of Justice' is UN Women's first major report, following the organization's launch in early 2011.

Among issues affecting women the most, domestic violence impacts women all over the world. In 125 countries there are laws to protect them. Globally, 53% of working women – 600 million – are in vulnerable jobs, such as self-employment, domestic work or unpaid work for family businesses, which often lack the protection of labour laws.

Despite at least 117 countries enacting equal pay laws, on average women are still paid 10 to 30 percent less than men across all regions and sectors, the report says. Several studies have linked the gender pay gap with women's caring responsibilities. In a study of 15 developed countries, where men did more housework, the gender pay gap was smaller, says the report.

The numbers at workplace are no less worrying--117 countries outlaw sexual harassment in the workplace. But 311 million working age women continue to live and work in countries without this legal protection. In terms of equal access to jobs, in a review of 126 countries, in more than a third, women are prohibited from working in the same industries as men. Laws to 'protect' women from dangerous or arduous jobs, or night work are now considered paternalistic and a limitation on women's economic opportunities, the report points out.

“With half the world's population at stake, the findings of this report are a powerful call to action. The foundations for justice for women have been laid: in 1911, just two countries in the world allowed women to vote – now that right is virtually universal. But full equality demands that women become men's true equals in the eyes of the law – in

their home and working lives, and in the public sphere,” said Michelle Bachelet, Under-Secretary-General and Executive Director of UN Women in a statement.

Funding to strengthen women's legal rights is inadequate, says the report. Of the \$874 billion spent by the World Bank in the last 10 years, \$126 billion went into public administration, law and justice systems, but only \$7.3million went into programmes aimed at gender equality - 0.001% of the total budget.

On India, Laura Turquet, Lead Report Author, UN Women says that women workers in informal sector in India are most vulnerable. Labour laws do not necessarily protect women in this sector. “One of the issues in India is also the issue of domestic workers. Women still do more unpaid domestic and caring work than men in every region of the world,” she says.

The report recognizes the positive progress made – 139 countries and territories now guarantee gender equality in their constitutions, for example – but also shows that too often, women continue to experience injustice, violence and inequality in their home and working lives. The United Nations Convention for the Elimination of All Forms of Discrimination against Women (CEDAW) has been signed by 186 countries. To date, 139 constitutions guarantee gender equality, 117 have equal pay laws and 125 outlaw domestic violence. However, much remains to be done to achieve justice for women and girls, says the report.

“We are talking about justice. The broad issue is woman empowerment,” says Turquet. Making a case for more women in politics and public life, the report points out that in countries where there have been steep increases in women’s representation in parliaments, for example Rwanda, Nepal and Spain, progressive laws on women’s rights have often followed. Yet there are still less than 30% of women in parliament in the vast majority of countries. Changes in the law, when properly enforced, lay the groundwork for changing attitudes and improving women’s position in society. But legal reform is only a

start, the report argues – laws must be implemented to translate into true equality. Across the board, existing laws are too often inadequately enforced, the report finds. Many women shrink away from reporting crimes due to social stigma and weak justice systems. The costs and practical difficulties of seeking justice can be prohibitive – from travel to a distant court, to paying for expensive legal advice. The result is high dropout rates in cases where women seek redress, especially on gender-based violence. Weak justice infrastructure presents major practical barriers to achieving justice for women globally, the report concludes.

Steps and the gaps

The good...

- 173 countries guarantee paid maternity leave

- 139 constitutions guarantee gender equality
 - 125 countries outlaw domestic violence
 - 117 countries have equal pay laws
 - 115 countries guarantee women's equal property rights
- But despite significant advances, discriminatory laws, gaps in legal frameworks and failures of implementation mean that women continue to be denied their rights.

...and the not so good

- 127 countries do not explicitly criminalize rape within marriage
- 61 countries severely restrict women's rights to abortion
- 53% of women work in vulnerable employment
- 50 countries have a lower legal age of marriage for women than for men
- 10-30% is the average pay gap between women and men (UN Women's Progress of the World's Women Report 2011–2012)

Landmark cases that have changed women's lives

- **Velez and others v Novartis Pharmaceuticals**
In the largest gender discrimination class action ever to go to trial in the US, 12 women employees of the pharmaceutical company Novartis alleged they were discriminated against on pay and promotions. The jury decided unanimously in their favour and Novartis agreed to pay \$175 million to settle the matter, including \$22.5 million for improvements to policies and programmes to promote equality in the workplace
- **Meera Dhungana on behalf of FWLD v HMG**
In Nepal, the law exempted men from being prosecuted for the rape of their wives. In 2002, in a case taken by the Forum for Women, Law and Development, the Supreme Court ordered Parliament to amend the rape law. To date, 52 countries worldwide have explicitly criminalized marital rape in their penal codes.
- **Judgment of the Constitutional Court of Colombia**
In 2006, Women's Link Worldwide took a case on behalf of Martha Solay to challenge the law prohibiting doctors from performing an abortion to save her life. The court held the ban violated women's fundamental rights and affirmed abortion must be accessible in certain cases.

- **Unity Dow v Attorney General of the Republic of Botswana**

Despite being a citizen born and raised in Botswana, the law stated that because Unity Dow had married a foreigner, their two children required residence permits and were denied their rights as citizens. This landmark 1992 case confirmed that the guarantee of equality in the Constitution applied to women's citizenship rights.

The Prescription for Nations

- Support women's legal organizations
- Implement gender sensitive law reform
- Support one-stop shops to reduce attrition in the justice chain
- Put women on the front line of law enforcement
- Invest in women's access to justice
- Train judges and monitor decisions
- Increase women's access to courts and truth commissions during and after conflict
- Implement gender-responsive reparations programmes
- Use quotas to boost the number of women legislators
- Put gender equality at the heart of the Millennium Development Goals

Pills

Forget pills; be kind, show compassion to beat blues (The Times of India: 1.8.2011)

Rather than taking anti-depressants, people suffering from depression have an inexpensive way out — practising acts of kindness and compassion, new research claims. Acts of kindness or compassion might serve as an effective treatment for depressed people, say researchers from the University of California, Riverside, and the Duke University Medical Centre.

They have proposed a new approach called as Positive Activity Interventions (PAI).

PAIs are intentional activities such as acts of kindness, compassion and feeling optimistic and grateful, collected from decades of research into how happy and unhappy people are different, reports Journal of Alternative and Complementary Medicine.

Although anti-depressants can be life-saving for some, initial drug therapy produces full benefits in only 30 to 40% of patients, say neuroscience and psychopharmacology researchers. Even after trying two to four different drugs, one-third of people will remain depressed, according to a California statement. "Social psychology studies of flourishing individuals who are happy, optimistic and grateful have produced information about the benefits of positive activity on mood and well-being," says Sonja Lyubomirsky, who led the study. IANS

Gender violence

Gender violence ups lifetime risk of mental illness, disability in women (New Kerala: 4.8.2011)

An Australian research has revealed that women who experience gender-based violence such as rape, sexual assault, intimate partner violence and stalking have a higher lifetime prevalence of mental health disorders, dysfunction and disability.

Researchers at the University of New South Wales (UNSW) analysed data from the Australian Bureau of Statistics' National Mental Health and Wellbeing Survey (2007), which include 4,451 women aged 16 to 85.

It shows the four most common types of gender-based violence are strongly associated with a wide range of problems for women including more severe current mental disorder, higher rates of three or more lifetime mental disorders, physical disability, mental disability, impaired quality of life, and overall disability.

"There is an overwhelming link between gender violence and key indicators of women's mental health, well-being and risk of suicide attempts," said study leader, Dr Susan Rees, from UNSW's School of Psychiatry.

"For women exposed to two types of gender-based violence the lifetime rate of mental disorder was 69 percent and for three or more types of gender-based violence, it was 89.4 percent.

"This compares with a rate of 28 percent for women who have not experienced violence. The link with gender-based violence was particularly strong for posttraumatic stress disorder," he added.

The findings were published in the Journal of the American Medical Association.

Higher gender equality

Higher gender equality means more sex, finds study (10.8.2011)

A new global research has shown that people have more sex in countries with higher gender equality.

The study is part of a big-picture look at sexual behaviors worldwide using "sexual economics".

"Women's sexuality has a kind of value that men's sexuality does not," The Globe and Mail quoted study author Roy Baumeister, a psychologist at Florida State University in Tallahassee, as telling USA Today.

"Men will basically exchange other resources with women to have sex, but the reverse doesn't work," he added.

Baumeister and his colleagues used data from 37 countries, including an international sex survey of 317,00 people.

They found that countries ranked higher in gender equality also generally had more casual sex, more sex partners per capita, younger ages for first sex and greater tolerance/approval of premarital sex.

But the opposite was true in countries where women were at a disadvantage.

When women lack opportunities, they restrain sex to drive up the price, prompting men to commit to a lifetime of support ♦" a.k.a. marriage ♦" to get sex.

"It's a notoriously unromantic theory," he acknowledges.

Other researchers insist it has legs.

Sex is a matter of supply and demand, said Mark Regnerus, a sociologist at the University of Texas-Austin and author of Premarital Sex in America.

"On average, men want sex more than women do," Dr. Regnerus writes at Slate.com.

The study is published in The Journal of Social Psychology. (ANI)

Safe and legal abortion

“Safe and legal abortion is a woman's right” (The Hindu: 10.8.2011)

Over 250 activists and groups have protested against the recent suggestions by two MLAs in the Maharashtra Assembly that “female foeticide” be treated as murder.

A letter sent to Speaker Dilip Walse Patil on Tuesday, at the initiative of the Forum Against Sex Selection (FASS), a network of 22 organisations and over 16 individuals, expressed concern at the statements made by Pankaja Munde-Palve (BJP) and Jitendra Avhad (NCP) that female “foeticide” be treated as murder and culprits be booked for the offence of murder under Section 302 of the Indian Penal Code.

The letter said that first of all abortion should not be referred to as foeticide, which had anti-abortion implications. Women had the right to decide when and whether or not they should bear and give birth to children. Making sex-selective abortions (wrongly referred to as “female foeticide”) a murder charge, would only increase illegal abortions and also make access to safe abortion difficult.

Safe and legal abortion is a woman's right and abortion is legal in India. Medical Termination of Pregnancy (MTP Act) spells out the conditions under which it can be carried out. Sex-selective abortion, however, amounts to discrimination against a particular sex, in most cases, female sex. Sex-selection in favour of the male child is a symptom of devaluation of female lives. It is important to remember that those who want to use abortion for elimination of the female foetus have to first determine the sex of the child. Rightly, it is this process of pre-natal selection which is a crime, and it is being regulated and monitored through the Preconception and Pre Natal Diagnostic Techniques (Prohibition of Sex selection) (PCPNDT) Act.

The letter said: “Unless we are able to deal with all those social and economic factors that are going into the culture of son-preference and daughter-aversion, the child sex ratio will go on plummeting. But the solution is not to curb the legal right to abortion. Rather the PCPNDT Act should be enforced, and clinics that offer prenatal sex testing should be weeded out.”

The letter condemned the demand to make abortion a crime and urged the government to stop using anti-abortion stand for curbing the plummeting child sex ratio. Checking pre-natal sex selection required the proper implementation of the PCPNDT Act and monitoring of sex-selective procedures by the government. It could not be achieved by introducing such draconian measures that curb women's right to safe and legal abortion.

The letter was endorsed by the FASS, Mumbai; health activist Manisha Gupte of the MASUM, Pune; Vibhuti Patel, Head, Department of Economics, SNDT University, Mumbai; S. Parasuraman, Director, Tata Institute of Social Sciences; Mohan Rao, the

Centre of Social Medicine and Community Health, JNU, New Delhi; Chayanika Shah, researcher and activist, Mumbai; and Uma Chakravarty, historian.

Keywords: legal abortion, female foeticide

Urinary tract infection

Urinary tract infection common among women (The Tribune: 10.8.2011)

Urinary tract infection (UTI), a commonly seen ailment, can affect at any age. It may involve any part of the urinary system — the kidneys, ureters, bladder, prostate, epididymis and urethra but commonly affects the lower urinary tract - the urinary bladder and the urethra.

Bacteria enters the urinary tract through the urethral opening and begin to multiply in the urinary bladder; they can go up and affect the kidneys also. The urinary system can keep out such microscopic invaders, but if the defence mechanism fails, then the bacterial load increases and results into a full-blown infection of the urinary tract. This is known as “Retrograde route of infection” and is the common route of infection.

The other uncommon route of infection is “Haematogenous “, in which systemic bacterial infection can also involve the urinary tract.

A few specific diseases like tuberculosis, filariasis fungus, bilharziasis, etc, can also infect the urinary system.

Urinary tract infections are very common in women, and the main reason is their anatomy. Women have a shorter urethra, which cuts down on the distance bacteria must travel to reach the bladder. In females (compared to males) the urethra is closer to the anus and this also helps the bacteria to invade the urethra. This is the reason why *Escherichia coli*, a normally occurring bacteria of the gastro-intestinal tract, is the commonest organism to infect the urinary tract.

After menopause, UTI becomes more common as lack of estrogen causes changes in the urinary tract that make it more vulnerable to infection. There are greater chances of such infections during pregnancy.

Symptoms

A patient having UTI may complain of following:

Frequency of urination — the patient has to pass urine at short intervals; this is more marked during night-time (nocturnal frequency). The amount of urine passed each time is small.

Urine may contain blood, either frank red in colour or cola -coloured

Burning sensation (scalding) when urinating

Urine is not clear but appears cloudy and dirty

Foul smelling urine

Pain either while passing urine, or if may be continuous in character. In acute infections of kidneys (acute pyelonephritis) pain is in the flanks whereas when the urinary bladder is involved the pain is localised in the lower abdomen. In women, the pain may be in the pelvic area whereas in males it may be in the rectal region.

Acute infections of the urinary tract may cause symptoms of sepsis, like high fever, shivering, vomiting, nausea, etc. Relevant investigations : The urinary tract infection is a clinical diagnosis — a doctor can diagnose the ailment just by getting detailed history and subsequently examining the patient.

Treatments and drugs

Antibiotics are normally used to treat urinary tract infections, and the choice of drugs and duration depend upon the organisms that have been grown, the status of the kidneys (shown by kidney function tests) and the general condition of the patient, .

This kind of infection is usually caused by gram positive organisms and gram negative bacilli and, therefore, commonly used drugs are Bactrim, Amoxicillin, Ampicillin, Nitrofurantoin, Ciprofloxacin, Levofloxacin, Ofloxacin, Gatifloxacin, etc.

Symptoms usually clear up within a few days of treatment, but treatment should be continued at least for a week to 10 days. After the completion of the prescribed treatment, it is wise to get a urine sample again examined , both routine and culture examinations.

Presence of pain and burning in the urinary tract may require analgesics. The commonly prescribed medicine is Pyridium, and this gives rise to discoloured urine- orange or red.

For infections related to sexual activity, a single dose of an antibiotic after sexual intercourse may be helpful.

Post-menopausal women may require vaginal estrogen therapy to minimise recurrent urinary tract infections.

In the presence of a specific problem or a disease that gives rise to UTI , all-out efforts should be made to remove the cause (stone, prostatic enlargement, anatomical abnormality in the urinary tract), treat the specific disease like tuberculosis, etc.

Precautions to prevent UTI

Increase fluid intake to wash out organisms in the urinary tract. Do not hold back urine. Urinate as soon as the urge is there. After urinating or bowel movement, wash or wipe from front to back and not from back to front. This will prevent bacteria in the anal region from spreading to the vagina and urethra.

After sexual intercourse, wash the genital area and urinate to wash away bacteria.

Women who experience vaginal dryness during sex should use a cream or jelly for lubrication.

Vitamin C may function to increase urine acidity to reduce bacterial growth.

Cranberries/blueberries/ pineapple contain antioxidants that may help the immune system. It has been reported that they contain compounds that reach the urine and reduce the adherence of pathogens to human cells.

The writer is a retired Senior Professor & Head of Surgery, PGI, and a former President, Association of Surgeons of India.

Unwanted pregnancy

Unwanted pregnancy: Use of contraceptives (The Tribune: 17.8.2011)

When Rimple, 23, a newly married woman, missed her periods, she decided to try out the ‘I-Pill, an emergency contraceptive (EC)’, widely advertised on television. After repeated use of the pill failed to restore her periods she consulted a doctor who found she was six weeks pregnant.

She had to undergo an MTP as the overdose of EC pills she took could have harmed her foetus. Typically, users of the ‘emergency contraceptive’ (EC) confuse it with the abortion pill that is to be taken after a woman misses her periods. EC pill cannot be a substitute for regular oral or injectible contraceptives and should only be used in “emergency” — after accidental unprotected sex. Long-term use or overuse can be harmful and cause irregular menstrual cycles and side-effects like nausea and vomiting.

No less than 78 per cent of the pregnancies in India are unplanned and at least 25 per cent are unwanted despite the availability of contraceptives. Married or unmarried, if you don’t want a child, contraceptives can come to your rescue. The large majority of women

need to rely on modern methods, including female sterilization, the IUD, and the pill. Oral contraceptives are the most commonly prescribed form of birth control; advantages include reversibility as well as a good tolerance and safety profile. Long-term contraceptives like sub-dermal depot compounds or hormone-releasing pessaries in the uterus have been used on a regular basis and seem a convenient alternative for birth control for longer periods. Copper IUDs will be widely used in the future since copper IUDs are effective in preventing a pregnancy for as long as five days after unprotected coitus. Hormonal tablets are less effective and should be taken as soon as possible after coitus.

Contraceptives

Side-effects of contraceptives (The Tribune: 17.8.2011)

The time period of when to start taking a pill is important as every woman's menstrual cycle is different. Also, some women may be allergic to certain kinds of drugs. Issues such as weight gain, weight loss, acne increase or decrease, and nausea are common with many types of contraception. Irregular bleeding or spotting may occur while you are taking birth control pills. Hormonal changes like acne, nausea, depression and dizziness may also occur. Deep vein thrombosis (DVT) or blood clot is diagnosed through a host of symptoms that includes pain in the chest, swelling and pain in muscles and legs, and pulmonary or heart-related complications. Alarm bells start ringing; if you experience sharp chest pain, heaviness in the chest, sudden severe headache, sudden partial or complete vision loss, contact your doctor immediately.

IUD

Middle-aged women (The Tribune: 17.8.2011)

Intrauterine devices (IUD) are an excellent method of contraception in older women as they are long-lasting and effective. Specific contraindications include abnormal menstrual bleeding and the presence of fibroids distorting the uterine cavity. Condoms and spermicidal creams can also be considered as an alternative. Spermicidal creams help lubricate the dry vagina in older women; whereas condoms provide the advantage of protecting against STDs and HIV infection. Estrogen-progesterone combined low-dose pills have been found to be safe for middle aged and pre-menopausal, non-smoking women, who do not have other risk factors such as smoking, obesity, hypertension, diabetes and familial history of cardiovascular diseases.

Adolescents' contraception

Adolescents' contraception (The Tribune: 17.8.2011)

In general, sexually active unmarried adolescents are not seeking to become pregnant, and married adolescents do not wish to become pregnant early or, if they have already had a child, wish to delay a second pregnancy. Unplanned pregnancies among adolescents happen despite the best of contraceptive intentions, and the effectiveness of adolescent contraception remains below desired levels. However, low dose contraceptive pills and barrier methods like condoms are recommended for this group. In case of accidental encounter, EC pills taken soon after contact but not later than 72 hours of the episode can help in most cases.

The writer is a Chandigarh-based senior gynaecologist.

Eye Newer - Safer Birth Control Method

Researchers Eye Newer, Safer Birth Control Method (Science Daily: 8.9.2011)

Oregon Health & Science University researchers have uncovered a new contraceptive that is more focused, safer and, therefore, available for use among a larger population of women

The research took place at OHSU's Oregon National Primate Research Center. It is published online in the journal Endocrinology.

Today's birth control methods are several decades old. The Food and Drug Administration for example, approved "The pill," in 1961. It prevents contraception by boosting hormone levels through the use of synthetic hormones. These higher hormone levels interrupt the normal menstrual cycle. In short, the synthetic hormones inhibit the release of the hormones responsible for triggering ovulation.

"While the method works, it has its downsides," explains ONPRC scientist Jon Hennebold, Ph.D. "The biggest concern is that by boosting hormone levels, this contraceptive method affects systems throughout a woman's body. Therefore, there are some risks associated with current contraceptive methods, primarily cardiovascular disease."

An additional downside is that hormonal treatments like the pill require the user to conform to a daily medication schedule. Because of this requirement, the pill is only about 80 to 90 percent effective.

In comparison, the contraceptive OHSU researchers are developing is not hormonal and more focused on mechanisms that directly result in the release of an egg. This new approach targets the key enzymes responsible for the release of an egg. Hennebold and his colleagues were able to determine exactly which enzymes to focus on by studying rhesus macaque monkeys that have a very similar reproductive system to humans.

This research in monkeys has demonstrated that targeting these enzymes can prevent the release of an egg from the ovary. The next step for Hennebold and colleagues is to determine the delivery method of such a drug and the timetable for medication.

"Our hope is that the next generation of birth control is more targeted and has a higher effectiveness level," added Hennebold. "Much more work is necessary to further our proposed solution, but we believe that better, safer contraceptive methods are possible."

Birth-control pills

Birth-control pills can affect women's memory forever (The Times of India: 12.9.2011)

Birth control pills affect memory, a new study has warned. Researchers at the University of California have found that women who use contraceptives like birth control pills experience memory changes — in fact, their ability to remember the gist of an emotional event improves, while women not using the contraceptives better retain details.

"What's most exciting about this study is that it shows use of hormonal contraception alters memory," researcher Shawn Nielsen said. She stressed that the medications did not damage memory. "It's a change in the type of information they remember, not a deficit," she said. In the study, groups of women either on the contraceptive or experiencing natural hormonal cycles were shown photographs of a mother, her son, and a car accident. The audio narrative differed; some in each group were told the car had hit a curb, while others were told the car hit the boy and injured him. One week later, all were given tests about what they recalled. Women using contraceptives remembered more clearly the main steps while women not using them remembered details. PTI

Zinc, copper

Zinc, copper deficiency may lead to spontaneous abortion, finds study (New Kerala: 30.9.2011)

A new study from the University of Granada has for the first time confirmed that low blood levels of copper and zinc in pregnant women may be a factor associated with spontaneous abortion.

The hypothesis had not been confirmed to date, and had never been proven in humans before.

Jesus Joaquín Hijona Elósegui, a researcher at the Department of Pharmacology of the University of Granada, and his colleagues looked at 265 pregnant women, of which 132 suffered a spontaneous miscarriage during that year.

All study participants underwent an ultrasound examination, and were taken a blood sample for laboratory tests.

The results proved the existence of differences in maternal plasma concentrations of copper and zinc.

The finding suggests that maternal deficiency of one or both trace elements may be associated with the occurrence of spontaneous abortion, which opens new and interesting lines of research in this area so far unexplored.

The results were published in the Spanish journals *Progresos de Obstetricia y Ginecología*, in *Toko-Ginecología Práctica*, and in *Obstetrics and Gynaecology*.

Fertility and Infertility

Infertility

Take it easy for babies' sake (The Asian Age: 5-7-2011)

Women who indulge in challenging exercises and improper diets risk infertility. Keeping your body fit through intense workouts may be the 'in' thing now, but it may have an unexpected result. It has been found that women athletes and women who take up challenging exercise routine can have infertility problems. These women have a very low Body Mass Index (BMI) and they make sure that there is very little fat in their bodies to stay in form. But not many know that body fat plays a significant role in reproduction because sex hormones are fat soluble and they are stored in the body's fat layers. So the estrogen level produced by women with a low BMI is less.

This results in abnormal menstrual cycle, amenorrhea, or the lack of the lack of a menstrual cycle, which can lead to infertility. Now, a study from the Norwegian University of Science and Technology (NTNU) shows overly frequent and hard physical exercise reduces a young woman's fertility. Since there is not enough energy to maintain all the necessary hormonal mechanisms that enable fertilisation, infertility would be the result. And this problem persists only as long as the hard training.

We often get cases where extreme physical activities have made a chaos of the women's reproductive system. Of course there are other reasons for infertility, like Polycystic Ovary Syndrome, blocked fallopian tubes, endometriosis, male factors and the quality of eggs. But when the body has not enough energy left after the hard workouts, pregnancy would be delayed.

The study finds that women who trained every day had a 3.5 times greater risk of impaired fertility as women who did not train at all.

Another problem we come across is the fad among young women to QUANT starve themselves D HARD to stay slim. This PHYSICAL would also cut down the body's EXERCISE fat levels and ENERGY levels, and would be a major MAJOR cause of infertility.

ToFERTILITY To such women, the advice we give is to put up some weight and increase the BMI. Once they are kind to their bodies, the hormonal problems would come down and the ovulation would be corrected. With medicines and expert help, the problems associated with a low BMI can be tackled to manage infertility.

Women should not compromise their health with severe workouts. Their exercise regime should be realistic and a healthy diet and caloric intake should not be ignored in the name of weight loss.

Else, it will lead to infertility issues, playing havoc with the chances of the woman getting pregnant and starting a family.

The writer is the chairman and medical director, CRAFT Hospital, Kodungalloor
FREQUENT AND HARD PHYSICAL EXERCISE REDUCES A WOMAN'S FERTILITY

Eating Disorders and Fertility

Research into Eating Disorders and Fertility Reveals Mixed Picture (Science Daily: 3.8.2011)

Eating disorders such as anorexia and bulimia are associated with fertility problems and negative attitudes to pregnancy, according to a UK study. The research also revealed high rates of unplanned pregnancies in women with a history of anorexia, suggesting they may be underestimating their chances of conceiving. The study is to be published in BJOG: An International Journal of Obstetrics and Gynaecology.

Eating disorders are known to cause disruption to a woman's menstrual cycle, with substantial weight loss leading to hormonal changes that might prevent ovulation, but so far little research has been carried out into how eating disorders might affect fertility.

A team at King's College London and UCL investigated a group of 11,088 pregnant women from the Avon area of the UK, with women asked to complete questionnaires at 12 and 18 weeks gestation. Women with lifetime anorexia and bulimia were compared to the group as a whole to assess the impact of their eating disorder on attitudes to fertility and pregnancy.

Of the total number of women, 171 (1.5%) had anorexia at some point in their life, 199 (1.8%) had bulimia and an additional 82 (0.7%) had suffered from both conditions. The remaining 10,636 (96%) formed the general population comparison group.

The survey revealed that a higher proportion of women (39.5%) with a history of anorexia and bulimia took longer than six months to conceive compared to the general population (25%). However, they were no more likely to take longer than 12 months to conceive than the general population. The study found that women with anorexia and bulimia were more than twice as likely (6.2%) than the general population (2.7%) to have received treatment or help to conceive their current pregnancy.

However, when asked at 18 weeks gestation, women with anorexia were more likely to report that their current pregnancy was unintentional. In this group of women 41.5% said

their pregnancy was unplanned compared to 28.6% of women in the general population.

The majority of women reported feeling overjoyed or pleased when they discovered that they were pregnant (71%). However, eating disorders were linked to negative feelings about pregnancy. Further analysis has shown that women with anorexia and bulimia were more than twice as likely (9.8%) than the general population (3.8%) to report feeling unhappy when they found out they were pregnant.

Lead author, Abigail Easter, from the Institute of Psychiatry at King's College London, said:

"This research highlights that there are risks to fertility associated with eating disorders. However, the high rates of unplanned pregnancies in women with a history of anorexia suggest that women may be underestimating their chances of conceiving.

"Pregnancy can be a difficult time for women with eating disorders and this is the first time feelings about pregnancy have been looked at amongst this group of women.

"Women planning a pregnancy should ideally seek treatment for their eating disorder symptoms prior to conception and health professionals should be aware of eating disorders when assessing fertility and providing treatment for this."

Dr Nadia Micali, Institute of Child Health, UCL and lead investigator added:

"Health professionals are often unaware of the effects of eating disorders on pregnancy and fertility. Women with a history of anorexia for example are more likely to have unplanned pregnancies. This has now been replicated in three large studies and has important repercussions on the level of antenatal and postnatal care they will need."

Professor Philip Steer, BJOG editor-in-chief said:

"Eating disorders have important clinical consequences, especially in women. This research shows that more women with eating disorders are unprepared for pregnancy and will therefore require more support during the antenatal and postnatal period."

Menopause

Test to predict menopause (The Times of India: 9.8.2011)

LONDON: For the first time, scientists have developed a simple hormone test that could measure how fast a woman's biological clock is ticking, a move they say could revolutionize family planning by predicting when a woman is likely to start the [menopause](#).

The test devised allowed the researchers to chart levels of a vital fertility hormone in women of different ages.

Food and Nutrition

Grapes

Grapes can reduce skin damage caused by ultraviolet radiation (New Kerala: 2.8.2011)

A study by researchers from the University of Barcelona and the CSIC (Spanish National Research Council) has indicated that some compounds found in grapes help to protect skin cells from the sun's ultraviolet radiation.

Ultraviolet (UV) rays emitted by the sun are the leading environmental cause of skin complaints, causing skin cancer, sunburn and solar erythema, as well as premature ageing of the dermis and epidermis. Now, a Spanish study has proven that some substances in grapes can reduce the amount of cell damage caused in skin exposed to this radiation.

UV rays act on the skin by activating "reactive oxygen species" (ROS). These compounds in turn oxidise macromolecules such as lipids and DNA, stimulating certain reactions and enzymes (JNK and p38MAPK) that cause cell death.

A group of scientists from the University of Barcelona and the CSIC have shown that some polyphenolic substances extracted from grapes (flavonoids) can reduce the formation of ROSs in human epidermis cells that have been exposed to long-wave (UVA) and medium-wave (UVB) ultraviolet radiation.

"These polyphenolic fractions inhibit the generation of the ROSs and, as a result, the subsequent activation of the JNK and p38 enzymes, meaning they have a protective effect against ultraviolet radiation emitted by the sun," Marta Cascante, a biochemist at the University of Barcelona (Spain) and director of the research project, tells SINC.

The researchers found that the higher the degree of the flavonoids' polymerisation and formation of compounds containing gallic acid, the greater their photoprotective capacity.

The study has been published in the Journal of Agricultural and Food Chemistry.

Chewing food

Chewing food 40 times secret of shedding the pounds (The Tribune: 3.8.2011)

A new study has suggested that chewing each mouthful of food for longer might help you lose weight, and also reduce the amount of calories consumed during a meal. The study showed that volunteers who chewed each mouthful 40 times ate 12 per cent less food than those who chewed just 15 times. It is thought that chewing for a long time checks over-eating as the brain is given more time to receive signals from the stomach that it is full. It also apparently lowers the levels of ghrelin, a hormone that controls hunger by circulating in the digestive system. Researchers at Harbin Medical University in China carried out a couple of experiments on 16 slim men and 14 obese men in their late teens or twenties.

Replace salt with seaweed granules to prevent strokes, early death (The Tribune: 3.8.2011)

Scientists have claimed that high blood pressure, strokes and early deaths could be prevented by replacing salt with seaweed granules in bread and processed foods. The granules deliver a strong flavour but are low in salt, which is blamed for thousands of early deaths every year. It also contains a vast array of vital micronutrients, while consumption is said to make consumers feel full, which means it could be useful in reducing obesity levels. The study by the government-funded Food Innovation Project discovered that consumers find it almost impossible to tell when seaweed granules replaced salt in baked goods. The granules are healthier because their sodium level is just 3.5 per cent compared with the 40 per cent in salt used by the food industry.

Boost

Boost your metabolism by fasting (The Times of India: 4.8.2011)

Wrong choice of food can throw our digestive system out of kilter. A sluggish digestive system is responsible for all diseases, and fasting is one way to strengthen it, says ayurvedacharya Parmeshwar Arora

Our digestive system
faces the maximum number of
assaults in our body. We end up abusing our digestive system in four ways:

1. Quality:

We eat food which is packed with preservatives or chemically grown. It increases chances of unnatural cell division within the body.

2. Quantity:

We eat more than necessary if food is tasty, and less than our nutritional requirements, if it is not.

3. Wrong food combinations:

At parties, in a short span of time, we consume a wide variety of food confusing our limited number of digestive enzymes. We also have wrong food combinations: non-veg with milk products, sour foods with milk products, and heavy junk food with cold beverages.

4. Wrong timing:

We eat when we have time, although our digestive enzymes are released according to our body clock. Digestion is difficult in the absence of these enzymes.

Rasa and aamras

When food is ingested, only some of it becomes rasa and gets absorbed by the body; the rest is either excreted, or it stagnates and starts rotting in the body after a certain time. It is this aamras that is responsible for disease. It works as an antigen, triggering our auto immune system, leading to diseases with unknown etymology such as psoriasis, allergies, and rheumatoid arthritis. Ayurveda prescribes langhan or fasting to get rid of this toxic aamras. You can fast once in six days by consuming only an eighth of your normal diet, or by going on a liquid diet for a day. During this time, your enzymes will be able to act on the food left stagnating in your body for the past five days.

Breaking the fast

This is as important as keeping the fast. Your first meal should be chawal ka maand or rice water, the second of watery kichhdi made with dal and very little rice. The third should be light kichhdi with equal amount of dal and rice, and the fourth a thicker version of the same. Your normal daily food should be your fifth meal. Your energy does not depend on how much or what you eat, but on how you are digesting your food. Fasting is a good way to boost your metabolism.

Food Safety Act

Food Safety Act takes effect from today (The Hindu: 5.8.2011)

Initiating a new era in food safety, the Food Safety and Standards Act of 2006 will come into force across the country from Friday making it at par with the international standards. It will ensure improved quality of food for the consumers and censure misleading claims and advertisement by those in food business.

The Food Safety and Standards Authority of India (FSSAI), established under the overarching legislation, will lay down science based standards for food items and regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. As many as 22 States and Union Territories now have Food Commissioners in place as required under the Act, while seven are expected to do so by the time it is enforced.

The Food Safety and Standards Act, 2006 which comes into effect five years after it was passed in Parliament, subsumes various central Acts like Prevention of Food Adulteration Act of 1954, Fruit Products Order of 1955, Meat Food Products Order of 1973, Vegetable Oil Products (Control) Order of 1947, Edible Oils Packaging (Regulation) Order of 1988, Solvent Extracted Oil, De- Oiled Meal and Edible Flour (Control) Order of 1967, Milk and Milk Products Order of 1992 and also any order issued under the Essential Commodities Act, 1955 relating to food. It will ensure prevention of fraudulent, deceptive or unfair trade practices which may mislead or harm the consumer, and unsafe, contaminated or sub-standard food.

Talking to reporters here, V.N. Gaur, Chief Executive Officer of FSSAI, said the Food Safety and Standards Authority will broadly frame regulations to lay down the standards and guidelines for food items and specify an appropriate system of enforcing various standards. It will specify mechanisms for accreditation of certified bodies engaged in certification of food safety management system for food businesses, and procedures for accreditation of laboratories.

Biological risk

The FSSAI, set up in 2008, will collect and collate data regarding food consumption, incidence and prevalence of biological risk, residues of various contaminants in foods products, identification of emerging risks and introduction of rapid alert system. The data will help in the implementation of the proposed Food Security Bill and also contribute to the development of international technical standards for food, sanitary and phyto-sanitary standards.

While the FSSAI will be based in New Delhi, the states will have a Food Safety Commissioner, and the SDM who will be the designated office at the district level to

issue licenses along with the Food Safety Officers (Food Inspectors) who have been trained for their new roles.

According to Mr. Gaur, while defining the roles of food business operators and regulator (FSSAI), the Act has provision for compounding offences (except for which punishment is prescribed), adjudication and trials in Appellate Tribunals and special courts, including summary trials. The time limit for prosecutions has also been fixed. The trial has to start within a year from the date of commission of offence. As of now, more than one lakh cases related to food standard offences are pending in various courts across the country.

The four major food-testing laboratories have been taken over by the Authority and it is in the process of acquiring two more. But the bigger challenge before the government is to upgrade the 72-odd food testing laboratories at the State level which are woefully inadequate for the modern requirements particularly in the wake of India being a signatory in the WTO. The Authority proposes to grant Rs. 5 crore each for the strengthening of these laboratories under the 12 {+t} {+h} Five Year Plan.

Overeating

A new device to stop you from overeating? (The Asian Age; 8.7.2011)

Developed by researchers at Clemson University in South Carolina, the Bite Counter is worn like a watch and tracks a pattern of wrist-roll motion to identify when the wearer has taken a bite of food. Then this data can be used to monitor how many calories people are eating long-term. People can also set a bite limit so if they snack too much an alarm will go off. The researchers have described the innovative device as a pedometer for eating, the Daily Mail reported.

Lead scientist Dr Eric Muth said: “At the societal level, current weight-loss and maintenance programmes are failing to make a significant impact.

“Studies have shown that people tend to underestimate what they eat by large margins, mostly because traditional methods rely upon self-observation and reporting.

“Our preliminary data suggest that bite count can be used as a proxy for caloric count.” According to the researchers, the advantage of the Bite Counter is that it is automated so that user bias is removed.

The device can be used anywhere, such as at restaurants or while working, where people find it difficult to manually track and remember calories.

“The device only requires that the user press a button to turn it on before eating and press the button again after the meal or snack is done,” said study co-author Dr Adam Hoover.

Good Fat

'Good Fat' Most Prevalent in Thin Children (Science Daily: 12.8.2011)

Researchers at Joslin Diabetes Center and Children's Hospital Boston have shown that a type of "good" fat known as brown fat occurs in varying amounts in children -- increasing until puberty and then declining -- and is most active in leaner children.

The study used PET imaging data to document children's amounts and activity of brown fat, which, unlike white fat, burns energy instead of storing it. Results were published in *The Journal of Pediatrics*.

"Increasing the amount of brown fat in children may be an effective approach at combating the ever increasing rate of obesity and diabetes in children," said Aaron Cypess, MD, PhD, an assistant investigator and staff physician at Joslin and senior author of the paper.

In 2009, Cypess' team demonstrated in *The New England Journal of Medicine* for the first time that brown fat is metabolically active in adult humans. Previously, it was thought that brown fat was present only in babies and children. Their study showed it was found in between 3 and 7.5 percent of adults, with higher rates among women.

In this new study, the researchers reviewed PET scans that had been conducted on 172 children ages 5 to 21 at Children's Hospital Boston. Active brown fat was detected in 44 percent of the children, with the rate about the same for girls and boys. Children aged 13 to 15 had the highest percentage of detectable brown fat and the highest brown fat activity. But in addition, body mass index (BMI) was correlated inversely with brown fat activity, meaning that the thinnest children had the highest brown fat activity.

While the 2009 study of adults showed brown fat was more active in cold weather, in keeping with its role of burning energy to generate heat, the new study in children showed outdoor temperature had no effect on brown fat activity.

The increase in brown fat activity from childhood to adolescence and its inverse correlation with obesity suggest brown fat may play a prominent role in pediatric metabolism, energy balance and weight regulation, the authors said.

"We believe that the ability to non-invasively evaluate brown fat activity in vivo with PET imaging provides a better understanding of its prominent role in pediatric physiology, and may possibly provide insights into the treatment of childhood obesity," said first author Laura Drubach, MD, of Children's Hospital program in Nuclear Medicine and Molecular Imaging.

Cypess said the goal is to first search for nonpharmacological ways to increase brown fat activity, perhaps by setting indoor temperatures colder in homes where obese children live. Perhaps certain foods could also play a role in increasing brown fat levels, he said. If not, the development of new drugs might be the answer, he added.

A 2010 Joslin study identified cells in mice that can be triggered to transform into brown fat.

"We might be able to combat the obesity and diabetes epidemics if we find safe ways of increasing brown fat activity," Cypess said. "This might be an additional tool in the fight."

However, he said there are still many questions to be answered. For example, it is not known whether the relationship between BMI and brown fat is that children have more brown fat because they are thin or if having more brown fat causes children to be thin.

"That's the billion dollar question," he said. "But we do know that brown fat is a core component of pediatric and likely adult metabolism."

Co-authors of the study included Amanda Baker, BS and David Zurakowsky, PhD, both of Children's Hospital Boston; and Edwin L. Palmer III, MD and Leonard P. Connolly, MD, both of Massachusetts General Hospital.

The study was supported by grants from the Eli Lilly Foundation and the National Institutes of Health.

Coffee

Coffee may lower Skin Cancer Risk (Med India: 16.8.2011)

Caffeine could cut the risk of developing skin cancer, reveals US study. Caffeine helps kill off damaged cells that could otherwise turn into tumors.

The findings indicate that moderate caffeine drinking, or perhaps even applying coffee to the skin, could be useful in warding off non-melanoma cancer, the most commonly diagnosed of all skin cancers.

Using mice that had been genetically altered to suppress a protein called ATR, researchers showed that the mice were able to fend off cancer even when exposed to ultraviolet light.

Previous studies have suggested that drinking a cup of caffeinated coffee per day has the effect of suppressing ATR and triggering the die-off of cells harmed by UV rays.

The altered mice eventually did develop cancer, but three weeks later than normal mice.

After 19 weeks of ultraviolet light exposure, the engineered mice showed 69 percent fewer tumors and four times fewer invasive tumors than the control group.

However, the protective effects only went so far. After 34 weeks of UV exposure, all the mice developed tumors.

"Eventually, if you treat them long enough, the mice will develop cancer so it is not 100 percent protection forever," Allan Coffey, one of the study's authors, told AFP.

"Really, with almost any carcinogen, eventually all the animals will develop tumors."

Coffey and his team were able to confirm their hypothesis that caffeine -- when consumed or applied to the skin -- works by inhibiting ATR. Now they say more studies are needed to see how it may work on humans.

Food fresh

Now, keep food fresh for years (the times of India: 16.8.2011)

Natural Preservative That Kills Bug Tied To Rotting Of Food Found

Scientists claim to have discovered a natural preservative that could spell the end of rotting food. Researchers at the University of Minnesota identified the substance, called bisin, which destroys the bacteria that make meat, fish, eggs and dairy products decompose.

The preservative could extend the food's life for several years — and even work for opened bottles of wine and salad dressing, the researchers said. The discovery, they said, is set to revolutionize the way people shop and can also reduce the tonnes of food waste thrown out every year, the 'Daily Mail' reported.

According to the researchers, bisin occurs naturally in some types of harmless bacteria. It prevents the growth of lethal bacteria including E-coli, salmonella and listeria. The substance could extend the life of a variety of everyday foods which have strict use-by dates including seafood, cheese and canned goods, they said.

In some cases these foods could last for years and may not even need to be kept in the fridge, they claimed.

The scientists, who have patented the substance, are already in talks with food manufacturers. The first products containing bisin are expected to be on the market within three years.

Dan O'Sullivan, a microbiologist at the university who accidentally found bisin while examining a culture of bacteria found in human intestine, said: "It seems to be much better than anything which has gone before." "It doesn't compromise nutrient quality — we are not adding a chemical, we are adding a natural ingredient. It's aimed at protecting foods from a broad range of bugs that cause disease," he said.

FUTURE PERFECT: Bisin prevents growth of bacteria like E-coli & salmonella

Coffee

Coffee can help ward off skin Cancer (The Asian Age: 17.8.2011)

COFFEE HAS been shown to reduce the risk of skin cancer by helping kill off damaged cells that could otherwise turn into tumours, according to a US study published on Monday.

The findings indicate that moderate caffeine drinking, or perhaps even applying coffee to the skin, could be useful in warding off nonmelanoma cancer, the most commonly diagnosed of all skin cancers.

Using mice that had been genetically altered to suppress a protein enzyme called ATR, researchers showed that the mice were able to fend off cancer even when exposed to ultraviolet light.

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three weeks later than normal mice, according to the study published in the Proceedings of the National Academy of Sciences. After 19 weeks of ultraviolet light exposure, the engineered mice showed 69 percent fewer tumours and four times fewer invasive tumours than the control group.

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"Eventually, if you treat them long enough, the mice will develop cancer so it is not 100 percent protection forever," Allan Conney, one

of the study's authors, told AFP.

“Really, with almost any carcinogen, eventually all the animals will develop tumours,” added Conney, who is director of the Susan Lehman Cullman Laboratory for Cancer Research at Rutgers University in New Jersey.

Conney and his team were able to confirm their hypothesis that caffeine -when consumed or applied to the skin -works by inhibiting.

Caffeine

Caffeine sunscreen saves from skin cancer, wrinkles (The Times of India: 17.8.2011)

Asunscreen based on caffeine could help protect against skin cancer and also keep your wrinkles at bay, scientists have claimed. The appealing thought comes from American scientists who have shown that caffeine triggers the death of UV-damaged cells, while leaving healthy ones unharmed. To test the idea that caffeine provides protection by interfering with a skin protein called ATR, the researchers at from Rutgers University in New Jersey genetically engineered mice so that they made much less ATR than usual. They put the animals and normal mice under UV lamps and found that those low in ATR took longer to develop skin cancers.

Neutrino

China scientists detect neutrino: (The Times of India: 17.8.2011)

A team of international scientists working near a Chinese nuclear power plant claimed to have discovered neutrino through two detecting instruments, which could provide clues to solving the mystery of why there is more matter than antimatter in the universe. Scientists believe that matter and antimatter were created in equal amounts during the Big Bang, but the disappearance of antimatter remains a mystery.

Carbohydrates

What types of carbohydrates are good? (The Tribune: 17.8.2011)

Carbohydrates should mainly come from whole grains (whole wheat flour and brown rice), legumes, fruits, vegetables and low-fat milk. Refined grains such as white rice, bread and other maida containing foods should be minimised. Also, food should contain a large amount of dietary fibres.

Fats

What types of fats are good? (The Tribune: 17.8.2011)

Saturated fat intake such as from dairy products, butter and meat should be limited to less than 7 per cent of total calories. Trans-fats should be minimised. Trans-fats are present in abundance in fast foods. Dietary cholesterol intake should be less than 200 mg/day. Monounsaturated fats (olive oil and canola oil) and polyunsaturated fats (Canola oil, mustard oil, sunflower oil, safflower oil and soyabean oil) are preferred.

Chocolate

Chocolate Wards off Hunger, Say Scientists (Med India: 17.8.2011)

Scientists plan to study whether eating dark chocolate not only satisfies sweet tooth cravings, but protects against sunburn as well.

The study by researchers at Laval University in Quebec will monitor the effects of chocolate consumption on fair-skinned volunteers between the ages of 25 and 65, each of whom will be prevailed upon to eat three squares of chocolate per day for 12 weeks.

Earlier research in Germany and Britain has found that chemicals in chocolate called polyphenols increase blood flow close to the skin, which helps protect against ultraviolet rays, but those studies were too small in scale to be conclusive.

The scientists at Laval University's Institute of Nutraceuticals and Functional Foods hope to confirm the link in a study of 60 people, about half of whom already have been recruited, they said.

Test subjects who have been fed chocolate are to be exposed to ultraviolet rays in a laboratory and their skin then checked for sun damage. A control group will be given a placebo.

Scientists said the study will only include female participants so that researchers can control for the variability between the body's natural hormones in men and women.

Eating right

There's no start & end to eating right (World Newspaper: 17.8.2011)

Not for nothing goes the saying 'the hand that rocks the cradle rules the world'. Women are known to play multiple roles, often at the same time, and in the process, it leaves them with hardly any time or energy to focus on themselves. And the one thing that almost never features on their list of priorities is a healthy diet.

Nutritionist and lifestyle management Geetu Amarnani is of the opinion that even though women are talking of liberation and equal rights, when it comes to themselves and especially their health, they fail to put these lofty thoughts into action. "There are more working women today and with greater job demands; they get stressed out easily since they are multi-tasking mostly. Moreover, there's been a lifestyle change too and this is also responsible for health issues to start at a much lower age," she states, adding, "And Indian women prefer thinking about their families first, at the cost of losing out on the me time, when it comes to their health and essential nutrients."

It's true that most Indian women fail to realise their importance in a familial set-up. "It's vital for them to know that the downslide of hormones is early for women and their stress levels are very different from men. Hence, a good diet is a must," Geetu explains, adding, "For instance, calcium and iron should be made a part of diets right from a girl's adolescence. Even though they are very difficult to absorb, they are essential." The mindset and orientation play a part too, feels Geetu. "If one can discuss films, fashion, sports, education with the child, why not talk about healthy eating too? It's always the mother who's held responsible for this and only a conscious mother can expect to pass the consciousness to her children," she states.

The gut instinct of a mother is hard to beat, even when it comes to food. "There's no match to seasonal fruits and vegetables and plenty of milk. Also, 80% of the food consumed should be homemade and eating out should be done in moderation.

Whoever said that carbs should be removed from the diet was ill-informed — vitamins A, D, E and K can only be absorbed by fats, but of course, maintain balance and variety during consumption," she suggests. Geetu feels that along with the correct diet, it's very important that India women, across all ages, work on their psyche. "There's something about the thought process that needs to be altered. Right from their adolescence, girls need the right nutrition. Be it pre or post-marriage, during pregnancy or post it and post 40s, every phase has a demand of its own that needs to be taken care of," she says, adding, "Remember you're doing it for yourself first. If you look good, maintain your weight, work towards a healthy lifestyle, you only stand to gain and most importantly, there's no start and end to eating right."

Whether you're a working woman or a homemaker, the right time management can work wonders. "All of us have just those 24 hours — it's how you organise it," she ends.

Chicken egg

World's smallest chicken egg is just penny-sized? (The Times of India: 23.8.2011)

A man in the US claims to have found the world's smallest chicken egg, a media report said.

Donnie Russell has said that he found the egg last month on his farm in West Virginia — it's 2.1 centimetres long, or a bit bigger than a penny, and weighs 3.46 grams — a little more than one-tenth of an ounce, the 'Daily Mail' reported.

"It's really something. If you want to know the truth, I can't put it into words," Russell was quoted as saying.

Russell said his wife is an animal lover and she's collected cats, geese, ducks, chickens and other types of birds over the years.

Normally, the chicken eggs are donated. "Lo and behold, we went out and gathered these eggs. We had to do a double take. We both looked with our mouths open for about five minutes before we said a word. We said this has got to be a record," he said. PTI

Biscuits, cakes

Biscuits, cakes up womb cancer risk (The Times of India: 24.8.2011)

Regular Snacking Raises Chance By 42%

Women who snack on biscuits and cakes regularly are at an increased risk of developing womb cancer, a new study has claimed.

The 10-year study that looked at the eating habits of more than 60,000 women in Sweden found that those who treated themselves two to three times a week were 33% more likely to suffer the disease. It also found that the risk of developing a tumour jumped by 42% among those who eat them more than three times a week, the Daily Mail reported.

Also known as endometrial cancer, the tumours in the womb affects around 6,400 women a year and kills an estimated 1,000 annually in the UK alone. The risks are known to increase with weight gain, but a team at the Karolinska Institute in Stockholm wanted to see if there was a direct link between the amount of sweet foods eaten and the onset of cancer.

They studied data from thousands of women who completed questionnaires on diet, lifestyle, weight and general health in 1987. Ten years later, those still alive were given the same questions again. After comparing the data with those earlier findings, the researchers found a total of 729 women went on to develop the diseases in the 18 years from the start of the study.

They found little or no increase in risk from eating certain high-sugar items such as sweets, soft drinks, jam or marmalade. But women who frequently snacked on sweet cakes, buns or biscuits were up to 42% more likely to get cancer.

Coriander Oil

Coriander Oil Could Tackle Food Poisoning and Drug-Resistant Infections (Science Daily: 24.8.2011)

Coriander oil has been shown to be toxic to a broad range of harmful bacteria. Its use in foods and in clinical agents could prevent food-borne illnesses and even treat antibiotic-resistant infections, according to the authors of a study published in the Journal of Medical Microbiology.

The researchers from the University of Beira Interior in Portugal tested coriander oil against 12 bacterial strains, including *Escherichia coli*, *Salmonella enterica*, *Bacillus cereus* and *meticillin-resistant Staphylococcus aureus* (MRSA). Of the tested strains, all showed reduced growth, and most were killed, by solutions containing 1.6% coriander oil or less.

Coriander is an aromatic plant widely used in Mediterranean cuisine. Coriander oil is one of the 20 most-used essential oils in the world and is already used as a food additive. Coriander oil is produced from the seeds of the coriander plant and numerous health benefits have been associated with using this herb over the centuries. These include pain relief, ease of cramps and convulsions, cure of nausea, aid of digestion and treatment of fungal infections.

This study not only shows that coriander oil also has an antibacterial effect, but provides an explanation for how it works, which was not previously understood. "The results indicate that coriander oil damages the membrane surrounding the bacterial cell. This disrupts the barrier between the cell and its environment and inhibits essential processes including respiration, which ultimately leads to death of the bacterial cell," explained Dr Fernanda Domingues who led the study.

The researchers suggest that coriander oil could have important applications in the food and medical industries. "In developed countries, up to 30% of the population suffers from food-borne illness each year. This research encourages the design of new food additives containing coriander oil that would combat food-borne pathogens and prevent bacterial spoilage," said Dr Domingues. "Coriander oil could also become a natural alternative to common antibiotics. We envisage the use of coriander in clinical drugs in the form of lotions, mouth rinses and even pills; to fight multidrug-resistant bacterial infections that otherwise could not be treated. This would significantly improve people's quality of life."

Oats, nuts

Oats, nuts help reduce cholesterol' (The Times of India: 25.8.2011)

Worried about your cholesterol? Make sure you eat plenty of oats and nuts rather than just avoiding fatty foods, scientists say.

Researchers at the University of Toronto in Canada found that a diet rich in foods, such as oats and nuts, was more effective in lowering cholesterol levels than by cutting out saturated fats alone.

The diet that worked best in the study also included soy products such as milk, tofu and meat substitutes, while eating more peas, beans and lentils was encouraged, the Daily Mail reported.

The researchers discovered that a six-month change to the diet could result in a "meaningful" 13% reduction in blood levels of LDL cholesterol, also called bad cholesterol. Following the diet for longer would give a predicted reduction of almost 11% in heart disease risk over a ten-year period, the researchers claimed.

While genetics or very high cholesterol may mean that diet isn't enough to get LDL down without statins for some people, a majority of patients could benefit from a dietary change, said Joan Sabate, head of nutrition at Loma Linda University in California.

Natural compound

Natural compound prevents diabetes (New Kerala: 5.9.2011)

Resveratrol, a natural compound found in grapes, mulberries and peanuts is effective against diabetes, claims a study.

Resveratrol has been shown to extend the lifespan of many species.

Human offsprings that have trouble developing in the womb have a higher risk of developing metabolic problems later in life, the journal Diabetes reports.

University of Alberta researchers Jason Dyck and Sandra Davidge found that giving resveratrol to young offsprings of lab rats after weaning, actually prevented the development of certain symptoms of diabetes.

Eat a balanced diet

Eat a balanced diet for weight loss (The times of India: 7.9.2011)

Dietician Ishi Khosla says segregating food groups while on a diet could result in an important food group being left out. A combination of protein, carbohydrate and fat is good for weight loss

You often hear of special diets that caution you against combining two carbohydrates or combining carbohydrates and proteins. You are often told not to eat chapati with rice or yogurt with dal or roti with dal or nonvegetarian food. Dieting this way or following a combination diet has gained popularity in the past few years and is based on the principle of segregating macronutrients like proteins and carbohydrates.

Fad diets:

Exponents of such diets claim that when carbohydrates and proteins are eaten together, their enzymes cancel each other out, halting the digestive process and causing weight gain. They, therefore, restrict foods that contain both carbohydrates and proteins such as dairy products, pulses, soy and soy products as they are combinations of proteins and carbohydrates. Such an approach not only creates confusion with respect to healthy eating, but can also lead to compromised nutrition over a period of time, as we may miss out on the benefits of many foods and can end up with nutritional deficiencies.

A balanced diet:

Foods usually are a combination of nutrients, including carbohydrates, proteins and fats, in various proportions. For example, cereals, pulses, dairy and nuts are a combination of carbohydrates, proteins and fats and there is no reason to believe that they cannot be digested together in the body successfully. Further, they offer variety, which is a principle of healthy eating. Eating protein, fat, and carbohydrate and encouraging variety is one way of ensuring that your body gets all the nutrients it needs. Eating multigrain flour chapati with vegetables, dal and yogurt is nutritionally far superior to just eating a plain wheat chapati with vegetables. Also, combination of dals with chapati helps in synthesizing a complete protein as both are otherwise, incomplete individually. This is the principle of 'complementary' value of protein. Combination diets neither encourage

healthy eating nor establish safe and permanent weight loss. They are difficult to follow in the long run and can be counterproductive if followed for long durations. Thus, the key to healthy weight loss is to reduce calorie intake, eat less fat, control portion sizes, and be more physically active.

Natural Insect

Natural Insect Repellent for Food (Med India: 7.9.2011)

An Israeli firm has developed a natural, non-toxic repellent to keep bugs away from food.

Caesarea-based company, Biopack, extracted the specific chemical elements in plants and fruits that ward off insects and can be used from post-harvest stage to the factories and warehouses, as well as in packages, English.news.cn reported.

"Our product is natural, safe, and insects do not develop a resistance against it, since it's not pesticide, it's a repellent," Biopack CEO Shlomo Navarro told Xinhua.

"The food industry usually uses pesticides that are harmful to humans, but our solution is completely natural and can be used with organic foods as a coating that will drive bugs away," he added.

Navarro and his team managed to come up with a repellent for a wide variety of insects by isolating the natural chemicals used by some plants, such as soybean that repels chinch bugs, or celery that repels cabbage moths.

Biopack developed the product in 2004 and is still waiting for a final official approval.

Dose

'Dose' of excess weight increases risk of diabetes (New Kerala: 8.9.2011)

A new University of Michigan Health System study has revealed that the "dose" of obesity—how much excess weight a person has, and for how long— is an important risk factor for developing type 2 diabetes.

Our study finds that the relationship between weight and type 2 diabetes is similar to the relationship between smoking and the risk of lung cancer," said study lead author Joyce Lee, M.D., M.P.H., a paediatric endocrinologist at U-M's C.S. Mott Children's Hospital.

"The amount of excess weight that you carry, and the number of years for which you carry it, dramatically increase your risk of diabetes," Lee stated.

The researchers found that a measure of degree and duration of excess weight was a better predictor of diabetes risk than a single measurement of excess weight.

Lee and colleagues also found that black and Hispanic compared with white individuals had a higher risk for diabetes, for a same amount of excess weight over time.

Based on the latest findings, Lee suggests obesity prevention and treatment efforts should focus on adolescents and young adults, especially racial minorities.

The study appeared online in the September issue of the Archives of Paediatric Adolescent Medicine.

Mushrooms

Mushrooms with Extra Vitamin D Ready for Commercial Production (Med India: 8.9.2011)

A new study concludes that a commercial processing technology is suitable for boosting the vitamin D content of mushrooms and has no adverse effects on other nutrients in those tasty delicacies. The technology, which involves exposing mushrooms to the same kind of ultraviolet light that produces suntans, can greatly boost mushrooms' vitamin D content. It appears in ACS' Journal of Agricultural and Food Chemistry.

Ryan Simon and colleagues note that many people do not get enough vitamin D in their diets. Few natural foods are high in the vitamin, and there are limits on what foods can be fortified to boost the vitamin D content. Although few people realize it, mushrooms are an excellent natural source of vitamin D. Some producers have embraced results of earlier studies, suggesting that exposing mushrooms to ultraviolet B (UVB) light can significantly boost the vitamin D content.

The scientists set out to answer several questions about commercial-scale UV light processing of mushrooms. Among them: Does it produce consistently high levels of vitamin D and does it adversely affect other nutrients in mushrooms? They compared button mushrooms exposed to UVB light, those exposed to natural sunlight and those kept in the dark. The UVB-exposed mushrooms got a dramatic boost in vitamin D (700 percent more of the vitamin than those mushrooms exposed to no light) and the UVB processing had no effect on levels of vitamin C, folate, riboflavin, niacin and a host of other essential nutrients.

Kiwi Fruit

Kiwi Fruit Growers Plan to Use Antibiotic Spray to Fight PSA (Med India: 9.9.2011)

Kiwifruit growers are planning to spray their vines with antibiotics following the attack of the PSA disease on their crop. Experts are concerned about the impact of this move on human health.

Many Kiwifruit growers have suffered huge losses due to the destruction of their crop by the disease.

According to the KIWI health board, the disease can be controlled by spraying vines with an antibiotic – streptomycin.

There are concerns that even traces of the antibiotic streptomycin found on Kiwi fruit could affect human health. Further, this may also lead to antibiotic resistance.

Spice

Spice up your plate, get heartburn (The Times of India: 12.9.2011)

Docs Say Junk Food with Cola Is Deadly Cocktail That Triggers Acid Reflux

A cup of tea with spicy snacks makes a rainy day perfect, while many cannot get through the day without a tall glass of iced cola. But new health studies reveal that the excessive intake of aerated drinks, caffeine and spicy food causes acid reflux or heartburn cases to rise significantly. Teenagers are the worst-affected due to their poor food habits.

Doctors at AIIMS say that about 50 per cent of the patients who arrive at the ENT department complain of problems such as a recurrent chest infection, sore throat and difficulty in swallowing food, itching in ears, nose congestion and nasal discharge – all symptoms of acid reflux.

“The excessive intake of coffee, cold drinks and spicy snacks like pizza, burger and chips aggravates heartburn problems in children. They come with all kinds of serious health ailments related to the disease. In older people, poor eating habits, which include late

night dinners and a sedentary lifestyle, is the main problem,” said Dr S C Sharma, head of the ENT department at AIIMS. He said that up to 50 per cent cases that the ENT department at AIIMS sees in a month includes patients complaining about acid reflux-related health complications which are caused, and in some cases aggravated by an excessive intake of aerated drinks and caffeine. Some of the most common symptoms of the disease are a recurrent sore throat, changes in the voice, fatigue and difficulty swallowing.

“Acid reflux is a chronic digestive disease that occurs when stomach acid or bile flows back (refluxes) into the food pipe (esophagus).

The backwash irritates the lining of the oesophagus and causes a burning sensation in the chest, sometimes spreading to the throat, and leaving a sour taste in mouth. Obese, diabetic patients, pregnant women, children, hiatal hernia patients and smokers are at risk.

Usually oral medications are prescribed but there are some extreme cases in which surgery may be required to create a barrier preventing the backup of stomach acid or to tighten the lower oesophageal sphincter,” said Sharma.

Dr V K Paul, head of the pediatrics department at AIIMS, said that heartburn in children is caused due to a variety of factors which include a congenital defect or the presence of helicobacter bacteria. “Poor lifestyle and bad food habits increases the problem,” said Paul. Experts say that because AIIMS is a referral center the cases of acid reflux being reported here is often higher as compared to other medical centres.

Dr Anoop Misra, director, department of diabetes and metabolic diseases at Fortis Hospital says that a few precautionary measures are all it takes to help check the disease. “Maintain a healthy weight, avoiding fatty or fried foods, energy drinks, alcohol, chocolate, mint, garlic, onion, and caffeine.

Those suffering from acid reflux should not smoke because it decreases the lower oesophageal sphincter’s ability to function properly,” said Misra.

Diet

A daily diet for better health (The Times of India: 12.9.2011)

Maya Tiwari, also known as Mother Maya, is a world-renowned author and Ayurveda expert. Here, she analyses the daily food we eat taking into consideration all the three gunas — s a t t v i c, r a j a s i c, and t a m a s i c

Since we are created from the three g u n a s—s a t t vic, r aja sic, and t a m a sic—each intrinsic to everyday living, we cannot live on s a t t vicfoods alone. The body, mind, and senses need to be nourished by all three principles, with predominance of s a t t v aor light and peaceful, and with secondary emphasis on r aja sor bright and energizing and least emphasis on t a m a sor dark and immobile. Most of our packaged, processed, fast food and medicines are of t a m a sicor r aja sic.

Oily or spicy fried foods, coffee, intoxicants such as liquor or wine, chocolate, and other processed sweets, commercially produced milk and dairy, bread and crackers, are all r aja sic. The Gita says, “Foods that are bitter, sour, pungent, salty, hot, dry, oily and burning produce pain, grief and disease. These foods are liked by the r aja sicin nature.” Excessive intake of these foodsdisturbs body chemistry, disrupts inner harmony and dulls our power of intuition.

Excess of t a m a sicfood is detrimental to health. It consumes large amounts of energy during digestion, weakens the digestive fire, and disturbs vital tissue transformation that follows digestion. Ta m a sicpeople prefer foods that are dry, aged, stale, malodorous and impure. Foods that have been processed, canned, frozen, irradiated or tampered with are t a a - m a sicin nature. Fermented food such as soy sauce, cheese and pickle are also t a m a sic. Animal flesh – meat, fish, fowl and egg – have t a m a sicqualities. In excess, alcohol also becomes t a m a sic. Drugs such as marijuana, cocaine, and hashish, and prescription drugs — pain killers, sleeping pills and antidepressants are t a m a sic. Ta - m a sicfoods promote lethargy, depression, ignorance, negativity, paranoia, and disharmony in body and mind, and should be avoided in large quantities. There are, however, seasons when we should imbibe each of the three energies of s a t t v a, r a - ja sand t a m a s, in proportionate quantities.

Spring demands more r aja s - icfoods than summer, when more s a t a vicfoods are needed. Winter menus have a stronger touch of t a m a swhen root vegetables like onions, potatoes and radishes which have a naturally t a m a signature since they are sheltered in the darkness of the heavy earth are considered good for the body.

(Extract from Living Ahimsa Diet by Maya Tiwari, Mother Om Media)

Milk-drinking

Milk-drinking teens less prone to type 2 diabetes than non-milk drinkers (New Kerala: 16.9.2011)

A new study has suggested that teens who drink milk are 43 percent less likely to suffer from type 2 diabetes as adults.

Researchers found that milk-drinking teens were also likely to be milk-drinking adults – a lifelong habit that helps them fight the disease better than non-milk drinkers.

The Harvard University study studied teenage and adult food intake patterns (including milk and milk products) and health risk in more than 37,000 women.

Researchers found the women, who drank the most milk as adults and consumed the most milk products in their teen years, had a lower risk of type 2 diabetes than those who consistently had a low dairy intake.

The study was published in the American Journal of Clinical Nutrition.

Chocolate

Dark secret: Chocolate is as good as exercise (The Times of India: 16.9.2011)

Stimulates Same Muscle Response as Gym Session

London: It is the news that chocoholics have been waiting for: Chocolate is as good as exercise, a new study has claimed. Scientists at Wayne State University in the US found that small amounts of dark chocolate may improve health in a similar way to exercise.

The researchers who focused on the mitochondria — the tiny powerhouses in cells that generate energy — discovered that a plant compound found in chocolate, called epicatechin, appeared to stimulate the same muscle response as vigorous activity, the Daily Telegraph reported.

“Mitochondria produce energy which is used by the cells in the body. More mitochondria mean more energy,” said Dr Moh Malek, who led the research on mice. “Aerobic exercise is known to increase the number of mitochondria in muscle cells,” Malek said.

“Our study has found that epicatechin seems to bring about the same response.”

For their study the researchers gave a specific type of epicatechin from cocoa to the laboratory mice twice a day for 15 days. At the same time, the animals underwent 30 minutes of treadmill training each day. It was found that mice only fed epicatechin had the same exercise performance as those running on the treadmill.

Warning for night owls: Want to be happy, slim and healthy? Become an early riser

Early to bed, early to rise keeps a man healthy, wealthy and wise,” Benjamin Franklin famously said some 300 years ago. Now, scientists have confirmed it. Researchers at the Roehampton University in the UK found claimed that early risers are slimmer, happier and healthier than those who get up later in the day. Worst off are night owls, the researchers said, as late nights appear to be taking their toll on health and happiness, the Daily Mail reported. For their study, the researchers quizzed almost 1,100 men and

women about their health and sleeping habits. Some 13% of those questioned were larks, getting up before 7am during the week and seeing no need for a lie-in at the weekend. Night owls, who fall out of bed just before 9am Monday to Friday and sleep in on Saturdays and Sundays, accounted for another 6 %. The remaining 81% fell somewhere in between. The analysis revealed the early risers to have fewest signs of depression and anxiety.

Junk Food

Low Sugar in Brain Triggers Craving for Junk Food (Med India: 21.9.2011)

A new study led by an Indian-origin researcher reveals that our desire for high-calorie food shoots up when there is low sugar in the brain. Feeding the brain with sugar could lower the craving.

Brain imaging scans show that when glucose levels drop, an area of the brain known to regulate emotions and impulses loses the ability to dampen desire for high-calorie food, the report said.

"Our prefrontal cortex is a sucker for glucose," said Rajita Sinha, the Foundations Fund Professor of Psychiatry, and professor in the Department of Neurobiology and the Yale Child Study Center, one of the senior authors of the research.

The Yale team manipulated glucose levels intravenously and monitored changes in blood sugar levels while subjects were shown pictures of high-calorie food, low-calorie food and non-food as they underwent fMRI scans.

When glucose levels drop, an area of the brain called the hypothalamus senses the change. Other regions called the insula and striatum associated with reward are activated, inducing a desire to eat, the study found.

The most pronounced reaction to reduced glucose levels was seen in the prefrontal cortex. When glucose is lowered, the prefrontal cortex seemed to lose its ability to put the brakes upon increasingly urgent signals to eat generated in the striatum.

This weakened response was particularly striking in the obese when shown high-calorie foods.

"The key seems to be eating healthy foods that maintain glucose levels," Sinha said. "The brain needs its food."

The study was recently published online in The Journal of Clinical Investigation.

Food

Leftovers for Tiffin a bad idea (The Times of India: 21.9.2011)

Many parents pack leftovers into their child's lunchbox. But this could be full of bacteria by the time your child eats it, cautions dietitian Priti Vijay

Leftovers are generally stored in the fridge or freezer after a meal is over and typically packed into children's lunchboxes the next day for school. The longer you store food after it has been cooked, the more are the chances of food poisoning. Improper handling or storing of food is one of the most common causes of food poisoning at home. If you are packing leftovers for your child's tiffin, it can become stale after some time and your child can fall sick.

Food poisoning:

Food poisoning or foodborne illnesses cause abdominal pain, diarrhoea, nausea and vomiting. Food poisoning is caused by the harmful bacteria in contaminated food. Because bacteria typically doesn't change the taste, smell or appearance of food, you can't tell whether the food is spoilt or not and a child can't identify whether it is safe. If you are packing food in food covers, they will keep food hot or cold for around an hour. Cold food items can be packed with an ice pack in the middle tier of the tiffin so that the food stays cold longer. Or opt for an insulated tiffin carrier to keep food warm for longer. Remember, food not packed properly can be a source of contamination and can affect your child's health.

Balanced and fresh:

What you pack into the tiffin is equally important. School lunches and snacks are a major source of essential vitamins and minerals for children. The foods you pack for your children will give them energy and nutrients they need to learn and play at school. Without enough energy from food, they will complain of tiredness and will find it difficult to concentrate. Try and pack fresh food for them every morning. Food stored for long loses its vitamins and mineral value over time. You should aim to have at least three to four food groups represented in your child's tiffin daily. Pack whole fruits like banana, apple or guava, and if you cut fruit, cut it fresh in the morning. Polyunsaturated fatty acids are responsible for the stale taste of leftover foods and these can affect your child's health. The cooking oil you use should be fresh too.

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Healthy eating habits

How healthy eating habits can help teens beat mental disorders (New Kerala: 23.9.2011)

A new study has suggested that eating plenty of fruits and vegetables can help teenagers beat mental health disorders such as depression and anxiety.

The study of 3,000 adolescents has found that those who had poor diets filled with junk and processed foods were more likely to suffer mental health problems.

"The results of this study are consistent with what we have seen in adults but we think it could be more important because three quarters of psychiatric illnesses start before adulthood and once someone has depression they are likely to get it again," Stuff.co.nz quoted Dr Felice Jacka, from Deakin University's Barwon Psychiatric Research Unit Dr Jacka as saying.

"If you can prevent it before it starts in childhood and adolescence you are shutting the gate before the horse bolts.

"Having good nutrition-rich foods is really important for adolescents because it's a time when they are growing rapidly and it's essential they have adequate nutrition," she added.

The participants in the survey filled in questionnaires about their diets and psychological symptoms in 2005 and again in 2007.

Those who ate healthy diets in 2005 were found to have fewer mental health problems than those with poor diets.

Soy-based Natural Supplements

Younger, Wrinkle-free Skin in Menopausal Women Using Soy-based Natural Supplements (Med India: 23.9.2011)

A pilot study found Japanese menopausal women using a soy germ-based nutritional supplement containing Natural S-equol had a significant improvement in the appearance of crow's feet skin wrinkles of the outer corner of their eyes.

It has emerged that supplements containing Natural S-equol have potential to slow skin aging, according to data from the controlled pilot study simultaneously published online in the peer-review journal Menopause and presented in a poster session at the North American Menopause Society (NAMS) annual meeting.

"While earlier studies have documented the beneficial effects of the Natural S-equol supplement on menopausal symptoms in postmenopausal women, this is the first study to examine its effects on menopausal skin, which were quite remarkable," said Belinda H. Jenks, Ph.D., Director of Scientific Affairs & Nutrition Education at Pharmavite LLC., and coauthor of the NAMS poster. "However, other larger studies using a longer treatment period and in menopausal women of different ethnicities are warranted to confirm and further characterize the effects of the Natural S-equol supplement on skin aging."

S-equol [7-hydroxy-3-(4'-hydroxyphenyl)-chroman] is a compound resulting -- when certain bacteria are present in the digestive tract -- from the natural metabolism, or conversion, of daidzein, an isoflavone found in whole soybeans. Not everyone can produce S-equol after soy consumption, as the production depends on the types of bacteria present in the large intestine and may be influenced by the amount of soy consumed. About 50 percent of Asians and 20 to 30 percent of North Americans and Europeans, who in general consume less soy than Asians, have the ability to produce high levels of S-equol naturally. Preliminary evidence from observational studies suggests that among Japanese women, those who produce S-equol naturally may have fewer menopausal symptoms. Controlled clinical trials have documented that a supplement containing Natural S-equol reduces the frequency of hot flashes as well as muscle discomfort associated with menopause, both in Japan and the United States.

Fruit juice

Your 'healthy' glass of fruit juice can actually up cancer risk (New Kerala: 26.9.2011)

A glass of juice in the morning is believed to be the healthy way to start a day, but Australian scientists have claimed that some fruit juices contain so much sugar that they actually increase the risk of certain cancers, rather than preventing them.

They said, in fact, by the time the drink has been processed and packaged, many of the ingredients in fruit that protect against tumours have been lost, the Daily Mail reported.

The researchers wanted to establish how effective different fruits, vegetables and juices were at preventing the development of bowel cancer.

They examined the diets of 2,200 adults, who filled in a questionnaire detailing their daily eating habits. The team then tracked the participants for two years to see how many of them developed the disease.

Unsurprisingly they found that eating apples, sprouts, cauliflower or broccoli on a daily basis all reduced the likelihood.

However, those who consumed lots of fruit juice had a higher risk.

The research found that those drinking more than three glasses a day were more likely to develop rectal cancer, a form of bowel cancer.

Scientists believe the high sugar content in juice may trigger certain tumours.

The Perth team also said that many things found in fruit which help protect against bowel cancer – including fibre, vitamin C and chemicals known as antioxidants – are lost during the juice's processing.

The findings were published in the Journal of the American Dietetic Association.

Snacking

Snacking is 'motivated by misconceived ideas of daily calorie intake'(New Kerala: 26.9.2011)

People eat snacks not only because they taste good, but also because they are motivated by ideas about what they supposedly can do for them, a new study has revealed.

Today, roughly a quarter of the calories in the American diet come from snacks, the report said.

"Everyone is constantly eating, especially foods that are convenient to buy and hold," ABC News quoted Phil Lempert, a food-industry analyst in Santa Monica, California, as saying.

Recalling a research that was released at the end of last year may help explain why these between-meal bites have such power over us.

The study had rolled out benefits of eating more frequently, as opposed to sticking to three main meals.

Their theory was that regularly stoking your metabolism with food could actually help you burn more calories.

As a result, nutritionists began advocating an eating plan that distributed the total daily calories (around 1,800 for a 130-pound woman) among five or six "mini meals" eaten three to four hours apart.

But unfortunately, too many people simply added two or three smaller meals (at 250 to 300 calories each) to their usual 400-to 500-calorie breakfasts, lunches, and dinners and ended up overeating, all in the name of better health.

Vitamin B12

Vitamin B12 deficiency 'tied to brain shrinkage, cognitive problems' (New Kerala: 28.9.2011)

A new study has found that elderly individuals with low level of vitamin B12 in their blood are at a higher risk of brain shrinkage and losing their cognitive skills.

Lead author Christine C. Tangney, PhD, of Rush University Medical Center in Chicago, and her colleagues looked at 121 people age 65 and older living on the south side of Chicago.

Their blood was drawn to measure levels of vitamin B12 and B12-related metabolites that can indicate a B12 deficiency.

The participants also took tests measuring their memory and other cognitive skills.

An average of four-and-a-half years later, MRI scans of the participants' brains were taken to measure total brain volume and look for other signs of brain damage.

Having high levels of four of five markers for vitamin B12 deficiency was associated with having lower scores on the cognitive tests and smaller total brain volume.

"Our findings definitely deserve further examination. It's too early to say whether increasing vitamin B12 levels in older people through diet or supplements could prevent these problems, but it is an interesting question to explore. Findings from a British trial with B vitamin supplementation are also supportive of these outcomes," said Tangney.

Tangney also noted that the level of vitamin B12 itself in the blood was not associated with cognitive problems or loss in brain volume.

Coffee

Coffee chases away depression in women (World Newspapers: 28.9.2011)

Drinking coffee might help depressed women in chasing away their blues, a new study has found.

Caffeine is the most popular stimulant in the world and about 80 per cent of it is consumed as coffee.

Previous research has suggested an association between coffee consumption and depression risk, the Journal of Archives of Internal Medicine reports.

Because depression is a chronic and recurrent condition that affects twice as many women as men, "identification of risk factors for depression among women and the development of new preventive strategies are, therefore, a public health priority," write the study authors.

They sought to examine whether, in women, consumption of caffeine or certain caffeinated beverages is associated with depression.

Michel Lucas, from the Harvard School of Public Health and colleagues, studied 50,739 women.

Participants, with an average age of 63 years, had no depression at the start of the study in 1996 and were prospectively followed up through June 2006, according to a Harvard statement.

Researchers measured caffeine consumption through questionnaires completed from May 1980 through April 2004.

When compared with women who consumed one cup of caffeinated coffee or less per week, those who consumed two to three cups daily had a 15 percent decrease in relative risk for depression, and those consuming four cups or more per day had a 20 percent decrease in relative risk.

Magic Mushrooms

Single Dose of 'Magic Mushrooms' Hallucinogen May Create Lasting Personality Change, Study Suggests (Science daily: 30.9.2011)

A single high dose of the hallucinogen psilocybin, the active ingredient in so-called "magic mushrooms," was enough to bring about a measurable personality change lasting at least a year in nearly 60 percent of the 51 participants in a new study, according to the Johns Hopkins researchers who conducted it.

Lasting change was found in the part of the personality known as openness, which includes traits related to imagination, aesthetics, feelings, abstract ideas and general broad-mindedness. Changes in these traits, measured on a widely used and scientifically validated personality inventory, were larger in magnitude than changes typically observed in healthy adults over decades of life experiences, the scientists say. Researchers in the field say that after the age of 30, personality doesn't usually change significantly.

"Normally, if anything, openness tends to decrease as people get older," says study leader Roland R. Griffiths, a professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine.

The research, approved by Johns Hopkins' Institutional Review Board, was funded in part by the National Institute on Drug Abuse and published in the Journal of Psychopharmacology.

The study participants completed two to five eight-hour drug sessions, with consecutive sessions separated by at least three weeks. Participants were informed they would receive a "moderate or high dose" of psilocybin during one of their drug sessions, but neither they nor the session monitors knew when.

During each session, participants were encouraged to lie down on a couch, use an eye mask to block external visual distraction, wear headphones through which music was played and focus their attention on their inner experiences.

Personality was assessed at screening, one to two months after each drug session and approximately 14 months after the last drug session. Griffiths says he believes the personality changes found in this study are likely permanent since they were sustained for over a year by many.

Nearly all of the participants in the new study considered themselves spiritually active (participating regularly in religious services, prayer or meditation). More than half had postgraduate degrees. The sessions with the otherwise illegal hallucinogen were closely monitored and volunteers were considered to be psychologically healthy

"We don't know whether the findings can be generalized to the larger population," Griffiths says.

As a word of caution, Griffiths also notes that some of the study participants reported strong fear or anxiety for a portion of their daylong psilocybin sessions, although none reported any lingering harmful effects. He cautions, however, that if hallucinogens are used in less well supervised settings, the possible fear or anxiety responses could lead to harmful behaviors.

Griffiths says lasting personality change is rarely looked at as a function of a single discrete experience in the laboratory. In the study, the change occurred specifically in those volunteers who had undergone a "mystical experience," as validated on a questionnaire developed by early hallucinogen researchers and refined by Griffiths for use at Hopkins. He defines "mystical experience" as among other things, "a sense of interconnectedness with all people and things accompanied by a sense of sacredness and reverence."

Personality was measured on a widely used and scientifically validated personality inventory, which covers openness and the other four broad domains that psychologists consider the makeup of personality: neuroticism, extroversion, agreeableness and conscientiousness. Only openness changed during the course of the study.

Griffiths says he believes psilocybin may have therapeutic uses. He is currently studying whether the hallucinogen has a use in helping cancer patients handle the depression and anxiety that comes along with a diagnosis, and whether it can help longtime cigarette smokers overcome their addiction.

"There may be applications for this we can't even imagine at this point," he says. "It certainly deserves to be systematically studied."

Along with the National Institute on Drug Abuse, this study was funded by the Council on Spiritual Practices, Heffter Research Institute and the Betsy Gordon Foundation.

Health Care Services

Health care

7 Govt. hospitals fail to get recognition (The Asian Age: 7-7-2011)

Seven government hospitals in the city have failed to qualify for prestigious NABH accreditation and will hence not feature in the list of hospitals accredited by the Quality Council of India.

Seven Delhi governmentrun hospitals, namely, Deen

Dayal Upadhyay, Guru Tegh Bahadur, IBHAS, Chacha Nehru Bal Chikitsalaya, G.B. Pant, Maulana Azad Dental College and Lok Nayak Jai Prakash and Central government's Ram Manohar Lohia Hospital had applied for accreditation of National Accreditation Board for Hospitals and Healthcare. "Only Chacha Nehru Bal Chikitsalaya has qualified for accreditation till now.

With this the total number of hospitals that have NABH accreditation is 100," secretary general, Quality Council of India, Dr Giridhar J. Gyani said.

NABH accreditation implies that the hospital will have global acceptance in terms of patient safety, infection control and positive clinical outcome, he said. The healthcare sector is growing rapidly and is estimated to be worth \$40 million by the year 2012.

Revenues from the healthcare sector accounts for 5.2 per cent of the GDP making it the third largest growing segment in the country.

"The remaining seven hospitals that had applied to us for accreditation were not found up to the mark.

They have been asked to improve upon their gaps so as to meet the criteria for accreditation. But its been three months and none has reverted. Even Chacha Nehru Bal Chikitsalaya had gaps but it improved early and could earn the NABH accreditation," Dr Gyani said.

Advanced medical care

Advanced medical care has reduced child mortality rate' (World Newspapers: 9.8.2011)

The director and commandant of Armed Forces Medical College, (AFMC), Pune, Air Marshal GS Joneja said that the child mortality rate due to paediatric emergencies has come down significantly.

He was speaking at the inauguration of the two-day continuing medical education (CME) programme on 'Recent advances in paediatric emergencies and perspectives for Armed Forces Medical Services' on Saturday.

The CME programme was organised as a part of the AFMC's celebrations for the commencement of the Golden Jubilee year of its 'Undergraduate Wing'. The celebrations on Saturday commenced with a wreath-laying ceremony at Prerna Sthal on the college campus, in memory of its alumni who sacrificed their lives in the service of the nation.

"The child mortality rate due to paediatric emergencies has come down significantly due to the use of technology in delivering medical services," Joneja said.

In his keynote address, Dr Krishan Chugh, director of child health of Sir Ganga Ram Hospital, New Delhi, explained that the future of dealing with paediatric emergencies lies in making available fully equipped IT-enabled medical services at all places and also make the services accessible to the patients at the earliest.

Author Chetan Bhagat, who delivered the inaugural guest lecture, exhorted the young cadets to devote themselves to the field of medicine with passion, and to also have a balance in life during their pursuits in their chosen career.

Speaking on 'Leading a passionate life', Bhagat said that teamwork and competence should remain the key ingredients to a successful career and called upon the cadets to take their passion to the next level.

AFMC started its undergraduate training wing in 1962 to cater to the demands of the growing strength of the Indian armed forces.

Rated among the top three medical colleges of the country in various surveys over the years, the medical college has so far produced over 6,000 doctors and super specialists apart from training paramedics and nurses as part of its mandated role of training medical service providers for the Indian armed forces.

Panasonic Plans - Healthcare

Panasonic Plans to Enter Healthcare Sector in India (The economic times: 10.8.2011)

Japan's largest electronics maker likely to buy a local healthcare equipment maker for its India foray

WRITANKAR MUKHERJEE OSAKA

Japan's largest electronics maker Panasonic plans to launch ECG machines, blood bank refrigerator, diabetes detector, solar cell, rechargeable batteries and security camera in India and is in talks with local IT companies to develop software for such products.

"We want to offer total business solutions to Indian consumers in collaboration with local companies. Such a consortium approach will help us to quickly penetrate the market and compete with local companies in terms of pricing," Panasonic India President Daizo Ito says. The \$105-billion company may buy a local healthcare equipment maker as part of its foray into healthcare equipment, energy management and security surveillance systems in the country in a bid to beat Korean duo LG and Samsung in India by 2018.

"These are key businesses for us globally. In fact, we are even keen to acquire an Indian healthcare company for access to the sales channel," says Ito.

In healthcare, Panasonic plans to roll out products like ECG machines, blood bank refrigerator, detection system for food poisoning bacteria, diabetes detector and will also expand its personal healthcare portfolio.

It will also foray into products like solar cell, fuel cell and rechargeable batteries in energy management and security camera for surveillance business.

Ito says such a wide-product portfolio will help Panasonic to beat LG and Samsung in the Indian market.

"We estimate that we can beat the Koreans by 2018 by ensuring 30% annual growth in durables and entering newer categories like healthcare and energy management which have huge potential in India," says Ito.

Panasonic's latest strategy draws inspiration from Samsung, which recently toppled LG Electronics in terms of overall revenues with a diversified product strategy including mobile phones, computers and digital camera.

(The correspondent was in Osaka on an invitation from Panasonic Corporation)
Advertisement

Blood's pH balance

Maintain the blood's pH balance (The Times of India: 12.8.2011)

Naturopathy and yoga expert, Nemchand Rawat, tells you the importance of maintaining the blood's pH level of 7.4 and suggests how we can prevent blood from turning acidic

It is important to understand a bit of elementary chemistry to understand how the blood's normal pH factor of 7.4 works for the body. A solution that is neither acidic nor alkaline, such as water, is assigned a pH value of 7. Increasing acidity is expressed as a number less than 7 and increasing alkalinity as a number more than 7. Blood, therefore, is considered slightly alkaline in nature, a property which helps it to digest food and to detoxify the body's own acids. If the blood's pH level falls, it means the blood will turn more acidic and will then not have the capacity to transport oxygen to its organs. Slightly alkaline blood, is therefore, always better. Many factors can lead to a decrease in the pH level of the blood, which means increasing acidity. Sudden heavy exercise or consuming tinned and preserved juice whose pH level is less than 3 is one factor. Alcohol also turns the blood acidic, as well as pesticides and preservatives in food. Over-consumption of sugar, artificial salt, vanaspati and cold drinks which contain phosphoric acid is also bad for the body. These then dissolve valuable calcium from our teeth and bones, making them weak.

Healthy habits:

There are many healthy habits that will help us avoid acid-forming conditions in our body. These include:

- Light exercises such as yoga and walking
- Eating balanced food
- Drinking recommended amount of water
- Eating soaked dry fruit, sprouts, fruits and leafy vegetables, soaked figs, and citrus fruits (most citrus fruits do not decrease pH value, hence are considered alkaline)
- Chewing well, so digestion is easier
- Avoiding talking excitedly and watching TV while eating
- Eating cardamoms or s a u n f after dinner

Acidity is harmful:

A decrease in the pH level of the blood or excess of acidity causes muscle pains, lack of oxygen in the body, acidic burps, build-up of harmful gases and ulcers, pressure on the diaphragm or rib cage, acidic urine which causes burning sensation, difficulty in breathing, less energy, excess of saliva in the mouth, finding food tasteless, indigestion and constipation, erosion of enamel from the teeth, weak gums and tooth cavities.

Health care

New cess may be levied to fund healthcare (Times of India: 16.8.2011)

Panel Moots Free Treatment for All Indians

New Delhi: You may soon have to pay more tax since the government is considering a proposal to levy a surcharge to fund its ambitious plan of providing free healthcare to every citizen in the country.

The Planning Commission's expert panel has turned down the proposal for a securities transaction tax, and instead voted for a health surcharge on taxable income.

The move, it said, would complement the government's budgetary allocation and "obviate the need for user charges on the rich"

Though the panel has not recommended how much surcharge should be levied, a 1% levy would yield over Rs 9,000 crore for this fiscal.

The surcharge would be similar to the one levied to fund education that is expected to mop up Rs 27,500 crore this year, which is over 40% of the funding available to the human resources development ministry. Including the road cess, all cesses and surcharges add up to over Rs 79,000 crore — about 8.5% of the budgeted tax collections.

Over the last decade, the government has repeatedly fallen back on the cess-and-surcharge tool for dedicated spending – ranging from picking up the tab for the Kargil conflict to the Gujarat earthquake. In recent years, the ambit has been expanded to include education and highway construction.

Now, the Planning Commission panel wants the government to introduce a national health entitlement card for every citizen that will guarantee free access to a health package of essential primary, secondary and tertiary healthcare fully funded by the Centre. It talks of covering both in-patient and OPD services.

Cess Pool

Govt collects Rs 27,500cr via education cess

Another Rs 17,700cr collected by cess goes for construction and maintenance of highways

Over Rs 15,000cr collected as surcharge on corporation, income tax

Other cesses and surcharges levied by the Centre include those on tobacco, pan masala, salt, among others

All cesses and surcharges add up to Rs 79,000cr or 8.5% of total revenues

They are used for various purposes – from funding calamity relief and contingencies to clean energy

Govt had levied cess to fund Kargil war, meet spending needs post Gujarat quake. Both cesses have lapsed

Plan panel against user charges in public hosps

New Delhi: Realizing the massive amount of funds required to introduce national health entitlement for every citizen, the Planning Commission's expert panel has called for a hike in public spending on health from about 1.4% of GDP to at least 2.5% by the end of 12th Five Year Plan (2012-17) and at least 3% by 2020 to achieve objective of healthcare for all.

As against the government's move to impose user charges in public hospitals to raise fund, the panel is strongly against levy of user fees of any kind even from those who can pay at health facilities that offer national health package for NHEC card-holders.

"The user fees of all forms to be dropped as a source of government revenue for health," the report said, arguing that such fees have limited deterrence in checking consumption of excessive and unnecessary medical care. The user fees have widened inequalities in access to healthcare and negative impact on usage of health service even by those who need them and most of the time administrative cost in collecting fee tends to be higher than revenue raised.

The panel pitched for specific purpose transfers from the Centre to the states and urged that transfer schemes should be designed in a way to reduce disparity in the level of public funding on health across states. It says the transfers received by states should constitute additional public spending on health and should not be used to substitute spending from own resources by the states.

The K Srinath Reddy-chaired group, which included National Advisory Council member A K Shiva Kumar, argued for prioritization of Central funds for providing primary and secondary healthcare nationwide, saying there is a need to earmark 70% of public spending for primary care.

Times View

Most people would not grudge paying taxes to fund things like education, health care or roads. However, when the government has to resort to levying cesses for each of these services, which are important parts of what a government should be doing, it raises an important question: Is it not an indication that most of the tax normally collected is being frittered away on wasteful expenditure? The imposition of a cess suggests that the government is itself convinced that there is no other way of ensuring that tax revenues will be spent on these essential services. That being the case, surely the most urgent need is for the government to better utilize tax revenues. That could either help it reduce tax rates or at least ensure that we get more bang for our buck.

Health care sector

Significant initiatives in health care sector (The Hindu: 24.8.2011)

Among the things that the AIADMK government headed by Chief Minister Jayalalithaa can be proud of in the 100 days since it took power, are significant announcements in the health care sector: increased coverage under the health insurance scheme, a new multi-specialty hospital and a new medical college.

Doing away with the old public health insurance scheme in Tamil Nadu, a new scheme was announced: enhancing the coverage for families below poverty line to Rs. 4 lakh for four years per family, at the rate of Rs. 1 lakh per year. In the case of certain conditions, this could also go up to Rs. 1.50 lakh. The previous regime allotted Rs. 1 lakh per family for four years.

Additionally, the new scheme now provides for medical insurance cover to be extended to 950 medical conditions as against 642 earlier. It also ambitiously envisages covering treatment costs, hospitalisation expenses and investigations. A sum of Rs. 150 crore was allotted in the revised budget to fund the scheme initially.

Putting paid to rumour and speculation about whether the new building in Omandurar Estate would be put to use, the Chief Minister announced on the floor of the House last week that it would be converted for use as a multi super-specialty hospital, and that the adjacent premises, Block B, would become a medical college.

This has evoked a lot of positive response from the citizens and medical professionals, who feel that the hospital bed crunch in the city may be alleviated by the construction of this new building. As for the college, there has always been a clamour for more medical seats, with the cut-off increasing every year in Tamil Nadu.

One more super-specialty centre will be established at Annal Gandhi Government Hospital, Tiruchi, it was announced in the budget.

From the public health point of view, the government's commitment to focus on the improvement of primary health care units in urban areas comes as a welcome move. Developing infrastructure and diagnostics is also on the cards at district hospitals throughout the State.

A new Food and Drug Safety department would be hived off from the existing health department. This will, hopefully, ensure better adherence to guidelines in terms of hygiene and sanitation, and permissible levels in food products.

The move to provide sanitary napkins entirely free of cost to rural girls through the ICDS network and village health nurses, has also been welcomed by those in the sanitation sector. A sum of Rs. 46 crore has been provided in the budget for this purpose.

Fasting

Fasting cures disease (The Times of India: 24.8.2011)

Fasting is a powerful tool used since ancient times to cure disease, says naturopath and Ayurvedacharya, Satish Bajaj. By fasting, we provide much needed space or aakash in our alimentary canal

Fasting is common in religion, but not many realize that fasting is also a powerful tool to cure disease. By fasting, we provide space or aakash in our alimentary canal. Space is the uppermost element in the five basic elements in the body — space, air, fire, water, earth. The upper elements purify the lower elements; space is, thus, the purifier of all lower four elements. Heat, sound, light, water, air, gases and solid particles travel through space. When you stop stuffing the body with food, opting to fast, the intestines get space to work on the old, undigested food in the intestines and the stomach. Space is now available for the stomach's juices to act on the leftovers, digest it, and excrete the waste. As we fast muscles of the empty intestines relax and blood moves to organs that need repair, detoxification and rejuvenation. CO₂ and toxic wastes are transported to the excretory system for elimination.

Self-healing:

The body has a natural ability to heal. This vital power of the body, usually busy in digestion and absorption of food, is free to heal sick organs when we fast. When we give our digestive system a rest, the lungs are not required to remove extra CO₂ obtained by burning carbohydrates and starch in food. Instead, they relax and relief from respiratory diseases is obtained. Proteins don't need digestion either and the renal system is free to remove excess urea, creatinine and uric acid from the blood. This reduces pain and swelling in joints and muscles, giving relief in arthritis. Calorie-rich fats are not consumed, and the body burns its own stored fats for energy, causing weight loss. However, drink sufficient water to fill the space element of all internal organs, otherwise they might shrink and could even cause complete collapse. Water dissolves all released toxins and flushes them out of the body. In chronic diseases, a fast requires supervision and should be done in natural environs, away from a city, and with complete physical and mental rest. Fasting is not recommended for weak people, and for TB patients. Diabetics and cancer patients need special supervision. Water or juice or clear soup must always be taken in a fast. Fast either once a week or once a fortnight or at least once a month.

Patient safety

Patient safety whose responsibility is it? (The Tribune: 25.8.2011)

According to the latest figures given by WHO, in developed nations, one out of 10 patients admitted in hospitals are at the risk of suffering from an adverse event. This figure is much higher in developing countries – may be even 10 times higher

Dr Jagjit Singh

Patient safety can be defined as the measures taken by individuals and organisations to protect healthcare recipients from being harmed by the effects of health care services. This may seem a bit intriguing at first — how can the patient be harmed by healthcare provider/hospital? But the fact is — it is true. Many of us may have experienced it ourselves or have a near or dear one affected by it. Patient safety is a serious global public health issue.

In recent years, countries have increasingly recognised the importance of improving patient safety. In 2002, World Health Assembly passed a resolution on patient safety. In 2004, an organisation, World Alliance on Patient Safety, was established by the World Health Organisation (WHO).

India has awakened to the issue of ensuring patient safety by starting a National Initiative for Patient Safety in 2008 at AIIMS. According to the latest figures given by WHO, in developed nations, one out of 10 patients admitted in hospitals are at the risk of suffering from an adverse event. This figure is much higher in developing countries – may be even 10 times.

What is an Adverse Event (AE)?

An event that results in unintended harm to the patient by an act of commission or omission (administration of the wrong medication, failure to make a timely diagnosis or institute the appropriate therapeutic intervention, adverse reactions or negative outcomes of treatment, etc.) rather than by the underlying disease or condition of the patient. It may or may not be preventable e.g. patient falls, medication errors. For example, a patient who is prescribed some sedatives (sleep- inducing) medicine has a fall due to which he develops a fracture. In this case it was the patient's sleepiness that may have caused him to trip and fall resulting in a fracture. Thus, though fracture is not a side-effect of sedatives, this unfortunate patient has experienced what can be labeled as an adverse event attributable to his undergoing treatment.

Adverse events may or may not be preventable

While some adverse events like adverse drug reactions – hypersensitivity/allergy to medications may not be preventable in the first instance many adverse events are preventable. These include errors during surgery e.g. operating on the wrong side of the

body/limb, leaving behind an instrument/ gauze piece after surgery, medication errors, diagnostic errors etc. As far as unpreventable adverse events are concerned, little may be left in our hands to get control on these. However, the preventable errors should be tackled head-on to ensure patient safety.

Medication error is one of the commonest and easily preventable adverse events. Medication error has been defined by WHO as an error in the process of ordering, transcribing, dispensing, administering, or monitoring medications, irrespective of the outcome (i.e., injury to the patient). Thus an error occurring at any step of medication use —right from being prescribed (ordering) by the doctor to its administration and monitoring — is included in this term. As far as errors in prescribing are concerned it depends on the prescriber's competence and experience.

Medication error can occur during prescribing

There are a number of incidents where a wrong medication has been prescribed owing to a misdiagnosis or inadequate knowledge about the disease or medication in question. Prescribers (mostly doctors in our setup) should ensure they know everything about some drugs, which they use routinely; rather than trying to know something about every drug available in the market. Knowing exactly the medication's effects, mechanism of action, pharmacokinetics and side-effect profile along with recommended dose can enhance proper use and minimise errors in the prescribing process.

Since every prescription is a medico-legal document it must be written legibly in ink or online on computer. Nobody can deny the terribly illegible prescription which may not be deciphered even by experienced pharmacists, at times, leading to potentially serious medical mishaps. The problem is compounded when two drug names sound alike but have totally different medications. For example, Zyntec is the trade name of Ranitidine, a drug for peptic ulcer while Zyrtec is a name for Cetirizine, an antihistaminic agent. Inderal is a Beta blocker while Inferal is used in asthmatics. Giving the former in place of the latter can induce an attack of acute asthma in the patient which can be life threatening.

Medication error can occur during drug administration

Administration involves obtaining the medication in a ready-to-use form. It is usually done by staff nurses in hospitals. It may involve counting, calculating, mixing, labeling or preparing medication in some way. It also involves checking for allergies in the patient and observing the 5 Rs rule — right drug, right patient, right dose, right route, and right time. Drug administration can go wrong if a wrong drug is given to a patient, if the right (intended) drug is given to the wrong patient or in the wrong dose or through wrong route or at a wrong time. It may be also be due to omission, failure to administer the drug and due to inadequate documentation.

Patients who are most at risk of medication error include those on multiple medications, patients with co-morbid conditions e.g. renal impairment, pregnancy, patients who cannot

communicate well, patients who have more than one doctor, patients who do not take an active role in their own medication use, children and babies (dose calculations required).

Inexperience, rushing through the job, trying to do two things at once, interruptions, fatigue, overwork, failure to check and double-check, poor teamwork and communication gap between colleagues are some of the situations when the staff is most likely to contribute to a medication error.

Absence of a safety culture in the workplace e.g. poor reporting systems and failure to learn from past near misses and adverse events, absence of memory aids for staff, inadequate staff numbers etc all can contribute to endangering patient safety.

What actions can be taken to enhance patient safety?

To reduce medication errors it is important that they are reported, that data is collected and analysed on a large scale and that results are shared amongst the relevant institutions. This requires a change in the culture in the healthcare system to one where safety is paramount and reporting is encouraged and maximised.

There is also a need to set up national reporting systems and databases to store information and a cohesive strategy for communicating findings effectively across the countries. To encourage reporting of adverse events, even seemingly trivial, it is important to eliminate fear culture among healthcare staff. The strategy recommended nowadays is not to blame an individual for an error but to look into the whole event as a systems failure. This means moving from 'who did it' to 'why and how did it happen'. In this way the point of care where the event occurred can be analysed to ascertain the cause and prevent any error at that point of care in the future.

This is called root cause analysis and can enhance patient safety if done properly. Just as the aviation industry utilises the black box recording to get to the cause of every air accident, the healthcare industry must analyse each error to enhance patient safety.

How can patients contribute to their own safety?

It is indeed true that patient safety lies in the hands of the healthcare providers. Nonetheless, the patient's role in his/her own safety can't be underestimated. An alert and well-informed patient can at times prevent errors from occurring. Indeed, all patients should be encouraged to be actively involved in their own treatment process.

When prescribing a new medication doctors must provide patients with the following information: name, purpose and action of the medication; dose, route and administration schedule; special instructions, directions and precautions; common side-effects and interactions; how the medication will be monitored.

They should also encourage the patients to keep a written record of their medications and allergies and encourage them to present this information whenever they consult a doctor.

This type of patient education is unfortunately not much practised in our setups for the reason that it is time consuming and that most patients are not literate enough to grasp it. However, the changing socioeconomic scenerio and rising literacy levels will create more and more patient awareness and relevance of such education. No doubt, imparting knowledge to patients, their relatives and even the medical staff is a duty of the doctor, which literally means to teach (from 'Docere' in Latin).

When a visit to the doctor goes horribly wrong

An adverse event is a happening that results in unintended harm to the patient by an act of commission or omission (e.g., administration of the wrong medication, failure to make a timely diagnosis or institute the appropriate therapeutic intervention, adverse reactions or negative outcomes of treatment, etc.) rather than by the underlying disease or condition of the patient. It may or may not be preventable e.g. patient falls, medication errors.

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The writer is Assistant Professor, Department of Pharmacology, Govt Medical College and Hospital, Chandigarh

Proposals of private hospitals

Govt rejects proposals of private hospitals (The Times of India: 25.8.2011)

The Delhi government on Wednesday told the Supreme Court that private hospitals must provide 10% indoor and 25% outdoor treatment free of cost to poor patients as a quid pro quo for getting land at concessional rate.

The government in its affidavit said under the terms and condition of the lease deeds, the private hospitals were obliged to provide free treatment to the extent of 25% IPD and OPD to poor patients.

The Delhi high court in March 2007 had reduced the quantum of free treatment to poor patients to 10% IPD and 25% OPD in all respects, it said rejecting fresh proposals from private hospitals to further dilute the conditions.

On July 25, the apex court had asked 10 private hospitals, who are yet to implement the HC judgment and have filed appeal in SC, to submit to the Delhi government their schemes for free treatment of poor patients. It had asked the government to frame a final scheme

in consultation with the private hospitals within four weeks and submit it to the court.

The government said out of the 40 identified private hospitals, Moolchand Khairati Ram Hospital, St Stephens Hospital and Rajiv Gandhi Cancer Hospital were not providing free treatment to the eligible patients from economically weaker section category on the ground that they were not allotted land at concessional rate and that their petitions were pending before the HC.

The 10 hospitals which had moved the apex court were — Dharamshila Hospital and Research Centre, Vimhans, Fortis Escorts Heart Institute, Max Super Specialty (Saket), Max Super Specialty (IP Extension), Sri Balaji Action Medical Institute, Jaipur Golden Hospital, Deepak Memorial Hospital, Sunder Lal Jain Hospital and Bhagwati Hospital.

The government has rejected Fortis Escort's proposal to designate one hour each in the morning and evening for OPD consultations exclusively for poor patients.

Keys to Long Life

Keys to Long Life (Med India: 26.8.2011)

Regular exercise, intake of healthy food and a chat with friends are the simple measures for a long life, according to experts.

The charity says it is never too early - or too late - to adopt a healthy regime to improve later life.

Its tips include getting enough good-quality sleep, engaging socially with other people, and staying positive about ageing.

More familiar advice such as taking regular exercise, healthy eating, going for check-ups, not smoking, protecting your eyes and avoiding sun damage are also endorsed.

The charity also urges people - for both physical and mental well-being - to keep an eye on their pensions and to seek expert -financial advice when necessary.

"We really can influence how we age and the top tips are a great guide to ageing better. For example, it may seem obvious but regular health check-ups are really important," the Daily Express quoted Professor Ian Philp, who helped produce the information, as saying.

"Getting early diagnosis of an illness, taking advantage of screening programmes and being up to date with vaccines are all crucial. Others tips such as engaging socially with others and staying positive about ageing are also key," he added.

Life forms

Fossils prove life began more than 3.4bn years ago (The Tribune: 26.8.2011)

The fossilised remains of the oldest known lifeforms on the Earth have been discovered in samples of rock collected near a remote watering hole in the middle of the Australian Outback.

Scientists said the microscopic fossils belonged to primitive bacteria that lived more than 3.4 billion years ago, when the Earth had emerged from a period when it was probably too hostile for life. The primitive microbes used sulphur instead of oxygen to generate

energy from food and, the scientists said, they may be the closest that science will ever get to the mysterious origin of life on the Earth.

The fossils were found in rocks that were originally formed in shallow seas near a coastline and suggest that beaches may have been the key habitat where the Earth's first lifeforms thrived, said David Wacey, of the University of Western Australia.

"The environment in which the microfossils were found is important—it extends the record of life in shoreline or beach-like environments by about 200 million years. This suggests that beaches could have been the setting for the origin of life itself," he said.

"The discovery gives good solid evidence for life over 3.4 billion years ago. It confirms there were bacteria at this time, living without oxygen."

The Earth is estimated to be about 4.5 billion years old but the planet's hostile, meteorite-bombarded environment is thought to have been too inhospitable for life to get going until about 3.8 billion years ago. Previous studies have indicated the presence of similar microfossils in 3.5 billion-year-old rocks but these claims have been disputed. The latest microfossils have been subjected to an exhaustive series of tests which have confirmed that they were once living cells, not merely the product of non-living chemical reactions. They were discovered in rock that was sandwiched between layers from two well-dated volcanic eruptions, which narrowed the fossils' date of origin to within a few tens of millions of years.

"That's very accurate when the rocks are 3.4 billion years old," said Professor Martin Brasier of the University of Oxford, co-leader of the study, published in the journal *Nature Geoscience*. "At last we have good solid evidence for life over 3.4 billion years ago. It confirms there were bacteria at this time, living without oxygen. Such bacteria are still common today. Sulphur bacteria are found in smelly ditches, soil, hot springs, hydrothermal vents— anywhere where there's little free oxygen and they can live off organic matter."

Oxygen appeared in significant quantities in the atmosphere only after the evolution many millions of years later of plant-like microbes which could use sunlight for photosynthesis, producing oxygen as a by-product. Until that point, life on Earth had to make do with sulphur, which can be metabolised in a similar way to obtain energy from food. "I believe we are as close as we have ever been to the very first microbes here... The problem we now have is that there are very few rocks older on Earth in which to search for anything more primitive," Dr Wacey said. The scientists found the microfossils in the Pilbara, a remote region of Western Australia with a harsh environment of spiky vegetation and red dust.

Health care indicators

From Army camps, healthcare indicators for N-E govts (Indian Express: 5.9.2011)

Healthcare efforts by the Army in the Northeast have highlighted areas where gaps exist in government services besides giving indications of the kind of illnesses that need to be tackled and where.

The Army's medical camps in remote districts of Assam, Arunachal Pradesh, Nagaland and Manipur have seen 25,000 people treated for various ailments, a number of them undergoing various surgeries including cleft lip and palate surgery.

“While our medical units normally reach out to people living in far-flung areas where there is a lack of infrastructure and access to medical facilities, we also help the state government setup wherever there is a gap,” said Brig L S Vaz, who heads the medical branch of the Four Corps at Tezpur that operates in more than half of Assam as well as Arunachal Pradesh, with a sizeable part of its area being along the international border with China.

Tracking patients

Tracking patients' vital signs, without the wires (The Times of India: 5.9.2011)

Confined to their hospital beds, patients can only fantasize about stripping off all the wires that connect them to monitors and bolting for the door.

Suppose, however, that all of a convalescent patient's electrode patches were consolidated into a single, nearly invisible and weightless version — as thin as a temporary, press-on tattoo. And suppose that a tiny radio transmitter eliminated the need for any wires tethering the patient to monitoring machines.

“Epidermal electronics” — a term coined by researchers who have produced prototype devices at the University of Illinois at Urbana-Champaign — may enable constant medical monitoring anywhere. The devices are part of a growing field, called mHealth, that uses mobile technologies. Simpler forms include smartphone apps for patient

education or disease management. More complex ones include wireless sensors to monitor vital signs.

"MHealth is managing conditions continuously, so that they don't reach a crisis," says Donald M Casey, chief executive of the West Wireless Health Institute, a nonprofit research organization in San Diego.

Wireless sensor technology is advancing rapidly. Last year, for example, Corventis, a medical device company based in San Jose, California, received Food and Drug Administration approval to market its Nuvant Mobile Cardiac Telemetry System, used to detect arrhythmias. A 2-by-6-inch electronic gizmo on a patient's chest sends an electrocardiogram to a nearby transmitter, which relays it to a central monitoring center. NYT NEWS SERVICE

Portable kit for 'dialysis on the go'

Scientists have come up with a bag for "dialysis on the go", a breakthrough which they claim may transform the lives of patients awaiting kidney transplants. An international team, led by Singapore-based firm AWAK Technologies, which has developed the device, says the shoulder bag contains a mini version of the bulky equipment normally used to carry out the job of diseased kidneys. The new kit could mean patients can go shopping, take a walk or even go abroad instead of spending hours hooked up in a hospital ward, say the scientists. A trial is already under way at the University Children's Hospital in Tübingen, Germany, the 'Sunday Express' reported. PTI

Health care companies

Healthcare companies expect foreign patient arrivals to increase by 80 pc (The Tribune: 5.9.2011)

Leading Indian healthcare firms, including Fortis Healthcare and Apollo Hospitals, are eyeing up to 80 per cent increase in the number of foreign patient arrivals this financial year.

The top three healthcare chains, Fortis Healthcare, Apollo Hospitals and Max Healthcare that together had treated about nearly 90,000 foreign patients last year, are banking on their cost effective and specialised services in areas like cardiology, organ transplants and oncology to drive foreign patient inflows into the country.

"We expect a 70 to 80 per cent increase in the number of patients this fiscal on the back of segments, including oncology, cardiac, orthopaedics, organ transplants and neuro," a Fortis Healthcare spokesperson told PTI.

Fortis Healthcare, which has a network of 66 hospitals across the country, treated 4,700 foreign patients in 2010-11.

Out of the total foreign patients treated by Fortis in 2010-11, 32 per cent came from Africa, 28 per cent from the Middle-East, 18 per cent from SAARC region, 19 per cent from the US and Europe and 3 per cent from the CIS region.

The country's largest hospital group Apollo Hospitals treated more than 50,000 foreign patients last fiscal.

While the company did not spell out exactly the number of expected foreign patients, it said that therapeutic areas like cardiology, cancer treatment and organ transplants among others will drive its growth in medical tourism.

"These are the areas which will remain drivers in future as well," a company spokesperson said.

Last year, foreign patients from as many as 55 countries, including all SAARC countries, Middle East, CIS countries, Africa and US, UK and Canada came for treatment at Apollo.

Max Hospitals said it is also expecting a growth in the inflow of foreign patients but did not specify numbers. "At Max, we have treated more than 35,000 patients in the last two years. For the current calendar year it is at 9,000," Max Healthcare Division General Manager - International Sales and Hospitals Alok Khanna said.

The company had treated patients mainly from Afghanistan, Iraq, Bangladesh, Nepal, Pakistan, Oman, Qatar, Africa, Ethiopia, Tanzania, Congo, Zambia, Burundi, Kenya and UAE, he added.

According to a study by McKinsey and the CII, the medical tourism in India could become a \$2-billion industry by 2012 from \$350 million in 2006.

The key selling points of the medical tourism industry in India are its cost effectiveness and its combination with the attractions of tourism, according to the study.— PTI

First aid

Fear of getting it wrong stops most people learning first aid (The Indian Express: 7.9.2011)

Lives are being put at risk because people are avoiding learning first aid for fear of getting it wrong, a leading charity warns.

A British Red Cross poll of more than 2,000 adults across the UK found that nearly two-thirds of respondents thought people avoid learning first aid because of the responsibility it carries. The survey also showed that only 3 per cent of people would like to learn first aid if they had two hours of free time. However, 81 per cent of those questioned thought everyone should know basic first aid.

The findings come ahead of World First Aid Day on Saturday, when the British Red Cross will launch a free online resource designed to be the simplest way to learn basic life-saving skills. Everyday First Aid allows users to learn at their own pace through videos, real-life scenarios and downloadable content.

The charity gave face-to-face first-aid training to 335,900 people last year. Joe Mulligan, head of first aid education at the British Red Cross, said it was "extremely concerning" that people may be put off by fear of the perceived responsibility.

"Basic first aid is very easy to learn, extremely simple to do and could literally save someone's life," he said.

"We have to combat this myth that knowing first aid is a great responsibility. Knowing these skills does not bring the pressure of responsibility, but the confidence and peace of mind of knowing that you'd be able to help your friends and family if they needed you."

Mr Mulligan claimed there was a false perception that first aid was complex and that there was a chance of being sued for trying to help. To date, no one has been successfully sued in the UK.

He added there was a need to "democratise" first aid and to change its "slightly geeky image" by instead seeing it as a "humanitarian act". "It's still seen by some people to be almost exclusive and not relevant to them," he explained. "Absolutely everyone should have access to it."

Builder and foster parent John Gaul, 55, of Peverell in Plymouth, attended a British Red Cross first aid course run through the Fostering Foundation in Tavistock, Devon, in 2009. He admitted he only did the course because it was compulsory but now believes everyone should learn basic first aid skills.

He used what he had learnt during a holiday in Italy with his wife, Lorraine, last year to save an old man in a park who was choking on a piece of bread. "The greatest buzz was seeing father and son walking out of the park arm-in-arm [afterwards]," he said. "It was very emotional."

St John Ambulance has launched a first aid awareness month — Save a Life September — after research last year showed that up to 150,000 people die annually in situations where first aid could have made a difference. That figure includes nearly 900 people who choke to death. The charity will be giving hundreds of free first aid demonstrations across the country.

Last month, London Ambulance Service (LAS) appealed for more Londoners to learn life-saving skills after its figures showed that while more patients were surviving a cardiac arrest, bystanders only performed basic life support in around a third of cases before paramedics arrived.

"If you perform any sort of basic life support on this patient while the ambulance is on the way you are effectively doubling that person's chance of survival," said LAS first responders manager Chris Hartley-Sharpe. — The Independent

Sion Hospital

Sion Hospital resident doctors to get assistance (World Newspapers: 8.9.2011)

The Sion Hospital administration has decided to deploy an MD- or MS-level physician with the resident doctor for every procedure involving the slightest risk. The decision was made after a female patient died at the hospital during fine needle aspiration biopsy (FNAB) — a routine procedure. However, health experts claim this practice will only lead to chaos since more than 50 such procedures are conducted every day.

On Tuesday, 33-year-old Yasmin Sheikh, a Dharavi resident, died during the routine diagnostic procedure. The FNAB was performed by senior resident doctors from the radiology department. But 15 minutes later, the patient died.

Dr Sandhya Kamat, dean, Sion hospital, said, "We have ordered a probe into this incident. From now, for any such kind of procedure, we will appoint a qualified doctor who can accompany the resident doctor."

According to experts, FNAB is a basic routine test and a risk-free procedure which is helpful in establishing the diagnosis. The procedure is used to investigate superficial lumps. In this technique, doctors use a thin, hollow needle inserted into the mass to extract cells to be examined under the microscope. However, Dr Kishor Taori, president of Maharashtra Medical

Council said that appointing a qualified doctor for every patient in a public hospital for such procedures would add to the chaos.

Maharashtra Health Dept

Maharashtra health dept initiates measures to curb sex determination tests (World Newspapers: 8.9.2011)

There is a section of doctors, gynaecologists and radiologists in the state that secretly carries out sex determination tests prohibited under the Pre-Conception Pre-Natal Diagnostics Techniques (PCPNDT) Act, 1994. Alarmed by the declining female population in Maharashtra, the state health department has initiated measures to curb such practices.

The additional director (family welfare) of the state health department, Dr Suresh Gupta, shares with DNA the responses it is getting from people after these new initiatives were launched. Dr Gupta who took charge of the family welfare bureau in Pune was earlier posted as the director (blood safety) of the health department.

What has been the response to the toll-free number launched by the department?

We had launched a toll-free number (18002334475) inviting people to register complaints against doctors violating the PCPNDT Act, in July this year. But I must admit that the response from the people has not been very encouraging. We expected more people to come forward and register complaints against erring doctors.

At present, we get just 2-3 calls a day. We expect to receive at least 10-15 calls a day. It could be that the number is too long for the people to remember. There are many who are still not aware of this helpline. We also think that the doctors who indulge in such practices have become too cautious and are not conducting such tests because of the health department's focus on the issue.

Is the department planning new measures to ensure that it gets more complaints?

Is the department planning new measures to ensure that it gets more complaints? We are trying to replace the existing 11-digit toll-free number with a three-digit number. We have sent an application to the Union government to provide us with a three-digit number so that it is easier for people to remember.

Apart from that, we are also in the process of appointing a special staff for the newly set up grievance redressal cell. The appointment of the special staff will take place within the next few days and they would manage the cell. With these measures we are optimistic that we shall get more complaints from people about violation of the PCPNDT Act.

The department had also launched a website to register complaints. How is the response there?

The website www.amchimulgi.gov.in was launched on July 11 along with the helpline number. But unfortunately the website too is yet to function fully owing to some technical problems. The technical issues are being resolved so that people can have access to the website where they can register their complaints against the doctors who are violating the PCPNDT Act.

What are the other events that the state family welfare bureau has planned?

We are currently conducting nutritional week all over the state where the district health officers along with the primary health care centres are organising awareness workshops for the public.

The theme for the nutritional week is: 'Good nutrition at affordable rates'. The week is usually celebrated in the first week of September and lectures are held in all the districts to spread awareness among parents about nutritious food to be given to their child. It is a notion that costly food is nourishing, but a child can get better nutrition at affordable prices as well. This is what we are trying to educate the public about.

September 12: World Oral Health Day

The body-mouth connects (The Tribune: 8.9.2011)

The mouth is the window to the body and is important for several reasons, ranging from cosmetic to functional. More importantly, extensive studies have successfully established the close link between overall and oral health. It is of paramount importance to take good care of one's mouth and practice a proper oral care routine for complete well-being

The ideal oral care regime

- n Brush twice a day correctly, for at least 3-5 minutes using short, gentle strokes with focus on the base of the gums and hard to reach places like the back of the mouth. Place the bristles of your brush at an angle of 45 degrees along your gum line and brush using vibrating back and forth movement.

- n Rinse regularly with an essential oil based mouthwash. Studies show mouth-wash with essential oil-based ingredients such as eucalyptol, menthol, methyl salicylate and thymol reduce plaque by 70 per cent and gum problems by 36 per cent.

- n Floss regularly to remove food that gets stuck between the teeth.

- n Restrict the intake of starchy and sugary foods like cookies, pastries, junk food, aerated drinks, and drink plenty of water. Go for healthy diet — which includes more fiber.

- n Visit the dentist once every six months for a complete screening even if you do not have any visible problem. get your teeth cleaned by a dental professional at least once a year

THE FDI World Dental Federation has dedicated September 12 as World Oral Health Day in order to create global awareness on oral health and educate people on the impact of oral diseases on overall health and well-being. This day while implying that a healthy lifestyle is incomplete without healthy teeth and gums also seeks to dispel common oral care myths and educate people on a complete oral care routine.

In India, this day is especially significant because of the low standards of oral hygiene practiced within the country. Studies show that a majority of people, 56 per cent, brush only once a day and an appalling 32 per cent have never gone to the dentist. The topmost oral health complaints in the country are tooth decay, gum problems and bad breath. According to the oral health experts, however, a lot of people suffer from oral health complaints without being aware of it and at times it can impact a person's quality of life.

Many medical researches continue to challenge our general perception about the oral hygiene. Contrary to the popular belief that brushing the teeth is the only way to good oral care, the fact is that teeth are just 25 per cent of our mouth. So leaving the remaining 75 per cent part of the mouth unclean creates a good breeding ground for the bacteria to grow and spread. It is therefore important to use advanced oral care products like mouthwash and floss to ensure the entire mouth is protected.

Utter neglect

n Studies show that a majority of Indians (56 per cent) brush only once a day and an appalling 32 per cent have never gone to the dentist. The topmost oral health complaints in the country are tooth decay, gum problems and bad breath.

n Contrary to the popular belief that brushing the teeth is the only way to good oral care, the fact is that teeth are just 25 per cent of our mouth. So leaving the remaining 75 per cent of the mouth unclean creates a good breeding ground for the bacteria to grow and spread.

n People with periodontal (gum) disease are almost twice as likely to suffer from coronary artery disease as compared to those without periodontal disease.

n Oral bacteria could also cause blood clots by releasing toxins that resemble proteins found in artery walls or the bloodstream.

n Periodontal disease may make it more difficult for people who have diabetes to control their blood sugar as the 6th complication of diabetes mellitus is periodontal disease.

n Bacteria found in the throat and mouth can be drawn into the lower respiratory tract. This can cause infections or worsen existing lung conditions.

n Bacteria that reside in the oral cavity can be inhaled into the lungs and cause respiratory diseases such as pneumonia, especially in people with periodontal disease.

n Pregnant women who have periodontal disease may be seven times more likely to have a baby that is born too early and too small.

n Loose teeth, severe gum disease, ill-fitting dentures and difficulty in eating or speech can all be a sign of decreasing bone density, an advanced stage of osteoporosis.

The common link between periodontal or gum disease and infections in the body goes beyond bacteria. Recent research studies provide proof of how inflammation is the connecting link between poor oral hygiene and chronic inflammatory conditions like cardiovascular disease, diabetes, obesity, osteoporosis and pregnancy-related issues amongst many others. Many users are not aware that they are suffering from osteoporosis or diabetes, until the dentists spots the first signs during a routine oral examination and recommends further investigations. Often such a chance intervention or diagnosis can go a long way in controlling and even stabilising serious health conditions.

Researchers have found that people with periodontal (gum) disease are almost twice as likely to suffer from coronary artery disease as those without periodontal disease.

In people suffering from Periodontitis (inflammatory disease affecting the tissues that surround and support the teeth), the bacteria may enter into the bloodstream while chewing and brushing. These bacteria can then attach to fatty plaques in the coronary arteries (heart blood vessels), contributing to clot formation. This plaque can lead to heart attack.

Oral bacteria could also cause blood clots by releasing toxins that resemble proteins found in artery walls or the bloodstream. The immune system's response to these toxins could harm vessel walls or make blood clot more easily.

People with diabetes are more likely to have periodontal disease than people without diabetes, probably because diabetics are more susceptible to contracting infections. In fact, periodontal disease is often considered the sixth complication of diabetes. Those who don't have their diabetic condition under control are especially at risk.

Research suggests that the relationship between periodontal disease and diabetes work both ways — periodontal disease may make it more difficult for people who have diabetes to control their blood sugar as the 6th complication of diabetes mellitus is periodontal disease.

Good blood glucose control is a key to controlling and preventing mouth problems. People with poor blood glucose control get gum disease more often and more severely than people whose diabetes is well controlled. Thus, diabetics who have periodontal disease should be treated to eliminate the periodontal infection.

Bacterial respiratory infections are considered to be acquired through inhaling fine droplets from the mouth and throat into the lungs. These droplets contain germs that can breed and multiply within the lungs to cause damage. Recent research suggests that bacteria found in the throat and mouth, can be drawn into the lower respiratory tract. This can cause infections or worsen existing lung conditions.

Scientists have found that bacteria that reside in the oral cavity can be inhaled into the lungs and cause respiratory diseases such as pneumonia, especially in people with periodontal disease. This discovery leads researchers to believe that these respiratory bacteria can travel from the oral cavity into the lungs to cause infection. Studies are now in progress to learn to what extent oral hygiene and periodontal disease may be associated with more frequent bouts of respiratory disease in COPD patients.

For a long time we've known that risk factors such as smoking, alcohol use, and drug use contribute to mothers having babies that are born prematurely at a low birth weight. Now evidence is mounting that suggests a new risk factor – periodontal disease. Research reveals that pregnant women who have periodontal disease may be seven times more likely to have a baby that is born too early and too small.

It appears that periodontal disease triggers increased levels of biological fluids that induce labour. Furthermore, data suggests that women whose periodontal condition worsens during pregnancy have an even higher risk of having a premature baby.

Osteoporosis is one of the most common human bone diseases affecting millions of people, including over one-third of females above the age of 65. Osteoporosis is characterised by decreased bone density and weakened bones. Symptoms of osteoporosis often go unnoticed until a major fracture occurs, but your dentist may be able to detect the early signs of osteoporosis during your regular dental exam.

Loose teeth, severe gum disease, ill-fitting dentures and difficulty in eating or speech can all be a sign of decreasing bone density, an advanced stage of osteoporosis.

The writer is Secretary General of the International Clinical Dental Research Organisation and Professor of Periodontology at Santosh University, Delhi

Good Health

Gaming for good health (Business standard: 9.9.2011)

Researchers at the University of Missouri and TigerPlace, an independent living community, have used motion-sensing technology to monitor changes in the health of residents for several years. The researchers now say two devices, commonly used for video gaming and security systems, help detect the onset of illness in the elderly, according to an institute release.

Marjorie Skubic, professor of electrical and computer engineering in the College of Engineering, University of Missouri, along with doctoral student Erik Stone, is using Microsoft Kinect, a new motion-sensing camera that is used as a video gaming device, to monitor behaviour and routine changes in patients at TigerPlace. These changes help indicate increased risks or early symptoms of illnesses. "Kinect uses infrared light to

create a depth image that produces data in the form of a silhouette, instead of a video or photograph,” said Stone. “This alleviates many seniors’ concerns about privacy when traditional web camera-based monitoring systems are used.”

Another doctoral student, Liang Liu, together with Mihail Popescu, assistant professor in the College of Engineering and the department of health management and informatics, University of Missouri School of Medicine, is developing a fall detection system that uses Doppler radar to recognise changes in walking, bending and other movements that may indicate heightened risks of falls.

Health conscious

'Health conscious' Americans turning to healthy drinks from beer (New Kerala: 12.9.2011)

Miller genuine Draft, Old Milwaukee, Milwaukee's Best, Michelob and Budweiser are among the top eight beer products to have lost a staggering 30 percent or more of their sales between 2005 and 2010.

According to statistics compiled by 24/7 Wall St. using databases kept by SymphonyIRI Group, apart from light-calorie beers, drinkers have also turned to imports, such as Mexico-brewed Corona, along with craft beers, which are also proving popular.

The study which looked at beer sales nationwide between 2005 and 2010 shows that drinkers are becoming more weight-conscious, most of the beers missing out are full-calorie options and those in need of quenching refreshment are instead turning to lower-calorie products.

Overall, the sales of beer from 2005 to 2010 rose 1.9million barrels to 208.4million barrels, but sales of the top 20 brands dropped 10million barrels to 149million, which is evidence that Americans have turned to craft beers and imports.

The top eight losers are:

8. Budweiser - 30 percent
7. Milwaukee's Best Light - 34 percent
6. Miller Genuine Draft - 51 percent
5. Old Milwaukee - 52 percent
4. Milwaukee's Best - 53 percent
3. Bud Select - 60 percent
2. Michelob Light - 64 percent
1. Michelob - 72 percent

GTB hospital

GTB hospital to get new 500-bed block (The Asian Age: 21.9.2011)

Delhi health minister Dr A.K. Walia on Tuesday said that a 500-bed new block will be built in the GTB hospital.

Dr Walia visited the GTB hospital and criticised the authorities on hygiene and maintenance issues. The minister's visit came after the massive earthquake.

The government is now tightening its grip to handle such disasters in Delhi.

Mr Walia also announced

commissioning of the new fully quake-resistant ward block in October.

“This 500-bedded new ward block is extension of the GTB Hospital in Shahdara. It is an eight-storied RCC-framed structure building having total floor area of 28,734 Sqm. It is the only building in the capital city where Base Isolation Technology has been provided during designing and construction. It is almost fit to be commissioned,” Dr Walia said, adding that it has instructed that this

month end enabling the city government to dedicate it to Delhi. “The building is designed by using green building concept to make an energy efficient building minimising the building environmental impact and improves indoor environmental quality. For general illumination CFL, T-5 and LED energy saving lamps have been used. It has CCTV and LAN Network provision for solar-water heating system. Its four floors from ground to third are centrally air-conditioned it will have five operation theatre including one modular Operation Theatre,” he said.

The minister took a round

of the hospital and criticised the hospital authorities on the unhygienic conditions in some areas. “The principal secretary, PWD, is being approached to personally visit the Hospital and asses the quantum of work as far as maintenance, repairs and general cleaning are concerned,” Dr Walia said.

The PWD staff present was instructed to do extra efforts to keep this major hospital in trans-Yamuna area clean and conducive to health.

Medical Emergency

Stroke is a medical emergency (The Tribune: 21.9.2011)

What is stroke?

A stroke (also called “brain attack” or “CVA”) occurs when blood circulation to a part of the brain stops. This leads to the death of brain cells because the cells need oxygen and nutrients from the blood to survive. A stroke most commonly results from the blockade of a blood vessel called artery of the brain. This type of stroke is called “ischemic stroke”. In some cases, stroke is caused by the rupture of an artery in the brain, which is referred to as “haemorrhagic stroke.”

Who is at the risk of stroke?

Stroke most commonly occurs in the middle and old age groups but can very well occur in the younger age group also. Older patients with long-standing and poorly controlled hypertension, diabetes, high cholesterol or smoking are at a increased risk of stroke. Diseases of the heart as heart rhythm problems (or atrial fibrillation) and shrinkage of the heart valves pose a risk of stroke to any age group. Uncommon causes of stroke in the younger age group include direct injury to the brain artery, bleeding and clotting disorders of the blood and inflammation of the brain arteries.

What are the symptoms of stroke?

The symptoms of stroke depend upon the region of the brain which is affected. Symptoms can be mild or severe. The most common symptoms of stroke are:

Sudden numbness of the face, arm or leg (especially on one side of the body)
Sudden weakness of arm or leg (paralysis)
Sudden difficulty in speaking or understanding speech; the patient may look confused
Sudden trouble seeing in one or both eyes
Sudden trouble walking or loss of balance or dizziness
Sudden severe headache with no known cause
Why stroke is an emergency

The most common kind of stroke, ischemic stroke, can be treated with a “clotbuster” drug that dissolves the clot blocking the blood flow. The “Clotbuster” drug saves more lives and increases the chances of a better recovery. But it can only be given in the first four and a half hours from the stroke onset — the window period. Of these , the chances of recovery are best if the drug can be started in the first one hour of the stroke onset. Like a

heart attack, every minute after the onset of stroke counts. The longer the blood flow to the brain is cut off, the greater the damage.

What should someone do if he/she has stroke symptoms?

If anybody has symptoms suggestive of stroke, he/she should immediately go to the nearest emergency to confirm the diagnosis by getting a CT scan and a clinical examination done.

A neurologist, after seeing the patient and the scan, should be able to decide whether the patient can be given the “clotbuster drug”.

Is stroke preventable?

Yes, stroke can be prevented by lifestyle modification and treatment of stroke risk factors.

People with high blood pressure should get it under control. Many people do not realise that they have high blood pressure because high blood pressure usually produces no symptoms but is a major risk factor for heart disease and stroke.

Those with diabetes should consult a doctor for its treatment. As with high blood pressure, diabetes usually causes no symptoms but it increases the chance of stroke.

Those who smoke should quit.

Those who are overweight should take healthy diet and lose weight

Exercise regularly.

The writer, a Fellow at the University of Alberta, Canada, is consultant neurologist, Max Hospital, Mohali.

Healthcare

Healthcare needs to be accessible to all (The Tribune: 22.9.2011)

While scientific knowledge and health care products and services have advanced exponentially over the last generation, millions of people in India still die from preventable and curable diseases because they lack access to basic medicines and medical services. A four-point approach comprising awareness, acceptability, availability and adaptability needs to be adopted

THE desire for a healthy family, healthy society and a healthy country drives individuals and governments alike. Today, India might be termed as one of the rapidly growing economies amongst the developing countries but when it comes to the healthcare access in India, it still awaits a thorough consideration. A four-point approach comprising

awareness, acceptability, availability and adaptability needs to be adopted to combat the poignant situation in the country.

The healthcare facilities for Indian patients are largely unmet and hygiene, nutrition, wastage disposal, sanitation etc continue to be compromised. The situation is more critical in rural areas where people have limited access to information about preventive and curative measures as a result of which they suffer from multiple illnesses. Hence awareness about the new innovations, research, medicines and diseases becomes critical.

Limited access

- z The healthcare facilities for Indian patients are largely unmet and hygiene, nutrition, wastage disposal, sanitation etc continue to be compromised.

- z The World Health Organisation estimates that only 35 per cent of India's population is able to get essential drugs for common diseases.

- z More than a million Indians die each year due to lack of proper treatment, most of them being women and children.

- z Further, poor health impedes individuals' ability to seek educational opportunities, to attain regular employment and to reach full life spans.

- z The situation is more critical in rural areas where people have limited access to information about preventive and curative measures as a result of which they suffer from multiple illnesses.

- z Hence awareness about the new innovations, research, medicines and diseases becomes critical. If best healthcare service is the ultimate goal then services must be available to the diverse groups in society; fair play must be measured in terms of the utilisation and outcomes of services.

- z All too often, the government's perception has been that healthcare is too costly and that by reducing prices, we have somehow solved the problem. That unfortunately is not the case.

- z Focus on the role of the health system needs to be placed within the broader and bigger context of the economic, social and educational determinants of health. Improved water and sanitation, food security, poverty reduction, and changes to other structural factors, complemented by an equitable health system, will help ensure greater equity in health for more than a billion people.

- z The creation of a health consciousness and health literacy among socially deprived individuals is an essential step to encourage appropriate demand for available health services.

- z Several studies have concluded that it is not the affordability factor that is the foremost barrier to healthcare access but inadequate infrastructure that was denying patient access to quality healthcare.

India is a densely populated country where a large number of people live without access to the basic education and primary health facilities. The situation is more complex in

rural villages as compared to the urban areas. Convenient distance, eligibility beliefs, and people's satisfaction are the prerequisite for better access to healthcare. Even if services are available, and there is a perception amongst people of them being not acceptable, the effort goes in vain. Increasing perspective on access to health care and quality of health care services is important. Acceptability of health care services needs to be best understood by all.

Factors that affect access to knowledge, education, and information also alter the appropriate demand for health services by affecting health beliefs, perceptions of health and illness. These are further affected by sociocultural factors, such as gender, religion, and cultural beliefs. If best healthcare service is the ultimate goal then services must be available to the diverse groups in society; fair play must be measured in terms of the utilisation and outcomes of services.

The growth of private healthcare sector is a boon as it ensures quality healthcare, however it adds to ever-increasing social dichotomy. There is a need for adaptability at all levels. Health care providers as well as people need to adopt a range of approaches customised to the different needs and changing situations of. Regularly consulting can help all focus on meeting the greatest needs.

All too often, the government's perception of healthcare has been that healthcare is too costly and that by reducing prices, we have somehow solved the problem. That unfortunately is not the case. Focus on the role of the health system needs to be placed within the broader and bigger context of the economic, social and educational determinants of health. Improved water and sanitation, food security, poverty reduction, and changes to other structural factors, complemented by an equitable health system, will help ensure greater equity in health for more than a billion people. The creation of a health consciousness and health literacy among socially deprived individuals is an essential step to encourage appropriate demand for available health services.

Need for better access

Providing adequate access to medicines and health care is one of the most challenging issues that India is facing today. While scientific knowledge and health care products and services have advanced exponentially over the last generation, millions of people in India still die from preventable and curable diseases because they lack access to basic medicines and medical services. Disparities in health and healthcare remain pervasive and problematic. The World Health Organisation estimates that only 35 per cent of India's population is able to get essential drugs for common diseases.

Despite 60 years of independence, majority of citizens have very limited access to quality healthcare and have poor health indicators like low levels of immunisation and high infant mortality rates. More than a million Indians die each year due to lack of proper treatment, most of them being women and children. Further, poor health impedes individuals' ability to seek educational opportunities, to attain regular employment and to reach full life spans.

The cost of medicines has for long been a constant topic of policy debate with critics routinely pointing to prices of medicines as the major barrier to access to health. However, in reality this is not true. Medicine is just one of the many important links in the health care chain, along with providers, hospitals and clinics, and health insurance. These all work together to provide health together. Focusing on one aspect such as pharmaceuticals, while ignoring the other aspects, cannot solve the problem of access to healthcare.

The barriers to access are significant and entrenched throughout the health care system. They encompass geographical barriers, socio-economic barriers and gender barriers with respect to resources. By resource, we mean availability to adequate healthcare facilities, availability of trained healthcare professionals and diagnostics. While geographic barriers refers to limited means of transportation and infrastructure, socio economic barriers constitute cost of healthcare, social factors such as the lack of culturally appropriate services, language/ethnic barriers, and prejudices on the part of providers. Gender discrimination makes women the less privileged section with regards to healthcare and more vulnerable to various diseases and associated mortality.

There have been many efforts to reduce the access gap in the last few decades. One measure was price controls of medicines but that hasn't quite proven effective as it is curtailing research into new medicines. Now several studies have concluded that it is not the affordability factor that is the foremost barrier to healthcare access but inadequate infrastructure that was denying patient access to quality healthcare. The jury is still out.

Better lives through research and innovation

The ability of a country to sustain its economic growth, increase the standard of living of its citizens, and improve human health and surrounding environment, directly depends upon the successful development and commercialisation of new products, processes and services.

Considering the present healthcare scenario in India and the large disease burden, it is crucial to constantly innovate and develop new therapies that either improves health or reduces sufferings of patients. Around the world, a lot is being done in the field of drug development in order to ensure universal access to healthcare.

With non-communicable diseases on the rise across the world, especially in developing countries like India, the global pharmaceutical industry has about new 1,350 new medicines in the making to tackle diseases such as cancer, diabetes and cardiovascular diseases and 400 new medicines for infectious diseases such as HIV, TB and malaria — all of which are in advanced clinical trials and may be needed by thousands of patients, sooner or later. For example next generation medicines under development to treat diabetes have the potential to reduce the frequency of insulin injection to once a week, unlike the present scenario where it needs to be taken every day.

Some of the big advances in vaccine research are new ways to discover novel vaccines, manufacturing technologies and delivery systems. In the past, where vaccines were always administered through a needle nowadays people are working on needle-free delivery, including skin patches, oral vaccines, intranasal sprays and even vaccination via food.

The fight against AIDS too has gathered pace in the last few years. With rigorous R & D being carried out in this field, a new class of anti-HIV medicines is being developed to protect cells from HIV infection by preventing the virus from attaching to new cells and breaking through the cell membrane. Unlike the present mode of treatment which suppresses the viral load by modifying the course of the virus life cycle.

Developing new medicines and vaccines is neither cheap, nor easy. On an average, it takes about \$1.3 billion to bring new medicines to the market which includes the cost of all the failures along the way. Only about 1 in 10,000 candidates ultimately makes it to the market. Moreover, a drug has to go through numerous steps to prove its efficacy and safety and a long clinical trial phase of drug development which can easily vary from 10 to 25 years on an average, which is why the majority of local pharmaceutical companies have decided not to take the risk of developing new medicines and instead focus on manufacturing older medicines initially developed by others.

There is no doubt that innovation is not only essential for business productivity but also for the individuals, groups and society as a whole. The booster dose for medical innovation requires a pulsating and participative network comprising patients, medical centres, universities, pharma industry and most importantly the government. All the stakeholders, therefore, need to act in concert for constant growth of the industry so that ultimately patients can be the greatest beneficiaries.

Health

Health bhi, taste bhi (Business Standard: 28.9.2011)

Indian consumers want the best of both worlds. So focusing only on health may backfire.

Health consciousness among Indian consumers is increasing, but quite a few Indian companies seem to have got their priorities mixed up while positioning their “health” products. This is particularly true of products such as beverages, sugar-free candies, roasted and baked chips etc.

Consider this: Pepsi came up with a new variant called Pepsi Max, which was positioned around a stronger taste and zero sugar. Though the positioning revolved around the smartness and fun aspect, it also talked about its health benefit as it contains zero sugar.

Was it the correct positioning considering that the other brands in the same portfolio also talk about similar aspects in terms of 'fun', 'coolness' and 'Gen-Y' appeal? In my view, when you are asking consumers to pay such a premium for a product which belongs to a matured category, then your communication needs to concentrate on the health benefits that are specifically offered by you, more than the areas which are already being exploited by other brands.

By doing the latter, your communication is not creating a clear picture. So, in less than one year of its launch, Pepsi has stopped production and is withdrawing the product from the market. All sugar-free cola drinks still account for less than 3 per cent of the total market. The message from the consumers seems to indicate that people are not willing to pay extra money for the health benefits offered by a cola drink.

Similarly, Parle tried to come up with Monaco smart chips, roping in Aamir Khan as brand ambassador. Smart chips were in direct competition with Aliva – a healthy offering by Pepsi Co. The differentiating factor between the positioning of the two products was the complete focus on health by Parle, whereas Aliva was projected not just as a healthy option (baked) of evening snack; but also as a tangy, fun-filled snack that is specially designed for the Indian palette.

The success of Aliva and the failure of Monaco smart chips highlight the fact that being healthy is a quality which will help to increase sales, but it can't be the only point of attraction in a product.

The next in the list are sugar-free sweets and chocolates. Yes, they can still be found in some large groceries or organized retails but you don't get to see them in every shop across the road because of the lack of demand for these products. The two points that work against them are: no association of incremental health benefits for extra money spent; and infrequent consumption of these products.

As these products are consumed on special occasions, people don't attach any risk because of the low frequency of consumption. It's a fact that the modern consumer is more aware about the health problems; but it's also true that an Indian consumer is not willing to sacrifice on taste for health benefits.

To find a way around this problem, he might reduce the consumption of cheese-loaded pizzas but he won't go for the healthier snack options available to him because of the taste at the respective price. Indians follow the policy of 'chalta ha (it's ok for once-in-a-while consumption)' when it comes to food which is not consumed regularly.

This does not mean that the future for health products is not bright in India. We have seen sugar free products increasing their reach and different food chains offering low-fat food. The success of Subway along with its expansion plans in the near future is an indicator of the change that we will see in the coming years. Subway is catering to a niche segment of people who have the purchasing power of buying at a premium for the sake of better

health. The special deals on subs, the wide range and comparable taste with the 'Good for health' positioning is creating a new section in the fast food segment.

One thing is pretty clear. The focus of all companies should be on products that are healthy at a reasonable cost, but at the same time offer a taste that is appreciated by Indian consumers.

Health Care

New Bill may bring Relief to Firefighters Suffering Cancer (Med India: 5-7-2011)

To ease the modalities of compensation claim of firefighters ailing cancer, a bill has been introduced in the federal parliament which has the support of all major parties.

In support of the bill, Greens MP Adam Bandt said, "Firefighters start out being 20 per cent healthier than the average member of the public but after five years the average firefighter will have twice the risk of contracting leukemia. After several years in the job male firefighters can find themselves up to 10 times more likely of contracting testicular cancer."

This bill seeks to take up the cause of securing the future of this very important group in society whose job of firefighting can elevate risk of cancer.

Health Policy

Health panel

Health panel mooted for vector-borne diseases (The Tribune: 9.8.2011)

The municipal councillors today explored the possibility of constituting a sanitation and health committee in their wards to check the spread of vector-borne diseases like dengue, chikungunya and malaria.

The committee would comprise principals of all the municipal schools, Resident Welfare Associations (RWAs), market associations, junior engineer, assistant sanitary inspector and malaria inspector of the area.

The councillors will convene the meeting at regular intervals to monitor the situation. The initiative was discussed at a workshop organized by the Municipal Corporation of Delhi (MCD) on prevention and control of vector-borne diseases.

Delhi Mayor Prof. Rajni Abbi stressed the point that 'prevention is better than cure' as no vaccination of the dreaded disease is available. She also advised that bulletin boards should be placed in every office which is open to the public.

"A little alertness can check the spread of the virus. The Municipal Corporation of Delhi on its part is making all-out efforts to check these diseases," she said.

Municipal health officer Dr N.K. Yadav said that the Central government has identified 96 places to check the density of mosquitoes so that dengue virus can be detected early before its spread.

Dr Yadav said that for rigorous monitoring, 34 sentinel surveillance hospitals have been provided with IDs and passwords for an online reporting of the cases.

Chairman of the Medical Relief and Public Health Committee of the MCD, Dr V.K. Monga cited the example of polio which was eradicated with the public participation.

Health Plans

Health Plans Now Come with 'Returns' Assurance (The Economic Times: 24.8.2011)

Insurers now cater to the 'returns' obsessed with special policies, but at a price

In an advertisement being aired on TV, an apparently healthy man desperately tries to injure himself. The reason? He wishes to make a claim before the end of the policy year.

The ad seeks to highlight a commonly known fact: Indians' fixation for 'returns'. The reluctance to pay premiums without securing anything in return is the sole reason why insurance-cum-investment plans are popular in the market despite the availability of cheaper alternatives like term cover.

Like term insurance, health covers, too, don't find many takers, since many mistakenly believe that buying a health cover while maintaining perfect health makes little sense. What's more, the health cover premium seldom helps an individual to exhaust the . 15,000 deductions that can be claimed for health insurance under section 80D of the Income-Tax Act. This, again, works against such policies. This is the reason why some health insurers have been designing products to make such insurance-seekers happy.

HEALTH 'PLUS'

These include unit-linked health covers as well as OPD (outpatient department) products that extend cover to treatments not requiring 24-hour hospitalisation or not included under 'daycare' procedures. Companies like ICICI Lombard, Apollo Munich and Max Bupa offer OPD covers.

Unit-linked health plans look to address another source of consternation among policyholders – 'spending' on policies that don't yield 'returns'. The OPD policies cover consultation, dental and maternity expenses, subject to limits, which constitute key exclusions in the standard indemnity-based medicaid policies for individuals. Such plans also appeal to individuals who want to maximise tax breaks on health insurance premium. Under the standard policies, a 30-year-old opting for a sum assured of . 3 lakh would have to pay an annual premium of around . 3,000, way below the . 15,000 cap eligible for tax break. "With OPD expenses going northwards steeply and majority of health insurance policies not covering OPD expenses, such covers have become immensely useful for an individual. Comprehensiveness is the proposition of such policies. Clubbed with the benefit of saving tax, such policies have become popular amongst customers," says Sanjay Datta, head, customer service – health and motor, ICICI Lombard. Then, there are other schemes like Bajaj Allianz's Health Card, provided to policyholders. "Even if the policyholders do not make claim on health policy in a particular year, they can avail discounts on OPD consultations, pathological tests, eye-care centres and dental clinics," says TA Ramalingam, head, underwriting, Bajaj Allianz.

HOW DO OPD POLICIES WORK?

The basic mechanism is similar to the regular indemnity-based health plans. Hospitalisation-related expenses are paid for, as are pre- and post-hospitalisation expenses, and those on daycare treatments for critical illnesses. Likewise, pre-existing illnesses will be covered after a waiting period of 2-4 years, depending on the policy. The key difference, as mentioned earlier, lies in the coverage of ailments/treatments excluded from the standard health policies, namely dental treatment, pregnancy-related expenses, diagnostic tests, pharmacy bills, etc.

Upon the production of necessary bills pertaining to such treatments or consultations, the insurance company will reimburse the amount spent by you, subject to the sub-limits.

INSURANCE-CUM-INVESTMENT

Unit-linked health plans, on the other hand, aim to create a savings fund for you, apart from covering your yearly health claims, if any. At maturity, your fund value will be handed over to you. In the event of the insured's demise prior to maturity, the fund value is passed on to his/her nominee.

ZEROING IN ON THE RIGHT POLICY

If you are sure about OPD policy's utility value, the next step would be to compare the various offerings in the market. Exclusions — expenses that are not covered — and sub-limits (extent of coverage within the overall sum insured) should be the key parameters to look at, followed by the premium to be paid, while selecting a policy. Some policies, for instance, may cover maternity expenses only under the family floater plan and not individual ones. The same is the case with sub-limits, too. The maximum benefits on maternity policies may be just . 1,00,000 even if you have opted for a cover of . 50 lakh. Besides, all policies will cap the number of admissible OPD consultations and health check-ups. Coming to unit-linked health plans, there are only two in the market – Health Protection Plus from LIC and Money Back Health Insurance Plan from IndiaFirst Life. While making a decision, you should take into account the sub-limits on doctor's fee, room rent, nursing charges and so on, along with charges deducted from your premiums.

IS IT WORTHWHILE?

That would mainly depend on your needs and expectations from your policy. “We identified two main target segments. The first category is self-employed professionals who do not get a corporate cover but would like comprehensive coverage. The second is that group which is looking to maximise savings under Section 80 D of the Income-Tax Act,” says Antony Jacob, CEO, Apollo Munich. If exhausting the . 15,000-cap for tax deduction is important to you , notwithstanding the higher cost these covers entail, then perhaps yes. Those wanting cover for say dental and maternity expenses can also go for these covers.

“The additional cost charged being almost equal to the OPD cover, the current OPD products in the market are mere tax-saving instruments, without creating any real value for the customer,” says Mahavir Chopra, head, e-business with insurance broking portal medimanage.com.

“Health insurance should be part of one's long-term financial planning, and not just another tax-saving tool. If one can afford paying a premium of . 15,000, it is more sensible to buy a larger cover for your family than go for such plans.”

Alternatively, you can also look at buying a simple health cover and investing the amount that would have otherwise funded a relatively costlier OPD product elsewhere, so as to dip into it when required. Also, maternity costs are typically covered by group mediclaim schemes and if you are covered under one, again, you should ask yourself whether you really need it or not.

Likewise, if creating a savings kitty is of importance, you need to carry out a cost-benefit analysis to ascertain whether the high charges built into unit-linked schemes are

commensurate with the promised benefits. “Insurance should not be confused with investments, where you expect a ‘return on investment’. Insurance is a necessary risk management mechanism, say, like the security guard outside your building or office, who does not add to your assets or income, but safeguards your existing assets, money earned and saves them from various exigencies, at relatively minuscule costs,” sums up Chopra. TOMORROW Should Senior Citizens Create a Medical Corpus or Buy Health Plans?

Health insurance

New tech platform to improve transparency in health insurance (Business standard: 22.9.2011)

Health insurance inevitably raises concerns among all stakeholders—the hospital, the third-party administrator, the insurer and the patient—over delivery methods and transparency. A Bangalorebased company, iAssure Info Solutions, is attempting to address these issues by integrating all the stakeholders on a webenabled platform, enabling them to view the process online and see individual cases being processed.

The product provides business process connectivity for all the business users involved in medical insurance administration and management. These include the insurance company (administration, back office & call centre), the insured, corporate customers, hospitals/nursing homes/clinics, drug stores, agents/brokers, surveyors (independent medical professionals) and banks for revenue collection and the settlement of claims. One can view, avail of and check the delivery of services by hospitals, surveyors, clinics, drugstores and manage claims and commissions. There is also a provision for electronic settlement of funds for all the servicing business points.

iAssure Info Director, M G Mohan Kumar, says: “This has the potential to change the dynamics of the health insurance sector, just like how web-based ticketing changed the dynamics of air travel.

If this is leveraged effectively, third-party administrators can be made redundant. A key feature is this addresses major issue for a patient.” He adds the solution supports the complete patient life-cycle management at hospitals, captures all charge points and treatment details, manages workflow for insurance customers, and generates automated billing and claim documents for insurance. “This would go along way in improving how a patients view of health insurance,” says Kumar, adding it would also ensure the availability of medical treatment records through an individuals lifetime.

Seldom does a patient fully understand how his bills were approved, even though he was adequately insured. This leads to skepticism on health cover. According to industry estimates, a mere 11 per cent of the Indian population have any form of health insurance coverage, and only about 2.2 per cent have private health insurance cover. At 2.2 per cent of the total health insurance penetration, rural penetration is much lower. Compare this

with the scenario in the US, where more than 80 per cent of the population is covered by health insurance, while in Europe, the figure is about 75 per cent.

The entry of private market players in India has helped the expansion of this market to a certain extent, but given the vast potential of this sector, a lot is left to be desired. Technology is certainly an enabler, provided it is harnessed effectively. While there are few private health insurers using the web to spread their reach, transparency remains an overarching concern and expanding the distribution network on the ground is an expensive proposition.

While addressing this issue, iAssure Infos solution also offers a mechanism for insurance companies to expand their distribution network, without a significant capital expenditure. The solution provides electronic interfaces to configure insurance plans, modify them and launch and manage users. It also provides support application for managing a call centre. “The insurer can also bring in dynamic pricing of the insurance products, based on the policy benefits, the sum insured, the age and the health history of the customer. We have also built agent-based promotions, through which incentives can be offered on a dynamic basis. This would enable the insurer reach the mass,” says Kumar.

IASSURE INFO SOLUTIONS ATTEMPTS TO INTEGRATE

all stakeholders on a web-enabled platform, enabling them to view the process online and see individual cases being processed.

Hepatitis

Hepatitis B virus

42 million Indians carry Hepatitis B virus: Experts (World Newspapers: 5.8.2011)

India is all set to emerge as the global capital of the dreaded Hepatitis B Virus (HBV), according to the team of doctors from MIOT Hospital in Chennai.

“Forty two million Indians suffer from chronic Hepatitis B infection. The Hepatitis B Virus is responsible for 60% of liver cancer cases in India,” said Dr Arul Prakash, leading gastroenterologist, MIOT Hospital.

He said that condition in India with reference to Hepatitis B vaccine is shocking. “We found that not even one per cent of school children in India have been vaccinated against HBV. This is more shocking since there are effective vaccines available all over the world. Though a vaccine against HBV which was developed in 1970 and we are yet to take HBV seriously,” said Dr Prakash.

According to Dr PVA Mohandas, director, MIOT Hospital, there are 400 million people chronically infected by the HBV. “What is worrying is the fact that 40% of these people will end up in cirrhosis and liver cancer,” said Dr Mohandas.

Team MIOT Hospital has unleashed a blitzkrieg to spread an awareness campaign against the HBV, a disease Dr Mohandas describes as worse than HIV/AIDS.

Hepatitis C Drug

Hepatitis C Drug (Med India: 12.8.2011)

New drug targeting hepatitis C has been launched in UK. The pill, called Victrelis, will help half of the 200,000 Britons who suffer from the virus.

It treats those with the most common form of the illness, genotype 1. The blood-borne infection attacks the liver, causing cirrhosis and in some cases cancer.

But in trials the tablets cleared the virus in more than a third of patients. It is the first licensed drug to target the virus directly.

Victrelis, also called Boceprevir, will now be available on the NHS and in private clinics.

Health watchdogs fast-tracked its approval following outstanding trial results on 1,000 patients.

"It is called the silent epidemic because hundreds of thousands carry the virus, yet the great majority have no idea they are infected," the Sun quoted the Hepatitis C Trust's Charles Gore as saying.

"It can take decades for symptoms to emerge, and when they do, damage to the liver may have already occurred," he explained.

The virus exists in different strains called genotypes. Genotype 1 is the most common in Britain, affecting half of sufferers.

"Over the last ten years there has been little development in treatment," Dr Ashley Brown, consultant hepatologist at St Mary's and Hammersmith Hospitals in London, said.

"Victrelis is the first licensed drug to directly target the virus. It offers improved outcomes and new hope for those in whom previous treatment has been unsuccessful," Brown added.

Hepatitis C Infection

Weak Links in Hepatitis C Infection Identified (Med India: 15.9.2011)

Australian researchers believe they have identified two weak links in hepatitis C infection. The discovery could give a boost to vaccine research, they hope.

A research team of the University Of New South Wales (UNSW) used a new technique called next generation deep sequencing and sophisticated computer analytics to identify the 'founder' virus responsible for the initial infection and then track changes within the virus as it was targeted by the immune system. The team was led by Professor Andrew Lloyd and Associate Professor Peter White.

"We discovered that hepatitis C has not one but two 'Achilles' heels' that provide opportunities for vaccine development," said Dr Fabio Luciani, from UNSW's Inflammation and Infection Research Centre and the research team's biostatistician.

"If we can help the immune system to attack the virus at these weak points early on, then we could eliminate the infection in the body completely," he said.

A paper describing the breakthrough appears in the leading scientific journal in the field of virology, PLoS Pathogens.

Hepatitis C virus infection is a global pandemic with more than 120 million people infected worldwide, including some 200,000 Australians. The virus causes progressive liver disease leading to cirrhosis, liver failure and cancer. Current antiviral treatments are arduous, costly, and only partially effective.

Team member and virologist Dr Rowena Bull said the discovery of the weakest links meant vaccine researchers could now focus their attentions on the most likely avenues for success.

Home Remedies

Ginger

Ginger: The universal medicine (The Tribune: 3.8.2011)

Used globally not only as a culinary item but also as a medicine, ginger is one of the foremost herbs to be acquainted with. Reports of using ginger derivatives by Western scientists to counter certain unsavoury gastrointestinal effects of chemotherapy in cancer patients have evoked a renewed interest about its medicinal benefits. Acharya Charak, the ancient theorist of Ayurveda, was prophetic in calling ginger as ‘vishwa bhesjham’ — universal medicine.

The medicinal use of ginger denotes the utilisation of the rhizome of its plant, scientifically known as *Zingiber officinale*, adrak in its fresh form and shunthi, sonth or nagar when dried. It has been described as pungent and bitter in taste and light, unctuous and hot in effect. According to Ayurvedic beliefs, ginger pacifies vata and kapha but aggravates pitta in the body. Its chemical analysis shows the presence of a yellowish coloured volatile oil, and a non-volatile substance called gingerol as its active principle besides resins, starch and other contents.

Ancient Ayurvedic texts have described raw ginger as an acrid, carminative, digestive and thermogenic agent whereas its dried form has been additionally cited to be possessing stomachic, expectorant, anthelmintic, rubefacient (counter-irritant if applied on the outer skin), anti-rheumatic, cardiac stimulant, aphrodisiac and anti-oxidant properties. Ginger has also been described as one of the best ama-pachak, meaning a substance helping to nullify toxins produced in the body due to improper digestion.

Due to its anti-vata effect the use of ginger has been indicated in rheumatoid arthritis, chronic backache, inflammations, minor respiratory infections and cough and cold. As a digestive aid no other herb seems to be a match to ginger, as it helps the digestion from the beginning till the end. Wide-ranging, acute and chronic problems of the digestive tract such as anorexia, nausea, vomiting, flatulence, diarrhoea, dysentery and colitis are known to be relieved by the judicious use of ginger.

Apart from the ancient textual knowledge and the modern clinical studies on ginger, this herb has also been traditionally relied upon as a household remedy for a number of ailments. Ginger not only helps setting right an upset stomach and controls flatulence, it is also considered to be the best medicine to handle mucous diarrhoea. Taking before meals a few thin fresh slices of it by sprinkling a little rock salt acts as a very good carminative and digestive aid.

Ginger is known to incite delayed menstruation, relieve menstrual cramps and lessen the intensity of migraine. The use of the famous panchkol churna and vaishvanar churna , which contain ginger along with other ingredients, is the first step, according to ayurveda, in the treatment of rheumatoid arthritis in its flare-up phase. Due to its diaphoretic properties, it brings heat into the body, increases perspiration and stimulates the circulatory system. The use of ginger tea is a common household remedy in conditions like sore throat, chest congestion and cough and cold. There are various classic ayurvedic preparations in which ginger is used as chief ingredient. To name a few, trikatu churna vyoshadi ghrut and churna and saubhagya shunthi pak are the foremost medicines used for a wide variety of health problems. The dose of fresh juice of ginger varies from two to five ml and of its dried powder from one to two gm in a day. However, patients suffering from gallstones, severe acidity and ulcers are advised to consult the physician before using ginger as a single drug.

The writer is a Ludhiana-based senior ayurvedic physician and Guru at the Rashtriya Ayurveda Vidyapeeth. E mail – ayu@live.in.

Turmeric derivative

Turmeric derivative ‘can treat tendonitis (The Asian Age: 12.8.2011)

Two separate studies published this week report the medicinal efficiency of Indian spices. Especially turmeric has been found to have wide ranging therapeutic applications from easing tendonitis to reducing triglyceride response.

Curcumin — the key component in haldi (turmeric) that gives it the potent yellow colour might be the active ingredient in anti-inflammatory drugs of the future. On testing its effects on tendon (tissue that connect bone to muscle) cell culture, scientists at the University of Nottingham, observed that it prevents the activation of the genetic switch of inflammatory response. This inhibition avoids the unnecessary inflammation of the tendons called tendonitis, which is characterised by pain and sensitivity in the joints. Such an influence of turmeric compounds in the body’s signalling pathways makes it suitable for formulating new treatments for arthritis, other rheumatic problems and even cancer.

Another study, this one at Penn State, reports the nutritive enrichment that spices can provide in already fatty meals.

They documented the changes in blood after a high-fat meal in 2 groups of people-one ate a spicy meal and the other ate the spice free version. Researchers found that in consuming spice infused meals led to reduced the triglyceride response by about 30 per cent, increase in antioxidant activity by 13 per cent and lowered insulin response by about 20 per cent.

“In the spiced meal, we used rosemary, oregano, cinnamon, turmeric, black pepper, cloves, garlic powder and paprika,” says Ann Skulas-Ray, one of the researchers. “We selected these spices because they had potent antioxidant activity previously under controlled conditions in the lab.”

Both these studies have added weight to the pile of evidence supporting the value in traditional ways of medication.

Malnutrition

Malnutrition

Malnutrition: It cuts across classes (World Newspapers: 5.8.2011)

If death is the great leveller, in Mumbai — the country's financial capital — malnutrition among children is the leveller in life.

A three-year survey found rich or poor, schoolchildren between nine and 18 are malnourished. Postgraduate students of Sir Vithaldas Thackersey (SVT) College of Home Science at the SNDT campus in Santa Cruz researched extensively into the eating habits of at least 10,000 students across the city before concluding that the disease spares none.

"We monitored the eating habits of students in five public and five private schools," one of the researchers said. "We want adolescents to know the right food eating habits so that they are physically fit.

This will also help prevent diabetes or heart diseases later in life." The study also focussed on parents and teachers.

The researchers kept checking the eating habits of the students in schools, homes and other places (restaurants, or when they were hanging out with friends etc).

"Their heights and weights too were taken into account," the researcher said. "We spoke with students, parents and teachers several times to get the full idea. We even checked their tiffin boxes and food available in canteens."

Dr Jagmeet Madan, principal and professor of the food and nutrition department at SVT College, headed the group that carried out the study.

She said the findings highlighted a "dual burden of malnutrition (under nutrition and over nutrition) cutting across class".

"A high percentage of gross under-nutrition was observed in both sets of schools," Madan said. "We found children at both ends of the financial spectrum, rich or poor, chose poor quality foods. All of them ate plenty of junk food and there was barely any physical activity. This is mainly because they are ignorant of healthy eating habits."

At present, the study has entered Phase II where students are being sensitised about the quality of food they eat.

The Diabetes Foundation of India along with the World Diabetes Foundation in Denmark helped with the study, named MARG —

The Path. Dr Anoop Misra, director and head of the department of diabetes and metabolic disorders in Fortis Hospital, New Delhi, guided the 25 students of SVT College in their study.

Maternal and Child Health

Miracle Baby Survives

Miracle baby survives blues, makes history at city hospital (The Times of India: 1.8.2011)

She was a bundle of joy for her parents, who waited more than 11 years to hear the cry of their first born. She was a blessing of medical science, an IVF baby. But within weeks, doctors broke the bad news that the baby had a lifethreatening heart disease — blue baby syndrome. The family was devastated, but did not lose hope. They defeated odds to bring the baby from Jalandhar to Delhi, where doctors performed a complicated surgery. Today, she may be the smallest baby in the country to have survived a balloon angioplasty.

Attar Singh's wife, Jaskiran, had suffered five miscarriages and struggled for over a decade to have a child. Finally, the couple decided to go for invitro fertilization (IVF). She gave birth to premature triplets — two girls and a boy —who were all underweight. But one of them weighed the lowest at 1,100 gm. Doctors at Jalandhar diagnosed her predicament as 'blue baby syndrome' — a rare congenital heart defect also known as Tetralogy of Fallot. They referred her to Apollo Hospital in Delhi. The baby was brought to the city on life-support. Once in the hospital, paediatric cardiologist Dr Vikas Kohli operated upon her.

“Operating upon such a small baby was fraught with risk. For a week, we gave her a constant supply of nutrients and medicine to make her more stable. Then she underwent non-invasive surgery to open up the pulmonary heart valve to increase oxygen flow. We used special catheters, thin as hair, to operate upon her. Any error would have caused brain haemorrhage,” said Dr Kohli.

He said the child is now out of danger and has gained close to 800 gm. However, she will have to undergo surgical repair of the valve when she is a year old. “With the doctors' help, we will ensure the baby gets well,” said Attar Singh.

Health experts say about 10% births are premature, with a dismal survival rate. In recent years, cases of premature births have risen. This has been ascribed to many factors — a rise in the number of pregnancies in women over the age of 35, growing use of assisted reproduction techniques leading to an increase in birth of twins and multiple births. Also, there's a rise in the number of late pre-term births (defined as between 34 and 36 weeks gestation).

“We recently operated upon twins weighing only 700 gm. The babies were so small you could lift them on your palm. They were very tender, too. We kept them on ventilator and

intravenous nutrition for about 90 days before they could be discharged. They are healthy and doing well now,” said Dr Manish Malik, neonatologist, Max Hospital, Saket.

Babies who survive a preterm birth, face the risk of serious lifelong health problems, including cerebral palsy, blindness, hearing loss, learning disabilities, and other chronic conditions. Even infants born later than preterm have a higher risk of re-hospitalization, breathing problems, feeding difficulties, temperature instability (hypothermia), jaundice and delayed brain development.

“Some preterm births may be preventable by addressing known modifiable risk factors, including nutrition and body weight, existing medical conditions such as high blood pressure and diabetes, alcohol and tobacco use, and passive smoking,” said Dr Aasha Sharma, a gynaecologist at Rockland Hospital.

BLUE BABY SYNDROME

Premature baby born through IVF. The baby was underweight at only 1,100g. An average newborn weighs about 2,500g. The girl was 51 days old when she was diagnosed with Tetralogy of Fallot. This is also called Blue Baby Syndrome, as babies suffering from this condition have a bluish hue

WHAT IS TETRALOGY OF FALLOT (TOF)

A rare condition caused by the combination of 4 heart defects present at birth. These defects cause blood low on oxygen to flow out of the heart into the body

HOW THE BLUE BABY WAS TURNED PINK

In a three-hour surgery, doctors conducted balloon angioplasty to restore oxygen supply to lungs. Ever since, the child has gained weight and may grow up healthy

Arteries were narrow, disrupting the flow of pure blood to lungs

A wire was inserted in the valve between heart and lungs

A balloon was blown to widen the artery & improve blood supply

WHY PREMATURE BIRTHS ARE RISING

Rise in number
of pregnancies
among women aged over 35 years

Growing use of assisted reproduction techniques, leading to increase in number of twins or triplets

Rise in the number of late preterm births (between 34-36 weeks gestation)

Changes in smoking rates, or changes in the general health of the population

Breastfeed

Breastfeed and save your baby (World Newspapers: 2.8.2011)

India has the highest number of absolute deaths of children, below five years of age. One child in India dies every three seconds.

“Losing a child is a parent’s worst nightmare, especially when it can be avoided. Why let this happen when you can protect the health of your child simply by breastfeeding him or her?” asked Dr RK Agarwal, a paediatrician.

The World Health Organisation declared the first week of August as World Breastfeeding Week in a bid to ensure that children are not denied of the right to live simply because of lack of awareness on the part of the care takers.

Breastfeeding is known to reduce deaths among children aged below 5 by 13%.

“Nevertheless, of more than 5,000 mammalian species, human beings are the only ones who need to be told to breastfeed their children,” said Dr Agarwal, on the sidelines of a seminar on Basic Paediatric Practices.

Breastfeeding is the answer to almost every common disease that a child can face.

From building immunity to an overall development of the child’s physical as well as cognitive growth, the breast milk of the mother is tailor-made for the child. Apart from proteins and sugar, breast milk also contains immunoglobins that protect the child against a number of diseases.

Moreover, all the nutrients in breast milk are completely utilised by the infant’s body and is according to the requirements.”

It is absolutely essential to breastfeed your baby during the first six months after birth.

Dr Agarwal said that this should actually be extended to the first 2 years of a child’s development. “During the first two years of a child’s life, the physical growth of the baby

is doubled and the brain develops at least 93%. If there is a deficiency in the nutrients, the growth of the baby — both physical and cognitive — is affected,” he said.

He said that since the weight of a baby’s body was distributed among the various organs, if the baby did not reach an optimum weight of 12 kg at two years of age, its functional capacity would also get affected.

“A mother too enjoys a number of benefits simply by breastfeeding the baby. For every mother who has had to shed pregnancy weight, breastfeeding is one of the easiest solutions,” he said.

“Breastfeeding helps you lose weight that you had gained during pregnancy. Moreover, studies have shown that breastfeeding is known to have reduced the risk of breast cancer and cervical cancer,” said Dr Agarwal adding, “The emotional connection that is established between the mother and child and the sense of security the child finds in a mother’s arms cannot be overlooked and neither can it be measured.”

Childhood

Adverse Childhood Could Rise Adult Heart Disease Risk (Science Daily: 3.8.2011)

The risk of coronary heart disease in middle age is moderately higher for men and women who grew up in adverse family settings, according to a new analysis of medical records and surveys of more than 3,500 people.

For all the ills that result from bad parenting, new evidence from an epidemiological study of thousands of people suggests coronary heart disease (CHD) might be added to that list.

"We often think about how the early family psychosocial environment influences the mental health of kids," said Eric Loucks, assistant professor of epidemiology in the Warren Alpert Medical School of Brown University. "The fact that it may be important for chronic diseases, like heart disease, hasn't been thought of as much."

Loucks' newly published analysis of the health records and childhood descriptions of 3,554 adults has found an association between certain kinds of childhood mistreatment and a moderately elevated risk of CHD in middle age. A paper describing the research is published July 22 in the journal *Psychosomatic Medicine*. The paper further confirms a link found in a few other differently designed studies.

"In cardiovascular disease research right now there's starting to be more and more interest in early life determinants of heart disease," Loucks said. "That's what this paper found."

That early life family psychosocial environment had a small but significant association with 10-year risk for coronary heart disease."

Riskier family, riskier heart

Specifically, for every extra point a study participant registered on a 21-point "risky family score," their risk of CHD between the ages of 40 and 50 rose 1 percent. For instance, if one man had a childhood that was 5 points worse on the scale than the average man in the study, his CHD risk over the next 10 years would be 5.36 percent compared to the average man's 5.1 percent risk.

The risky family score comes from a seven-question survey that quizzed participants on how often various conditions, such as physical or verbal abuse or gestures of love and support, occurred in childhood. That information was considered alongside the Framingham risk algorithm, which uses physiological indicators to determine CHD risk 10 years out.

Men and women who had higher risky family scores had higher CHD risk than people who had lower risky family scores but were similar otherwise. For example, women in the lowest risky family quartile had a 10-year CHD risk of 1.6 percent, while women in the highest quartile had a CHD risk of 1.8 percent. For men, the difference between the lowest quartile and the highest was 4.8 percent vs. 5.5 percent.

Lifestyle, childhood factors

Loucks' team probed the data more deeply to determine which aspects of health and lifestyle might connect, at least statistically, a bad childhood and shakier heart health. For women he found evidence that low education levels, low income, depressive symptoms and anger may be mechanisms linking the risky family score with CHD risk. For men the only factor that seemed statistically significant as a potential mechanism was education. The CHD risk factors (that were components of the Framingham risk algorithm) most strongly correlated with risky family score were smoking for men, and smoking and HDL cholesterol for women.

The team also drilled into the numbers to see which aspects of upbringing had significant effects and again found gender differences. Among women, CHD score was most affected by physical abuse, verbal mistreatment, poor parental monitoring and poor household organization and management. For men, abuse didn't matter as much as neglect, in that only the latter two conditions (poor monitoring and organization) mattered to CHD risk.

"It's not just the really extreme circumstances, such as abuse and neglect, but also maybe day-to-day things such as parental monitoring that seemed to be important," he said. "One of the big drivers was smoking. Think of a kid whose parents aren't monitoring him so much. That could quite easily allow him to try smoking. Smoking is highly addictive,

and so can easily continue into adulthood. Smoking is one of the major risk factors for heart disease."

More research is needed to determine how these particular family dynamics could ultimately contribute to CHD, Loucks said, but the emerging idea that growing up in a troubled household could lead to physical illness should be of interest to policymakers.

"We have all these programs to help at-risk families and we do that because it could influence kids' mental health or development," he said. "This kind of body of work is suggesting it may also influence their risk for chronic disease. This is one more reason why it's important to think about helping at-risk kids."

In addition to Loucks, other authors on the paper are Nisha Almeida of McGill University, Shelley Taylor of the University of California-Los Angeles, and Karen Matthews of the University of Pittsburgh.

Fetal Development

Fetal Development Monitor Could Be Based on Genetic Analysis of Amniotic Fluid (Med India: 9.8.2011)

Researchers have demonstrated the feasibility of focused fetal gene expression analysis of target genes found in amniotic fluid using Standardized NanoArray PCR (SNAP) technology. This analysis could be used to monitor fetal development, enabling clinicians to determine very early in pregnancy whether fetal organ systems are developing normally. The study appears today in the September issue of The Journal of Molecular Diagnostics.

Using a previously developed SNAP gene panel as proof of concept, investigators from the Floating Hospital for Children at Tufts Medical Center, Mount Sinai School of Medicine, and Prevail Dx determined that 7 of the 21 genes assayed were expressed differently depending on fetal sex or gestational age. Results were obtained from amniotic fluid supernatant samples from fetuses between 15 to 20 weeks of gestation, when standard amniotic fluid testing is performed.

"In the future, fetal gene expression panels could prove useful in prenatal care to evaluate function in cases of at-risk pregnancies and fetal pathologies," commented lead investigator Lauren J. Massingham, MD, Division of Genetics, Department of Pediatrics, Floating Hospital for Children at Tufts Medical Center, Boston, Massachusetts. According to the investigators, further studies using this gene panel approach could elucidate the complex immune pathways involved in the maternal-fetal relationship.

Dr. Massingham added, "Some genes in the current panel may prove to be useful components of a fetal gene expression panel. Future studies are warranted to identify additional genes to be incorporated, including inflammatory, developmental, and gastrointestinal genes. This technique could be optimized to examine specific genes instrumental in fetal organ system function, which could be a useful addition to prenatal care."

Lesser children

More children being born in hospitals now (The Times of India: 9.8.2011)

Lesser children are now born in houses or outside hospitals in India with institutional deliveries picking up speed in the past two years. Almost 20 lakh more children were born in hospitals in 2010-11 than they were in 2008-09.

According to the health ministry's latest records, India saw 148.23 lakh institutional deliveries in 2008 which increased to 162.22 lakh the following year. In 2010, India recorded 168.05 lakh institutional deliveries.

In absolute numbers, during 2010-11, Uttar Pradesh recorded the largest number of institutional deliveries - 25.93 lakh births followed by Maharashtra with 16.23 lakh, Andhra Pradesh 14.06 lakh, Bihar 13.83 lakh and Madhya Pradesh with 13.31 lakh births.

Interestingly, even though the number of institutional deliveries increased substantially in the last two years, some states recorded a dip in such deliveries during the same period.

Tamil Nadu's institutional delivery numbers fell from 11.05 lakh in 2008 to 10.80 in 2010, Delhi from 2.65 lakh to 2.16 lakh, Andhra Pradesh from 14.20 lakh to 14.06 lakh and Rajasthan from 11.36 to 11 lakh births in 2010.

According to MoS health Sudip Bandhyopadhyay, one of the main reasons for such an increase is the engagement of over 8 lakh Accredited Social Health Activists to generate demand and facilitate accessing of health care services by the community.

Making primary health centres, community health centres and district hospitals provide 24x7 comprehensive obstetric services has also helped increase number of institutional deliveries.

Lack of women delivering under trained doctors was one of the reasons for the country's high infant and maternal mortality rate. Latest figures show that around 42 fewer women per 100,000 live births are dying every year now in comparison to 2004 during childbirth.

India's Maternal Mortality Ratio (MMR) has declined to 212 per 1,00,000 live births in 2007-09 from 254 in 2004-06, thus recording a fall of 42 points or 17%.

Improving maternal health by reducing the MMR by three quarters between 1990 and 2015 is one of the Millennium Development Goals of the United Nations. The target for India is to achieve the Maternal Mortality Ratio of 109 by 2015.

Recent data on Infant Mortality Rates for 2009 also indicated decline -- being pegged at 50 per one thousand live births -- compared to the figure of 53 for the period 2008.

The neo-natal mortality rate (deaths in less than 29 days) in 2009 is registered at 34 per one thousand live births, accounting for 67% of total infant mortality deaths.

Besides, the early neo-natal mortality (less than 7 days) has been estimated at 27 per 1000 live births indicating that 54% of total infant deaths are occurring before 7 days of birth.

The health ministry recently started the Janani Shishu Suraksha Karyakaram (JSSK). The initiative entitles all pregnant women, delivering in public health institutions, to absolutely free delivery including caesarean section. A pregnant woman would be entitled to free transport from home to the government health facility, between the facilities in case she is referred on account of complications and also drop back home after delivery. The entitlements include free drugs and consumables, free diagnostics, free blood wherever required and free diet during the woman's stay in the facility.

Entitlements have also been put in place for all sick newborns accessing public health institutions for health care till 30 days after birth. This new initiative is estimated to benefit more than one crore pregnant women and newborns every year in both urban and rural areas.

Child Birth

Patna woman gives birth to twins out of separate wombs (World Newspapers: 12.8.2011)

Rinku Devi knew that she was carrying twins, but it wasn't until she went into labour that doctors noticed the twins were in separate wombs. This is extremely rare – Rinku has two uteruses, and conceived her children in successive menstrual cycles.

Rinku Devi and her newborn twins, who are all said to be doing fine despite the condition, reported www.imperfectparent.com.

This is a condition which is reported once per year across the world – it is a one in 50 million event, and the pregnancy is often fatal – both mother and babies are at risk, and there is a very high risk of miscarriage and premature labour.

Despite having a previous child, doctors had not picked up on her condition, and decided a Caesarean section was the safest option. Her babies were delivered by gynaecologist Dr Dipti Singh in Patna. Her children were very light, weight 4.4lbs and 3.3lbs, or 2kg and 1.5kg, but are both making good progress.

Rinku said; "I got to know about having two uteruses when I was already in labour pain. I didn't know how to react. I was in pain and quite scared. I had not heard anything like this before."

Dr Singh told local media; "I knew from her reports that she was carrying twins, but when I understood the situation I was a little taken back. I had never handled such a case before. Rinku was not aware that she had two uteruses, even though she had delivered her first child four years earlier."

Maternal IV fluids

How maternal IV fluids affect newborns' weight loss (New Kerala: 16.8.2011)

A new study has found that some of a newborn's initial weight loss may be due to the infant regulating the IV fluids it's mother received during labour and not due to a lack of breast milk.

A group of Canadian researchers looked at relationships among the IV fluids a mother received during labour (or prior to her caesarean section), neonatal output (measured by diaper weight), and newborn weight loss.

They found that during the first 24 hours following birth there was a positive association both between the IV fluids given to mothers before birth and neonatal output, and between the neonatal output and newborn weight loss.

At 60 hours post birth, the time of the average lowest weight, there was a positive relationship between maternal IV fluids and newborn weight loss.

"Nurses, midwives, lactation consultants, and doctors have long wondered why some babies lose substantially more weight than others even though all babies get small amounts to eat in the beginning," said principal investigator Prof Joy Noel-Weiss from the School of Nursing at the University of Ottawa's Faculty of Health Sciences.

"It appears neonates exposed to increased fluids before birth might be born overhydrated, requiring the baby to regulate his or her fluid levels during the first 24 hours after birth.

"We should reconsider the practice of using birth weight as the baseline when calculating newborn weight loss in the first few days following birth.

"For mothers and their breastfed babies, accurate assessment of weight loss is important. Although more research is needed, based on our findings, we would recommend using weight measured at 24 hours post birth as a baseline," she added.

The study has been published in BMC's open access journal International Breastfeeding Journal.

Maternal Fat

Maternal Fat Has Negative Impact on Embryo Development (Science Daily: 18.8.2011)

Exposing eggs to high levels of saturated fatty acids -- as commonly found in the ovaries of obese women and those with Type II diabetes -- compromises the development of the embryo, according to new research published in PLoS ONE.

The study -- by researchers from Antwerp, Hull, and Madrid -- found that embryos resulting from cattle eggs exposed to high levels of fatty acids had fewer cells, altered gene expression and altered metabolic activity, all indicators of reduced viability.

Although the work was carried out using eggs from cows, the findings could help to explain why women suffering from metabolic disorders like obesity and diabetes struggle to conceive. Patients in this group tend to metabolise more of their stored fat, resulting in higher levels of fatty acids being present within the ovary, which research has already shown to be toxic for the growing eggs before ovulation.

Lead researcher, Professor Jo Leroy from the University of Antwerp, says: "In cows we can induce very similar metabolic disorders leading to reduced fertility in these animals and compromised egg quality in particular. This is one of the reasons that bovine eggs are a very interesting model for human reproductive research."

Co-researcher, Dr Roger Sturmey, from the University of Hull and Hull York Medical School, says: "Our findings add further weight to the public health recommendations which emphasise the importance of women being a healthy weight before starting a pregnancy."

Professor Leroy adds: "We know from our previous research that high levels of fatty acids can affect the development of eggs in the ovary, but this is the first time we've been able to follow through to show a negative impact on the surviving embryo."

University of Antwerp PhD student, Veerle Van Hoeck, funded by FWO-Flanders and the EU Cost Gemini Action FA0702, tested the embryos eight days after fertilisation, when they had developed into what are known as blastocysts, containing around 70 to

100 cells. One of the key indicators of embryo viability is metabolic activity, calculated through analysis of what the embryo consumes from its environment and what it releases back out.

"The most viable embryos, those most likely to result in a successful pregnancy, have a 'quieter', less active metabolism, particularly in relation to amino acids," explains Dr Sturme. "Where eggs were exposed to high levels of fatty acids, the resulting embryos showed increased amino acid metabolism and altered consumption of oxygen, glucose and lactate -- all of which indicates impaired metabolic regulation and reduced viability."

"These embryos also showed increased expression of specific genes which are linked to cellular stress," adds Professor Leroy. "And although the higher fatty acid levels didn't stop eggs developing to the two-cell stage, there was a notable reduction in those able to develop into blastocysts."

The researchers are now applying for further funding to take their findings into a clinical setting and to investigate whether exposing eggs to high levels of fatty acids can also lead to post natal effects.

Umbrella technique

Umbrella technique will cure kids of heart ailments (World Newspapers: 18.8.2011)

Two-month-old Manju is the youngest of 30 others who are suffering from a heart condition that will be treated at Sri Jayadeva Institute of Cardiovascular Sciences and Research during the two-day-long national live workshop on congenital and structural heart diseases.

These congenital heart defects will be corrected by umbrella technique.

Manju's is the most complicated of all cases, according to cardiologists. Nine days after he was born, Bharathi, his mother, noticed that his eyes, nails, tongue and face were turning blue.

"My second child had died of cardiac problems, and with Manju, I didn't want to take chances. So, we brought him to Jayadeva hospital," said Bharathi, a resident of Chikamagalur district.

The procedure involves inserting an umbrella device through the leg veins to close heart holes under the X-ray guidance.

The advantage of this technique is that there is no blood transfusion, no scar on the chest wall and less duration of hospital stay.

Dr CN Manjunath, director, Sri Jayadeva Institute of Cardiovascular Sciences and Research said, “With the rise in the congenital heart disease among the children, the cardiac check up should be made mandatory in the schools specially during the admission time.”

About 30 children from various states, including West Bengal and Jharkhand are scheduled for free of cost procedures at the hospital.

Fatal paralytic disease

Cause of fatal paralytic disease discovered? (The Times of India: 23.8.2011)

Scientists claim to have discovered the common cause of all forms of amyotrophic lateral sclerosis (ALS), a fatal neurodegenerative disease that paralyzes its victims.

The underlying disease process of ALS has long eluded doctors and prevented development of effective therapies. Now, a team at Northwestern University has for the first time discovered that the basis of the disorder is a broken down protein — identified as ubiquitin2 — recycling system in the neurons of the spinal cord and the brain.

Optimal functioning of the neurons relies on efficient recycling of protein building blocks in the cells. In ALS, that recycling system is broken. The cell can't repair or maintain itself and becomes severely damaged.

In fact, ubiquitin2's critical job is to recycle damaged or misfolded proteins in motor and cortical neurons and shuttle them off to be reprocessed. In people with ALS, it isn't doing its job. As a result, the damaged proteins and ubiquitin2 accumulate and cause degeneration of the neurons. PTI

Unhealthy Mothers

Unhealthy Mothers More Likely to Have Unhealthy Children. And It's Not Genetics(Med India: 24.8.2011)

A new research has suggested that disadvantaged, unhealthy mothers are much more likely to have sickly children than disadvantaged moms who are relatively healthy-and this is not only due to genetics.

Relying on nationally representative data from the 2007 and 2008 National Health Interview Surveys, the study found that children whose mothers are both in poor health and disadvantaged (determined by a combination of family income, race/ethnicity, family structure, and mother's level of education) experience a significantly greater number of

health issues-such as having fair or poor overall health and suffering from asthma-than children whose mothers are disadvantaged but relatively healthy.

"Mothers who experience frequent or serious health problems may have a harder time monitoring their children or performing day-to-day caretaking tasks, including taking their children to regular medical checkups," said study co-author Jessica Halliday Hardie.

"Maternal health problems can also place emotional and material burdens on children and heighten their stress and anxiety. Finally, to care for herself, an unhealthy mother may have to use financial resources that could otherwise benefit her children," added Hardie.

Children of disadvantaged, unhealthy mothers also fare worse than children of disadvantaged, healthy mothers on other indicators of well-being.

They have significantly higher odds of having asthma and a learning disability, and are more likely to go to the emergency room.

"Skeptics may jump to the conclusion that genetics alone are responsible for the health disparities among these groups," Hardie said.

Child

Spectacles are your child's friends (The Tribune: 24.8.2011)

Rahul always makes an effort to sit too close to the television set at home; he cannot see the blackboard in the class; and is having a hard time catching a ball in the playground. He shuns outdoor games and remains home-bound to play video games on the computer. He often complains of headache and eye strain. He has apprised his parents about his difficulties but they have turned a deaf ear to his complaints. Why?

They have a lurking fear that if they take the child to an eye doctor he will certainly put spectacles on the child's face! "When we don't want spectacles for our child, why should the doctor prescribe it? Can't he find some medicine or some other latest technology treatment or prescribe some healthy food", lament the parents. "If your child's vision is weak, go for corrective glasses", counsel eye doctors.

How do I know if my child has a vision problem?

Vision screening is a very important way to identify vision problems. During an exam the doctor looks for an eye disease and checks to see if the eyes are working properly. Children with a family history of childhood vision problems are more likely to have eye-related disorders. It is recommended that children have their eyes checked by an eye specialist at the following ages:

Newborn — All infants before discharge from the hospital should have their eyes checked in the newborn nursery for infections, defects, cataracts or glaucoma. This is especially true for premature infants, those who were given oxygen, and infants with multiple medical problems.

Six months of age — Doctors should screen infants during their baby visits to check for proper eye health, vision development and alignment of the eyes.

Three-four years of age — All children should have their eyes and vision checked for any abnormalities that may cause problems with later development.

Five years of age — The doctor should check your child's vision in each eye separately every year. If a problem is found during routine eye exams, an eye doctor trained and experienced in the care of children's eye problems may be consulted.

Warning signs of a vision problem

Babies older than three months should be able to follow or “track” an object, like a toy or ball, with their eyes as it moves across their field of vision. Before four months of age most infants occasionally cross their eyes. However, eyes that cross all the time or one eye that turns out is usually abnormal and is another reason to seek advice.

No matter how old your child is, if you spot any one of the following, let your doctor know:

- 1 Eyes that look crossed, turn out, or don't focus together
- 1 White, greyish-white, or yellow-coloured material in the pupil
- 1 Eyes that flutter quickly from side-to-side or up-and-down
- 1 Bulging eye(s)
- 1 Persistent eye pain, itching, or discomfort
- 1 Redness in either eye that doesn't go away in a few days
- 1 Pus or crust in either eye
- 1 Eyes that are always watery
- 1 Drooping eyelid(s)
- 1 Excessive rubbing or squinting of the eyes
- 1 Eyes that are always sensitive to light

1 Any change in the eyes from how they usually look

If you observe the following symptoms, don't ignore them:

Covering one eye while reading

Frequent headaches (usually when reading or looking at something)

Sitting close to the blackboard when copying notes

Sitting close to the television screen

Having difficulty catching things thrown at them such as balls

Constant scratching of the eyes

Difficulty in reading

Computer screen looking a little fuzzy due to dry eye and visual fatigue

Remember, don't go for witch hunting if your child has been advised spectacles, and accept them gracefully and without reservation. Avoid giving a complex to the child. Your child's future lies in the use of glasses.

The writer is a senior eye specialist and author of medical books based in Chandigarh.
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Babies' first 1,000 days

Babies' first 1,000 days vital for their long-term health (The Tribune: 24.8.2011)

London: The first 1,000 days of a child's life — the nine months in the womb and the first two years out of it — determine their health prospects for life, a new research has suggested. The study has found that this period can permanently affect everything, from a child's chances of developing diabetes or having a heart attack in old age to their future weight and life expectancy, reports the Daily Mail. Professor David Barker and his colleagues at Southampton University developed the theory after decades of research. They believe there are a series of critical stages in a child's development. If conditions are not perfect at each step, problems can occur later.

Prenatal Exposure

Prenatal Exposure to Phthalates Linked to Decreased Mental and Motor Development (Science Daily: 7.9.2011)

— A newly published study by researchers at Columbia University's Mailman School of Public Health heightens concerns over the potential health effects on children of a group of ubiquitous chemicals known as phthalates. Phthalates are a class of chemicals that are known to disrupt the endocrine system, and are widely used in consumer products ranging from plastic toys, to household building materials, to shampoos.

Recent studies of school-age children have provided preliminary links between prenatal exposure to phthalates and developmental problems. The study is the first to examine prenatal phthalate exposure and the prevalence of mental, motor and behavioral problems in children who are in the preschool years. The paper, published online in Environmental Health Perspectives, adds to rising concerns about the risks associated with exposures to phthalates during pregnancy.

The study followed the children of 319 non-smoking inner-city women who gave birth between 1999 and 2006. Researchers, led by Robin M. Whyatt, DrPH, deputy director of the Columbia Center for Children's Environmental Health, measured metabolites of four phthalates in maternal urine as markers of prenatal exposure. The phthalates were: di-2-ethylhexyl phthalate, di-isobutyl phthalate, di-n-butyl phthalate and butylbenzyl phthalate. The study evaluated associations between prenatal exposures to these phthalates and child mental, motor and behavioral development at age 3 years.

The scientists used the Bayley Scales of Infant Development II, a well validated developmental test, to assess the mental and motor development of the children. Behavioral problems were measured by asking mothers to complete the widely used 99-item Child Behavior Checklist (for ages 1½-5 years). Overall, researchers found that higher prenatal exposures to two of the phthalates significantly increased the odds of motor delay, an indication of potential future problems with fine and gross motor coordination. Among girls, one of the phthalates was associated with significant decreases in mental development. Prenatal exposures to three of the phthalates were also significantly associated with behavior problems including emotionally reactive behavior, anxiety/depression, somatic complaints and withdrawn behavior. These effects differed somewhat by child sex but were statistically significant among both boys and girls.

"Our results suggest that prenatal exposure to these phthalates adversely affects child mental, motor and behavioral development during the preschool years," said Dr. Whyatt, who is also professor of clinical Environmental Health Sciences. "The results add to a

growing public health concern about the widespread use of phthalates in consumer products."

The actual mechanisms by which phthalates may affect the developing brain are still being explored. Dr. Whyatt points out that phthalates are endocrine disrupters -- substances that affect hormone systems in the body. Evidence suggests that they impact the function of the thyroid gland. They also lower production of testosterone, which plays a critical role in the developing brain. "More work is needed to understand the biological effects of these commonplace substances," noted Dr. Whyatt.

"The results are concerning since increasing exposures from the lowest 25% to the highest 25% among the women in our study was associated with a doubling or tripling in the odds of motor and/or behavioral problems in the children," explained Pam Factor-Litvak, PhD, the senior epidemiologist on the study. "However, the number of children with clinical disorders was small," stated Dr. Factor-Litvak. The authors point out that the phthalate exposures among the women in the study varied widely reflecting the range of exposures found in the U.S. population.

The study was conducted in collaboration with Dr. Antonia Calafat from the Centers for Disease Control and Prevention, who measured the phthalate metabolites in the maternal prenatal urine. Other members of the Columbia research team included Dr. Xinhua Liu, Dr. Virginia A. Rauh, Allan C. Just, Lori Hoepner, Diurka Diaz, James Quinn, Dr. Jennifer Adibi, and Dr. Frederica P. Perera.

The work was supported by a grant from the National Institute of Environmental Health Sciences.

Foetal tissue

Foetal tissue plays pivotal role in formation of insulin-producing cells (New Kerala: 8.9.2011)

A somewhat mysterious soft tissue found in the foetus during early development in the womb plays a pivotal role in the formation of mature beta cells, the sole source of the body's insulin, according to a new study.

This discovery, made by scientists at University of California, San Francisco (UCSF) and Texas A and M University, may lead to new ways of addressing Type 1 and Type 2 diabetes.

During the late stages of development in mice, this foetal tissue -- called the mesenchyme -- secretes chemicals. Those chemicals enable insulin-producing beta cells to mature and expand.

When this mesenchyme tissue was removed, the researchers found that the mice do not grow their full complement of beta cells.

By identifying the chemicals that this tissue secretes, scientists may be able to create new beta cells in the body or in the test tube -- something currently beyond the reach of medical science.

"If we can identify all these chemical factors, there is a possibility that we could generate fully functional beta cells from stem cell populations. Also, such molecules might allow us to increase beta cell numbers in people with Type 2 diabetes, whose level of insulin production is impaired," said Matthias Hebrok, PhD, who directs the UCSF Diabetes Centre.

The finding was reported in the journal PLoS Biology.

Babies

Babies develop facial expressions in womb: Study (The Times of India: 9.9.2011)

Babies develop facial expressions such as parting lips, wrinkling a nose or lowering a brow much before they are born, a new study has shown.

And as the foetus grows, these facial motions become increasingly complex, found the study by researchers at the University of Durham in the UK.

While it was known that foetuses could form expressions while in the womb, this new study tracked facial movements over time, Live-Science reported.

By capturing images of two foetuses periodically from 24 to about 35 weeks of gestation, the Durham team watched individual, unrelated movements progress to complex combinations, associated with recognizable facial expressions.

"What we have found for the first time is you can look at the progression of the complexity of the movements," lead study author Nadja Reissland said.

In addition to tracking 19 total facial movements, the researchers focused on sets of movements associated with two expressions, one with crying, the other laughing. Over time, the movements associated with these began to appear in more complex combinations. PTI

Childbirth

Tragedy of childbirth (The Tribune: 16.9.2011)

IN the 15 minutes you might take to read this article, three Indian women in the prime of their life would have succumbed to complications arising from pregnancy and childbirth. In all probability they would have left behind newborn babies or toddlers, many of whom would die or be consigned to a life of undernourishment, neglect and a compromised future.

It is very risky becoming a mother in India. According to a Unicef estimate, India sees 78,000 maternal deaths. Other agencies have pegged the figure to be higher. There are districts in the country, Purulia for example, where nearly half the women die during pregnancy and child birth. For each one of these deaths, scores of others suffer acute maternal morbidity that leaves them permanently disabled and confined to a lifetime of pain and misery. The irony is that most of these women could have been easily saved.

Over the decades there has been some progress in bringing down maternal deaths. But the decline has not been fast enough. For a country which has become the preferred medical destination for people from around the world for complicated surgeries, to have women die from childbirth related causes is a real shame. According to the State of the World's Children, 2009 there are 450 maternal deaths per 100,000 live births, the figure having fallen from 540 ten years earlier. The latest Sample Registration System (SRS) survey puts the figure at 212 while the World Health Organisation and some other international agencies peg it at 231 and some others at 250. Whatever be the figure, one thing is clear: India is nowhere near reducing the number to 109, the target set for 2015 under the Millennium Development Goals.

CAUSES BEHIND HIGH MMR

Undernourished mothers

A slew of social, economic and administrative factors contribute to the making of this monumental tragedy, which gets compounded as it impacts another generation. The poor diet of the women, the lack of importance attached to their lives, low level of education, early marriage, the woefully inadequate medical services, the corruption that exists in the system are some prime factors responsible for the high Maternal Mortality Ratio(MMR) in India. Among the major causes of maternal death are excessive bleeding during childbirth, prolonged and obstructed labour, infection, unsafe abortion, disorders related to high blood pressure and anaemia. Forty-seven percent of maternal deaths in rural India are attributed to excessive bleeding, obstructed labour and anaemia resulting from poor diet.

The National Family Health Survey-3 (NFHS-3) shows that 36 per cent of Indian women are chronically undernourished and 55 per cent are anaemic. In a recent study in

Rajasthan, 70 per cent of adolescent girls were found to be suffering from moderate to severe anaemia. The Harvard School of Public Health found a link between a mother's height and the health of her children using Indian data. Children with mothers shorter than 4 feet 9 inches were 70 per cent more likely to die than those whose mothers were at least 5 feet 3 inches tall. Maternal height indicated a mother's own childhood health and has a direct bearing on the next generation. An anaemic mother's children are more likely to be underweight, have anaemia and face the risk of death. Over 2 million children less than five years old die every year.

Early marriage

Half of India's girls are married off before their eighteenth birthday. A teenage pregnant girl faces a greater risk to her life and that of her unborn child, more so if she is anaemic. The NFHS-3 reports that 28 per cent of women had become mothers by 18 years of age. Younger women are also more likely to experience domestic violence. In many Indian homes this continues during pregnancy and compromises the well being of the mother-to-be and the unborn child. So ingrained in us is the fact that women are some lowly creatures who need to be beaten by men that a national survey has noted that 57 per cent young men and 53 per cent young women think it is okay for men to beat their wives! Changing such an attitude is a monumental task.

Chinks in schemes

It has been six years since the launch of the National Rural Health Mission (NRHM) which aims at strengthening the health system and the Janani Suraksha Yojana (JSY), where cash assistance is given to poor women to deliver in an institution. The figure varies from Rs 700 to Rs 1400 depending on the category the state has been put under. Data shows that women are going into the institutions as the number of 'beneficiaries' have been rising every year reaching 90 lakh beneficiaries now. India sees about 27 million births every year, pointing to the fact that a large percentage of women still deliver without medical supervision, especially in rural areas and much work still needs to be done to cover them.

There has been criticism against cash transfer schemes. The astronomical amount could be used for enhancing the health infrastructure which is woefully inadequate. Initial studies reveal that women are staying for a couple of hours only in the institution so as to collect the incentive amount. The stipulation is that the woman stays for at least 48 hours so that she and the newborn can be under medical supervision and any complication can be met. But now, while delivery is taking place under trained hands, the mother and child are not under observation and in case of any complication cannot get the attention needed. Most often, the referral system is poor and the health centres and hospitals do not have the required staff or even lab facilities.

Ailing health system

The availability of nurses and doctors remains a big issue. Posts of gynaecologists, paediatricians and technical laboratory staff are lying vacant even in better run states like Punjab. The nurses who man government hospitals are overworked affecting service. There is a crying need for more health centres and hospitals. Unless the capacity and

infrastructure is enhanced, India will not be in a position to offer institutional delivery to all its women. And that does not look like happening soon.

Last year, there was a huge public outcry against the callousness of the public health system in the Barwani district of Madhya Pradesh which saw 26 maternal deaths from April to November. Civil society teams visited the district on a fact finding mission as did NRHM's Advisory Group on Community Action. They found a complete mismanagement and lack of basic infrastructure: A Primary Health Centre functioning from a very dilapidated building, an ANM who could not check blood pressure, no Haemoglobinometers to conduct the very essential haemoglobin test on pregnant women, the absence of ante-natal check up, only a nurse and a dai to manage the labour room and 60 beds for 16 hours at the district hospital where 300 deliveries take place in a month. There had been no augmentation of staff after the start of the NRHM and JSY, and there were no review, monitoring or redressal mechanisms in place.

WAY FORWARD

Apart from addressing such mismanagement and proper deployment of resources, much more needs to be done. Poonam Muttreja who heads the Population Foundation of India, says all out efforts need to be made to keep girls in school and postpone marriage. This way early marriage which poses a risk to their lives could be avoided. She advocates cash and food incentives for antenatal care so that the pregnant woman can be monitored for anaemia and blood pressure. And lastly she calls for a bigger investment in family planning. When babies are not wanted, they are neglected, she says. People should know about and be able to easily access spacing methods. The states with the lowest Contraceptive Prevalence Rate also have the worst MMR. Uttar Pradesh, Madhya Pradesh, Uttarakhand and Chhattisgarh report very high unmet needs for family planning and also have a high MMR.

The task ahead is indeed monumental. But it must be taken up as top priority for at stake is the health of India's women and future generations.

The writer works in the development sector

Corrections and clarifications

n In the report "World War-II hero dies" (Page 24, September 15) the former Italian dictator Mussolini's name has been mis-spelt as 'Missolini'.

n The strapline of the headline "IIT Council wants one test for engineering colleges" (Page 1, September 15) says "Gives nod to four –fold fee hike at the premier institute". Instead of institute it should have been institutes.

n In the headline "Sony to launch Playstation Vita rollout in Japan on December 17" (Page 21, September 15) the word 'rollout' was superfluous.

n In the report "August inflation at 13-month high of 9.78 per cent" (Page 21, September 15) there is no mention that the figure is for August.

Despite our earnest endeavour to keep The Tribune error-free, some errors do creep in at times. We are always eager to correct them.

This column appears twice a week — every Tuesday and Friday. We request our readers to write or e-mail to us whenever they find any error.

Thumb sucking

How to stop thumb sucking by your child (The Tribune: 21.9.2011)

Thumb sucking is one of the first coordinated acts by a baby for comfort and pleasure. For much younger children thumb sucking can be just a way to relieve the feeling of hunger. It is a comforting behaviour and doesn't usually need to be restricted. Parents usually start to worry too early about how to stop the thumb-sucking habit of their children. It is not necessary to stop thumb sucking before the age of four unless parents notice a problem in their teeth due to vigorous thumb sucking.

When thumb-sucking becomes a problem

A. Thumb sucking causes serious teeth problems if it continues long after the eruption of permanent teeth. The problem gets more serious if it continues after the age of four and five.

B. Prolonged finger and thumb sucking can create crowded, crooked teeth, or bite problems.

C. A child may also develop speech problems or problems with swallowing properly.

D. Protrusion and displacement of front teeth are usual results.

E. Malformation of teeth can affect the child's appearance and cause further emotional problems.

Panacea

Most children outgrow this behaviour by their pre-school years until that point when it is relatively harmless. Though beyond pre-school it can be a problem once permanent teeth start coming in. The best way to get your child to stop sucking his/her thumb is to find ways to help him do it.

Do's and don't's

Do's

Talk about the 'bad' germs that are on our hands and how the child puts them in his mouth while indulging in thumb sucking.

Carefully remove your child's thumb from his mouth during sleep. Give your child extra-attention and observe if conflicts or anxiety provoke thumb sucking. If so, help him find more healthful ways to deal with stress.

Reward your child for progress made towards his goal. Don't think of it as a bribe because it's something he has earned through effort.

Paint something that tastes bad on his thumb, like vinegar or pickle juice. Don't do it forcefully or without his permission, but as a way of helping him achieve his goal. Then when he's engaged in viewing television and sucks his thumb out of sheer habit, the bad taste will quickly remind him of what he's trying to accomplish.

Distract your child when you see him putting his thumb in his mouth. If you engage him in an activity that requires both hands, he'll have to take his thumb out of his mouth to do the task. Keep the child's hands occupied with a toy, puzzle, or some other interesting activity.

Give the example of his friends who have managed to stop thumb sucking. Invite friends who don't suck their thumbs for frequent play dates. Peer pressure is a powerful motivator, and if he surrounds himself with kids who don't suck their thumbs, it will be easier for him not to suck his thumb.

A paediatric-dentist can also install an oral appliance that makes it uncomfortable to suck his thumb and release pressure on the teeth and palate. This is important if his thumb sucking is affecting his oral development.

Don'ts

Avoid putting your child down or describing him as being 'babyish'. Avoid nagging your child or turning this into a power struggle. The more anxious he becomes, the more likely he will need the comfort of his thumb.

It is not important to get your child to give up this habit if it is not causing any problem. Never punish or shame your child to resolve the problem. These types of negative action will hurt his self-esteem and add to his anxiety.

If your child has not stopped thumb sucking by his third birthday, you should consider taking action to stop this habit. You must act if he is sucking on his thumb most of the day, if it is affecting his communication or social skills, if he is having trouble with his

pronunciation of words, or if it is causing problems with his oral development. However, it is not as important to get your child to give up this habit if it is not causing any problems.

Medical education

NCET

After MCI, govt set to take over NCET (The Times of India: 8-6-2011)

Faced with rampant irregularities and open defiance of government rules, the HRD ministry, in an unprecedented move, is all set to take over the National Council for Teacher Education, the regulator for setting quality standards and running of teacher education institutions in the country.

Last year, the health ministry had taken over the Medical Council of India under similar circumstances.

The NCTE Act provides that the government can supersede the Council in case it fails to live up to the provisions of law. HRD ministry has served a notice to NCTE seeking a reply as to why the institution should not be taken over. NCTE has been given a month's time to reply. "But the take over is inevitable," one NCTE official said.

The ministry's action comes after two high-powered committees submitted their reports. The committees, set up by the ministry, looked into the functioning of the Western Regional Centre (WRC) and Northern Regional Centre (NRC) of NCTE.

In case of WRC, it was found that it gave recognition to teacher training institutes against the wishes of the governments of Maharashtra and other states in the western region. The state governments argued that there were not only too many such institutes but those being given recognition lacked quality. Even HRD ministry had said that any fresh proposal for recognition be sent to Delhi. But WRC defied the order and gave recognition to nearly 300 new institutions. The matter went to the Bombay high court which cancelled the recognition of these institutions. Their promoters went in appeal to the Supreme Court that has set up a committee under former chief justice of India JS Varma.

Another HRD-appointed committee that looked into the functioning of NRC found massive irregularities in grant of recognition to teacher training institutes and even disregard for the parent organization.

Irregularities and corruption in NRC had its impact on teacher education in Haryana, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, Delhi and Chandigarh, all of which fall under its jurisdiction. The panel had recommended repatriation of the current regional director, action against errant officials and reconstitution of NRC

Disruptive Models in Education

Disruptive Models in Education (The Economic Times: 22.9.2011)

Only reforming the way we teach will ensure that we don't end up with demographic disaster

With half of the country's population younger than 25, we need to fundamentally change our education system to produce human capital suitable for the emerging knowledge-driven global economy. If that is not done, it is only a matter of time that the demographic advantage will metamorphose into a fullblown demographic disaster. Mere allocation of more resources to make up for the yesteryears' deficit in the education sector is not enough to address the problem. India also needs to reform teaching in schools and colleges.

Individuals learn differently due to their different learning styles. As per Howard Gardener's seven-intelligences model, if some people rely more on auditory input for learning, then many others rely on visual, kinaesthetic, musical, logical, interpersonal or intrapersonal styles. An education system is most effective when teaching methodologies match the learning styles of individual students. For ensuring better results from the teaching-learning process, every lesson plan must have variations to suit individual learning styles. Harvard University's Clayton Christensen in his book, *Disrupting Class*, has suggested different schools for students with similar learning styles.

Currently, in our schools, teachers decide how the learning has to take place and everybody learns and gets evaluated the same way. The schools generally follow the logical or mathematical teaching approach that is most suited for those who have the ability to recognise patterns to work with geometric shapes and who are good at reasoning, logic and problem solving. The system is less effective for those whose brains are not 'configured' for this learning style. As a result, many students barely manage to scrape through the process or drop out of the system. To unlock all the talents of all of the people — essential for deriving maximum benefits from our demographic advantage — India cannot follow a wasteful education system that is suitable for only one dominant style of learning.

The boys and girls who are alienated from the school because of the mismatch between individual learning styles and schools' teaching methods are vulnerable to options that are competing with the schools to lure these students away from the classrooms. Extrinsic motivations like providing midday meal or cash incentive — the latest 'innovative' initiative of the government of Tamil Nadu — are considered by some policymakers as effective countermeasures to compete with those alternatives. Even if such incentives are able to bring everyone to the schools, can it guarantee learning?

Rapid progress in educational technology and its plummeting costs have opened up real possibilities to make education customised to suit each student's learning style. Probably for the first time in the history of mankind, now there is a possibility for the schools to create exciting learning environments that can successfully compete with all other attractive alternatives that are trying to keep students out of school. In such an environment, any extrinsic motivation can only work as a double whammy for the students.

Christensen's data shows that such alternatives are already making inroads in the US. As per his projection, by 2020, the majority of US schools will be radically transformed and will introduce online teaching into their core teaching programmes. It is not mere superimposition of online or distance learning courses on a traditional model. Unlike traditional distance learning programmes where students generally learn on their own at a distance, here students are able to learn the courses offered by the most effective teachers in a tutorsupervised environment of the school. In this new environment, the schools are actually redefining their value propositions, or to use C K Prahalad's expression, 'co-creating value' with other stakeholders: students, parents, policymakers and technology providers. Most importantly, the emerging student-centric education system is based on a fundamental belief that every student enjoys success, loves fun and is wired differently to learn the same thing most effectively in different ways.

Similar to the most innovative firms of today whose major initiatives are centred around external network resources instead of internal ones, the schools now also have a unique opportunity to innovatively utilise the best teaching resources available elsewhere to substantially improve the teachinglearning processes. Today, a student even in a village school should be able to enrol for a subject that is not taught in the school and offered elsewhere in the country. There is also no reason why the classes of our national awardwinning teachers shouldn't be conducted in schools across the country. This needs to be done with extensive use of computer-based learning that supports individualised learning path for every student. The teacher becomes more of a tutor in such a class.

In our daily life, we frequently observe how disruptive innovations are increasingly wiping out businesses by fundamentally replacing expensive and complicated technologies with affordable and convenient alternatives. Now, such innovations in education are set to decimate the present teachingcentric system. In this year's World Innovation Forum in New York, some leading technology providers demonstrated the amazing possibilities that are transforming the way world learns. To exploit India's demographic advantage, till it lasts, we need to urgently undertake bold reforms and introduce newer types of schools with a much broader variety of teaching-learning and evaluation processes. Otherwise, our perceived demographic advantage will slowly slip away to make way for a demographic nightmare.

(The author is director of Centre for Entrepreneurship & Innovation at the Arthur Lok Jack Graduate School of Business, University of West Indies)

Female literacy rate

Seven districts with dismal female literacy rate under Sakshar Mission (The Tribune: 22.9.2011)

Seven districts in the state with female literacy rate less than 50 per cent, have been selected under the Government of India's Sakshar Bharat Mission:2012.

The districts are Faridkot, Mansa, Sangrur, Barnala, Bathinda, Ferozepur and Muktsar. As per the 2001 census, the female literacy rate in Mansa is 36.49 per cent (lowest), Faridkot 48.48 per cent, Muktsar 43.63 per cent, Ferozepur 44.98 per cent, Sangrur 45.64 per cent and Bathinda 46.79 per cent.

These educationally backward districts have been directed to conduct household surveys to collect data on the number of illiterate persons. The district administrations have directed government senior secondary schools to conduct surveys in their respective

pockets and submit a report by the end of this month. "Based on the data, we will be able to get primers for functional literacy," said Additional DC (development) Abhinav Trikha. The government would appoint motivators and a volunteer teacher would be appointed for a group of every 8 - 10 persons. A sum of Rs 2000 per month would be given to the motivators.

The stipend for the volunteers is yet to be decided.

Mental Health

Adolescents

1 in 2 adolescents suffers from mental disorder (The Times of India: 7-6-2011)

One in every two adolescents globally suffers from neuro-psychiatric disorders. According to the Global Burden of Disease in Young People aged 10-24 years, published in "Lancet Neurology" on Tuesday, mental disorders like depression, alcohol use, schizophrenia and bipolar disorder comprises 45% of the disease burden among young people in this age group.

The other two primary causes of disability worldwide were unintentional injuries (12% mainly road traffic accidents) and infectious and parasitic diseases (10%). This is the first study that provides a comprehensive picture of the global causes of disability in adolescence and the main risk factors that emerge in these years and cause disease in later life.

In this study, Fiona Gore from WHO, Geneva, estimates the cause-specific disability-adjusted life-years (DALYs) for young people aged 10–24 years. DALYs are a combined measure of Years of Life Lost due to premature deaths (YLLs) and Years Lost due to Disability (YLDs). One DALY represents the loss of the equivalent of one year of full health.

The finding shows that the total DALYs for people aged 10–24 years were about 236 million, representing 15.5% of total DALYs for all age groups. Across all regions, the disease burden was 12% higher in girls than in boys aged 15–19 years.

The main global risk factors for future disability in all age groups (0-80) are underweight, unsafe sex, alcohol use, unclean water, poor sanitation and hygiene.

In contrast, the research showed that the main health risks emerging during adolescence were alcohol use, unsafe sex, iron deficiency and lack of contraception.

"The main risk factors for incident DALYs in 10–24-yearolds were alcohol (7% of DALYs), unsafe sex (4%), iron deficiency (3%), lack of contraception (2%), and illicit drug use (2%)," the authors said.

They conclude: "Recent research has reported the global patterns of death in young people, but has not investigated the lifestyle risk factors that start during adolescence and can lead to future disability."

Loneliness

Loneliness is as bad for your health as smoking (The Tribune: 3.8.2011)

A scientific research has suggested that social isolation, in the long term, is as damaging as a 15-a-day cigarette habit or being an alcoholic. Many other studies have found that those with a poor social network are at increased risk of dementia and high blood pressure. The studies reason that the genes we need to fight off serious viral infections seem to be less active in the lonely than in the rest of the population, and that loneliness may cause cancer or heart disease. "Feeling alone and unloved can also make it harder to sleep and even speed the progression of dementia. When time takes its toll on the body, loneliness steepens that slope of descent," the Daily Mail quoted Chicago-based psychologist John Cacioppo, who has studied the phenomenon, as saying. His work found that loneliness raises levels of the stress hormone cortisol and can push blood pressure up into the danger zone for heart attacks and strokes.

Mental Health Disorders

Gender-based Violence Linked to Mental Health Disorders (Med India: 3.8.2011)

Women who experience gender-based violence such as rape, sexual assault, intimate partner violence have higher incidence of mental health disorders, dysfunction and disability, finds study.

Violence against women is a major public health concern, contributing to high levels of illness and death worldwide, according to background information in the article. "In the United States, 17 percent of women report rape or attempted rape and more than one-fifth of women report intimate partner violence (IPV), stalking, or both. There is mounting evidence that each of these forms of gender-based violence (GBV) is associated with mental disorder among women, although methodological shortcomings of existing studies constrain the inferences that can be drawn," the authors write.

Susan Rees, Ph.D., of the University of New South Wales, Sydney, New South Wales, Australia, and colleagues assessed the association of a composite index of GBV (rape, sexual abuse, IPV, and stalking) with a range of lifetime mental disorders, including indices of severity and co-existing illnesses. The researchers analyzed data from the Australian National Mental Health and Well-being Survey of 2007, which included 4,451 women (65 percent response rate), ages 16 to 85 years. Diagnostic criteria from the World Health Organization's World Mental Health Survey Initiative was used to assess lifetime prevalence of any mental disorder, anxiety, mood disorder, substance use disorder, and posttraumatic stress disorder (PTSD).

The researchers found that the lifetime prevalence for any mental disorder was 37.8 percent. A total of 1,218 women (27.4 percent) reported experiencing at least 1 of the

types of GBV assessed in this study. The lifetime prevalence rates were 14.7 percent for sexual assault, 10 percent for stalking, 8.1 percent for rape, and 7.8 percent for IPV. Women who had been exposed to 1 form of GBV reported a high rate of lifetime mood disorder (weighted, 30.7 percent), lifetime anxiety disorder (38.5 percent), lifetime substance use disorder (23.0 percent), lifetime PTSD (15.2 percent), and any lifetime mental disorder (57.3 percent).

Fatty comfort foods really make people brighten their bad mood! (The Tribune: 10.8.2011)

Ever thought why we reach for ice cream, pizza and other fatty foods when we're feeling down? There may be a scientific reason. A new research has suggested that fatty foods literally serve as 'comfort' foods and help lift our mood. The findings could explain why so many people become obese when facing stressful situations. Dr Lukas Van Oudenhove from the University of Leuven, in Belgium, and his colleagues used MRI scans to assess the emotional impact of fat when injected into the stomach. They recruited 12 healthy-weight volunteers and scanned their brainwaves as they were shown a series of sad and neutral images as well as exposing them to sad and neutral music. —

Hasmukh Adhia

Hasmukh Adhia: Anger management the yogic way (World Newspaper: 12.8.2011)

Everyone has a problem of not being able to control anger. Some people admit it while others don't even realise that. Anger brings about more negative results than positive.

Showing someone that you are angry may help you extract short term advantage but in the long run one will experience negative impact of anger in one's life. Anger exhumes a person, makes outflow of prana irregular and disturbs normal functioning of the auto-neuron system of our body. Angry person develops a bitter personality over a period. Hence we need to watch out.

Anger is an outward manifestation of stress. Stress is of two types-external and internal. External stress may be caused by some events in our life such as sickness, death in the family or economic poverty. But the major cause for anger is the internal stress. Internal stress arises mainly out of frustration of desires.

Article continues below the advertisement...

This is the truth given in Bhagwat Gita. Anger comes because of not being able to fulfil heart's desires, or inability to cope up with multifarious interactions with the people around, or simply out of feeling of neglect or lack of self-esteem.

We have incessant list of desires and 'things to do' in our life. On top of all these desires is the desire to remain in as many social circles as possible. We create maze of relationships around us and become so busy in maintaining expectations of people around. We take on more responsibilities in work or business than what we can chew. This inevitably results in throwing your life out of gear. When we lose control we tend to be angry.

So, here are some golden principles of anger management. First of all, keep a check on your 'wish list'. Be more pragmatic about what is doable and not doable. There are temptations all around, but a wise person will not be swayed by it. Desires, not supported by means, are bound to disappoint you. And when that happens, anger is the outcome. Secondly, we need to reduce our expectations from people. We want the whole world to behave in the same way as we do. Worse still, we expect everyone else to be as sincere, as punctual and as tidy as we are.

Sometimes the expectation is there when we ourselves are not so. If people around us don't fulfil this expectation, we become angry. Problem is that in spite of the experience teaching us that shouting at people doesn't ever change them; we still continue doing so foolishly. Can we have better discrimination in this?

Thirdly, we need to tackle our big ego. Ego is a product of lack of self-esteem. If someone says 'you are so bad', your ego will be hurt only if you have low self-esteem. Do we need to bother about so many opinions of others? There are techniques available to enhance one's self esteem. But just brood over the mechanism of how our ego is hurt. The above points are curative in the long run. But what to do in short run? When you know you are angry and about to lose your temper, be aware of it. Stop and wait for a while before you burst out. Try to isolate yourself from the situation and go into another room if possible.

Sit down and do some anulom-vilom pranayam. Try chandra anulom-vilom in which you can close the right nostril and breathe only through the left nostril- deep inhalation and deep exhalation. Once you calm down, analyse the reason for your anger and try to cure the cause.

Treating anxiety - Mental illness

Treating anxiety early in kids cuts risk of mental illness (The Indian Express: 7.9.2011)

Treating children early for anxiety would reduce their risk of developing severe mental problems in later life by 60 per cent, a new study has suggested. It is estimated that 38.2

per cent — 165 million — of people in Europe suffer from a mental disorder and that anxiety is the commonest. The incidence of depression has doubled since the 1970s and the average age at onset has fallen from the mid-twenties to the late teens as adolescents lost their sense of security in a changing world, according to Professor Hans Ulrich Witten, lead author of study of the state of Europe's mental health. "We screen for dental caries (decay) — why not for anxiety, because the potential treatments are so effective?" The Independent quoted him as saying. Anxiety disorders could also be a warning sign of neurodegenerative illnesses, such as Parkinson's disease, Professor Witten said. Professor David Nutt, Head of the Department of Neuropsychopharmacology at Imperial College, London, said: "If you can get in early you may be able to change the course of the illness so that people don't progress on to disability." The study has been published in the journal *European Psychopharmacology*.

Mental illness

38% of Europeans suffer mental illness (The times of India: 7.9.2011)

Europeans are plagued by mental and neurological illnesses, with almost 165 million people or 38% of the population suffering each year from a brain disorder such as depression, anxiety, insomnia or dementia, according to a large new study.

With only about a third of cases receiving the therapy or medication needed, mental illnesses cause a huge economic and social burden — measured in the hundreds of billions of euros — as sufferers become too unwell to work and personal relationships break down.

"Mental disorders have become Europe's largest health challenge of the 21st century," the study's authors have said.

At the same time, some big drug companies are backing away from investment in research on how the brain works and affects behaviour, putting the onus on the governments and health charities to stump up funding for neuroscience.

"The immense treatment gap ... for mental disorders has to be closed," said Hans Ulrich Wittchen, of Germany's Dresden University and the lead investigator on the study. "Those few receiving treatment do so with considerable delays of an average of several years rarely with the state-of-the-art therapies," he said.

Psychiatric disorders

Yoga effective in treating psychiatric disorders (new Kerala: 21.9.2011)

Many see yoga as a fad or simply a health enhancer. But a number of scientific studies have found it effective as a therapy in treating mental and psychiatric disorders.

Some believe that yoga should be used only for prevention and health promotion and not as a therapy for illnesses," said B.N. Gangadhar, who heads the psychiatry department at the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore.

"The reality is that it is being increasingly used as a method for treating various disorders, either alone or as in addition to other therapies, including psychiatric ones," Gangadhar, also director, Advanced Centre for Yoga at NIMHANS, told IANS.

A study co-authored by Gangadhar and three associates examined the effect of yoga as a therapy supplementing medical treatment of schizophrenia, a severe mental condition, which registers failure rates as high as 50 to 60 percent. The condition is ranked as the ninth leading cause of mental disability worldwide.

Roughly half of 61 schizophrenia patients were randomly assigned to yoga therapy and the other half to physical exercise for four months. Ten from each group had dropped out during the therapy.

The yoga therapy group showed significantly greater improvement in mental or behavioural disorders than those in the physical exercise group. The yoga group also performed better in social and occupational functioning.

Some of the symptoms of schizophrenia are hallucinations (hearing voices), delusions (often bizarre) and disorganized thinking and speech, which render the patient's life chaotic and distressful.

Another study led by Gangadhar found that Sudarshan Kriya Yoga (SKY) significantly lowered stress by bringing down high plasma cortisol levels among patients, which indicate stress or illness.

SKY is a method of breath control pioneered by Sri Sri Ravi Shankar's Art of Living Foundation.

Similarly, M. Javanbakht, a psychiatrist at Iran's Islamic Azad University, and others found yoga eased mental conditions such as depression and anxiety in women.

Participants in Iran were assigned to two groups: one that went through two yoga sessions of 90 minutes each every week for two months and another which did not do any yoga. Women in the yoga group registered a significant decrease in anxiety and depression levels.

Complementary and alternative medicine (CAM), which includes yoga, is now being increasingly used for easing anxiety, stress and depression. Some studies suggest that the percentage of patients availing themselves of CAM could be as high as 60 percent, said Gangadhar.

"A functional brain imaging study at NIMHANS demonstrated that chanting of Aum deactivated certain brain areas bearing on our emotions, particular anger and fear, (and producing a calming effect)," said psychiatry associate professor Shivarama Varambally.

"This indicates that Aum chanting may help in emotional control and reduce negative emotions," Varambally added.

Johns Hopkins University's Arthritis Centre reports that scientific studies on the effect of yoga on rheumatoid arthritis and osteoarthritis are "promising," with results showing "some improvement in joint health, physical functioning, and mental/ emotional well-being".

The centre suggests that such studies show yoga is a "safe and effective" way to increase muscle strength and improve flexibility, areas of core interests to arthritis sufferers. Besides, yoga can increase mental energy and help a patient develop positive feelings and help keep negative feelings in check.

Yoga, derived from a Sanskrit word meaning 'yoke,' is designed to integrate one's body, mind and soul so that the entire system functions harmoniously.

"Many might argue that such a time-tested practice does not require any proof, but contemporary medicine can accept yoga only after thorough validation through scientific tests," Gangadhar concluded.

Cognitive Behavioral Therapy

Cognitive Behavioral Therapy Helps Kids with OCD (Med India: 21.9.2011)

Addition of cognitive behavior therapy to drug treatment benefits children and teens with obsessive-compulsive disorder (OCD), finds study published in JAMA

"Obsessive-compulsive disorder affects up to 1 in 50 people, is evident across development, and is associated with substantial dysfunction and psychiatric comorbidity. Randomized controlled trial findings support the efficacy of pharmacotherapy with serotonin reuptake inhibitors (SRIs), cognitive behavior therapy [CBT] involving exposure plus response prevention, and combined treatment. However, a paucity of expertise in pediatric OCD prevents most families from accessing exposure plus response prevention or combined treatment. Outcome data for pharmacotherapy alone, the most widely available treatment indicate that partial response is the norm and clinically significant residual symptoms often persist even after an adequate trial," according to background information in the article.

Martin E. Franklin, Ph.D., of the University of Pennsylvania School of Medicine, Philadelphia, and colleagues conducted a study to examine the effects of augmenting SRIs with CBT or a brief form of CBT, instructions in CBT delivered in the context of medication management. The 12-week randomized controlled trial was conducted at 3 academic medical centers between 2004 and 2009, involving 124 outpatients between the

ages of 7 and 17 years with OCD as a primary diagnosis. Participants were randomly assigned to 1 of 3 treatment strategies that included 7 sessions over 12 weeks: 42 in the medication management only, 42 in the medication management plus instructions in CBT, and 42 in the medication management plus CBT; the last included 14 concurrent CBT sessions.

Psychiatric Disorders

Twin Study Reveals Epigenetic Alterations of Psychiatric Disorders (Science Daily: 23.9.2011)

In the first study to systematically investigate genome-wide epigenetic differences in a large number of psychosis discordant twin-pairs, research at the Institute of Psychiatry (IoP) at King's College London provides further evidence that epigenetic processes play an important role in neuropsychiatric disease.

Published in Human Molecular Genetics, the findings may offer potential new avenues for treatment.

Previous quantitative genetic analyses of schizophrenia and bipolar disorder reveal strong inherited components to both. However, although heritability for schizophrenia and bipolar disorder is estimated at 70%, disease concordance between twin-pairs is far from 100%, indicating that non-genetic factors play an important role in the onset of the diseases.

Dr. Jonathan Mill, lead author of the study at the IoP says, 'We studied a group of 22 identical twin-pairs, so 44 individuals in all, one of the largest twin studies performed for any complex disease to date. In each twin-pair, one had either schizophrenia or bipolar disorder. Because we know that twins are genetically identical, we can rule out any genetic cause of illness in the affected twin -- the aim of our study was to investigate epigenetic variations associated with these disorders.'

Epigenetic mechanisms are linked to heritable, but reversible, changes in gene expression without a change in the underlying DNA sequence. This happens principally through alterations in DNA methylation and chromatin structure. Epigenetic changes in the brain have previously been associated with a range of biological and cognitive processes, including neurogenesis, drug addiction and neurodegeneration. It has also been suggested that epigenetic changes in the brain may be involved in a spectrum of psychiatric disorders including psychosis

The researchers looked at differences in DNA methylation across the genome using DNA taken from both the affected and unaffected twins in each monozygotic twin-pair. The findings were then compared to DNA samples taken from post-mortem brain material from psychosis patients and controls.

Whilst the researcher found no alterations in overall DNA methylation content between affected and unaffected twins, there were considerable disease-associated differences between twins at specific sites across the genome. The findings confirmed previously known sites implicated in psychiatric disorders as well as revealing previously unknown ones.

Dr. Mill adds, 'Our findings suggest that it is not only genetic variations that are important. The epigenetic differences we see may tell us more about the causes of schizophrenia and bipolar disorder, as some alterations were specific to either disease. Importantly, epigenetic processes are potentially reversible meaning that our research could open up new avenues for the development of novel therapeutic drugs.'

Meditation - neurological diseases

'Meditation can counter neurological diseases (World Newspapers: 26.9.2011)

Meditation, spirituality and a proper diet could be just the panacea for neurological diseases, said renowned Jaipur-based neurologist, Dr Ashok Panagariya.

Panagariya was delivering a lecture on 'Living larger, living happier: A journey from clinical neurology to the complexities of brain and mind' at the 19th annual conference of the Indian Academy of Neurology (IAN) held at city-based Marriott Hotel and convention centre on Friday. Panagariya, who is the head of department of neurology, SMS Medical College, Jaipur, is also the president of IAN. In his interesting lecture, Panagariya explained how individuals could relax their minds and function amid stressful conditions of life to keep neurological diseases at bay.

According to the doctor, increasing stress coupled with smoking and drinking habits of people has given rise to diabetes and hypertension that in turn has given rise to neurological diseases. "However, science is probing how individuals can control their minds to become stress-free and prevent and cure diseases," Panagariya said.

Citing examples of Valmiki, Kalidasa and others, Panagariya described how an individual can anchor his mind through meditation and spirituality to live a healthy life. "Spirituality and meditation strengthens several important parts of the brain. These regions are associated with the emotions that a person feels. Besides yoga, music, playing golf and bridge, reading and meditation stimulates relaxation and pleasure and reduces stress," the doctor said.

Speaking to DNA, Panagariya said, "Though medication is essential, studies have proved that every fifth human being is still succumbing despite medicines. Hence, it is important to explore paths beyond medicines for prevention and cure of diseases."

NRHM

NRHM

For a new and improved NRHM (The Hindu: 8.7.2011)

The bidirectional relationship between economic development and health justifies greater investment in the health sector.

The National Rural Health Mission (NRHM) has been described as one of the largest and most ambitious programmes to revive health care in the world and has many achievements to its credit. It seeks to provide universal access to health care, which is affordable, equitable, and of good quality. It has increased health finance, improved infrastructure for health delivery, established institutional standards, trained health care staff and has provided technical support. It has facilitated financial management, assisted in computerisation of health data, suggested centralised procurement of drugs, equipment and supplies, mandated the formation of village health and hospital committees and community monitoring of services. It has revived and revitalised a neglected public health care delivery system.

Challenges and solutions: The NRHM has injected new hope into the health care delivery system in India. However, it continues to face diverse challenges, which need to be addressed if its goals are to be achieved in the near future.

Health as a State subject: The location of health in the State list rather than the concurrent list poses major problems for service delivery. This is also compounded by the fact that the NRHM funding is from the Centre while the implementation is by the State governments. Health care delivery cannot be improved to provide a seamless service without the removal of these barriers.

Project mode and problems: The NRHM is currently functioning as a project of the Government of India and is due to end in 2012. Its significant contribution to improving health care infrastructure and service delivery across the country will be frittered away if its funding ceases with the 11th Five Year Plan (FYP). The NRHM should be not only included in the 12th FYP but also be changed from its limited term project mode to a permanent solution to India's health problems.

Its status as a project makes the integration of the NRHM with the State health care systems problematic. The divisions run deep resulting in irrational distribution of human resource and infrastructure. The inertia of the old system and the low morale and

discipline of its staff continue to be major challenges. The NRHM has been able to add new infrastructure and personnel; however, its impact on re-inventing and re-invigorating systems seems to be limited, with much more effort being required. There is a need for a more coordinated approach which optimally utilises resources.

Improving governance: A comparison of data between States and within regions and social groups suggests marked variations in the NRHM process indicators, utilisation of funds, improvements in health care delivery, health indices and in community participation. Regions with prior good health indices have shown marked improvements, while those with prior poor indices have recorded much less change. This is true, despite a greater NRHM focus on and inputs to poor-performance States. Improving governance and stewardship within the NRHM programmes mandates general improvement in the overall governance of States and regions.

Increased funding: Health care costs for the average Indian usually results in catastrophic out-of-pocket expenditure and is a well recognised cause of indebtedness in the country. The total health budget for India is about 1 per cent of the country's GDP. Most developed nations prioritise health care and provide 5-10 per cent of their GDP. The 12th FYP should increase funding for health to the tune of 2-3 per cent as promised by the United Progressive Alliance.

The diversion of funds, through private health insurance schemes for the care of rare disorders to be treated in corporate hospitals, takes away funding from the public health care system. The injection of such money into the public system would allow for the provision of universal health care, improve government health systems and provide for common health conditions benefiting larger numbers.

Urban health: The NRHM has focussed on rural health. Many parts of urban India have similar health care needs and currently have glaring deficiencies. The National Urban Health Mission should be accorded the same status as the NRHM. Both efforts should be coordinated and combined into a National Health Mission.

Expand focus: The major focus of NRHM is on maternal and child health. While this is vital, there is a need to expand the vision to other common general health problems. There is evidence to suggest that other crucial government programmes (e.g. blindness) have taken a back seat.

Cash transfers and outcome: The NRHM currently employs process indicators to measure its implementation. The measures used are mainly related to finance, infrastructure and personnel. There is need to shift over to indicators of efficient functioning and examine their impact on health outcomes. The initial high rates of mortality tend to reduce rapidly with early inputs but require fully functional, efficient and effective systems for sustained results. The Janani Suraksha Yojana, a conditional cash transfer scheme to incentivise the use of health services to reduce maternal and neo-natal mortality among poor women, has become a success by encouraging institutional deliveries. However, the evaluation of its

success should be based on its impact on the health outcome of the mother and baby, rather than on financial process indicators.

Similarly, the diverse and difficult circumstances of medical practice across the country mandate a differential reinforcement for health professionals. There is need for differential payments to health care staff who work in remote situations and difficult contexts.

Health information and monitoring: The NRHM has provided for infrastructure, personnel and training for Health Management Information Systems. However, these are not optimally utilised. There is need to improve the information system as part of the process of monitoring health indices of populations and functioning of the public health care system. The NRHM already has a programme of community monitoring and social audit. This should be strengthened in order to monitor the use of funds and empower local communities.

Social determinants and public health approaches: The goals of the NRHM clearly state the need to impact on the social determinants of health by coordinating efforts to provide clean water, sanitation, nutrition, housing, education and employment. It should, in conjunction with other government programmes, work towards the reduction of poverty, social exclusion and gender discrimination, all of which have a significant impact on health. There is need to increase the synergy and coordination between government programmes (e.g. the Integrated Child Development Scheme, the Mahatma Gandhi National Rural Employment Guarantee Act, etc.) and the NRHM.

Funding priorities

Improvements in health of populations contribute to economic development and vice versa. This bidirectional relationship justifies increased investment in health. The NRHM should become an integral part of the Five Year Plans and the health budget should be increased to 2-3 per cent of GDP. The National Urban Health Mission should receive equal funding priority and be coordinated with the NRHM. Greater financial inputs to improve governance and specific funding to coordinate NRHM programmes with those of the State health services are crucial, as is cooperation with other government programmes to target social determinants of health. Strengthening of health information, community monitoring and social audits to assess its impact on health outcome indicators is necessary. Improved funding for the public health sector to treat common health conditions, rather than providing private health insurance for uncommon disorders, is mandatory. State governments also need to prioritise health and increase their share of the health budget.

The NRHM has made a significant impact on health care delivery. However, greater political, administrative and financial commitment is required for it to make a substantial impact on health outcomes. The 12th Plan should allocate ring-fenced budgets for specific operations. There is need to develop systems to monitor and audit performance and health indices; this will allow for course corrections.

The health care system has flaws, both at the conceptual and operational levels. However, there is no simple, band-aid solution to the problem. There is a need for continuous monitoring and appraisal, allowing for regular course corrections. Unfortunately, health is a prime example where good politics and good policy diverge. One cannot ignore the economic interests of the health education-hospital-pharmaceutical-insurance industries who directly profit from tertiary specialist care, indirectly when public health delivery systems are run down and when the social determinants of health are neglected. In our capitalistic world, these interest groups cannot be expected to look beyond their strategy to generate profit. Politicians and governments are also unable to see the ethical issues related to equity and lack the conviction to provide services for the poor. Health, a human right, and universal health care should not remain an aspiration but should become operational in the near future.

(Professor K.S. Jacob is on the faculty of the Christian Medical College, Vellore.)

Keywords: rural health, government health care, NHRM, government health scheme

National Rural Health Mission

National Rural Health Mission “a minor success” (The Hindu: 15.9.2011)

For promising results, renewed commitment of another seven years essential

An official review of the Union Government's ambitious National Rural Health Mission has described it as a “minor success”, adding that the results have been heartening compared to past experience in public health programmes. If this promising programme is not to splutter to a stop, a renewed commitment for at least another period of seven years is essential, it says.

A report on “The National Rural Health Mission: Performance and Prognosis” by former Union Health Secretary Javid A. Chowdhury says the Mission's programmed outcomes have not been achieved, but in the past no other State programme in the health sector has achieved such radical and significant outcomes, even though the achievement is short of what was envisaged. The report has been brought out by the National Institute of Health and Family Welfare.

Broadly, public health service centres which have been dysfunctional over decades have lately shown some signs of revival. Community participation in health sector activities, that had earlier been nil, have shown some improvement. Availability of therapeutic drugs for primary health care has improved markedly. Deployment of human resources in

the health sector has improved modestly, even though huge gaps still exist before the primary health care system can be said to be optimally running, the report says.

Drawing attention to discrepancies between the emoluments of accredited social health activists (ASHA) and anganwadi workers, the report says it is imperative that these be put through five modules of training and be entrusted with greater responsibilities of delivery of primary health care services at the earliest and enhanced emoluments at par with anganwadi workers.

“While they must always remain volunteers – as distinct from government functionaries – their honorarium should not be such a derisory amount. Similar voluntary workers under the Integrated Child Development Scheme – anganwadi workers – have been given an increase in their honorarium to Rs.3,000 per month. An ASHA with three years' experience is a very valuable human resource in the primary health sector where the State finds it impossible to reach through its formal organisational structure.”

Pointing out that the basic problem of inadequacy of financial resources in the health sector has never been seriously tackled, the report says per capita allocation for the health sector for 2011-12 (Rs.270 per capita) is unacceptably small. In the 12 {+t} {+h} Plan period this will need to be increased to at least Rs.900 per capita, and to meet this norm, the health sector would require an outlay of Rs.5,40,000 crore.

Obesity

Obesity

Obese kids face the risk of killer liver disease (The Times of India: 4-7-2011)

Nearly half-a-million children in Britain are at risk of developing lifethreatening liver disease as they are overweight or obese, a government health adviser has warned.

According to Prof Martin Lombard, UK's National Clinical Director for Liver Disease, the four to 14-year-olds could develop "non alcoholic liver disease" caused by buildup of fat in liver cells, which stops the organ from functioning. Though cirrhosis — scarring of the liver — is commonly associated with alcohol abuse, it can also be caused by obesity, he says.

He warns that up to 60,000 10-year-olds "could be at risk" of having excessive fat in the liver while they are kids, leading to serious health problems when they get older.

When looking at a broader age range, children aged four to 14, the figures are even more stark, with the doctor estimating that 500,000 are at risk. "Liver disease is a silent killer, which is putting lives of thousands of our children at risk. We do not want to see the next generation dying young from a condition that can be prevented," he said.

Obesity

How obesity ups risk of diabetes (New Kerala: 3.8.2011)

Scientists at Joslin Diabetes Center have found how obesity drives insulin resistance, the condition that may lead to type 2 diabetes. They uncovered that excess weight wreaks its havoc by altering the production of proteins that affect how other proteins are spliced together.

The finding may point toward novel targets for diabetes drugs.

Scientists in the lab of Mary-Elizabeth Patti, M.D., began by examining the levels of proteins in the livers of obese people, and finding decreases in number for certain proteins that regulate RNA splicing.

“When a gene is transcribed by the cell, it generates a piece of RNA,” stated Dr. Patti, who is also an Assistant Professor of Medicine at Harvard Medical School. “That piece of RNA can be split up in different ways, generating proteins that have different functions.

“In the case of these proteins whose production drops in the livers of obese people, this process changes the function of other proteins that can cause excess fat to be made in the liver. “That excess fat is known to be a major contributor to insulin resistance,” she explained.

The investigators went on to examine a representative RNA-splicing protein called SFRS10 whose levels drop in muscle and liver both in obese people and in over-fed mice. Working in human cells and in mice, they demonstrated that SFRS10 helps to regulate a protein called LPIN1 that plays an important role in synthesizing fat.

Their finding was published in Cell Metabolism.

Obesity

A Protein May Help Treat Obesity, Diabetes (Science daily: 10.8.2011)

A newly-identified protein may hold the key to keeping appetite and blood sugar in check, according to a study by York University researchers.

Suraj Unniappan, associate professor in York's Department of Biology, Faculty of Science & Engineering, is delving into the metabolic effects of a protein called nesfatin-1, abundantly present in the brain. His studies found that rats administered with nesfatin-1 ate less, used more stored fat and became more active. In addition, the protein stimulated insulin secretion from the pancreatic beta cells of both rats and mice.

"[The rats] actually ate more frequently but in lesser amounts," says Unniappan, a member of York's neuroscience graduate diploma program, and a recipient of a Canadian Institutes of Health Research (CIHR) New Investigator Award. "In addition, they were more active and we found that their fatty acid oxidization was increased. In other words, the energy reserve being preferably used during nesfatin-1 treatment was fat. This suggests more fat loss, which could eventually result in body weight loss," he says.

The findings were reported in two recent research articles from Unniappan's laboratory: one published August 9 in Endocrinology and another in March 2011 in Journal of Endocrinology.

Discovered by a research team from Japan in 2006, nesfatin-1 was earlier found to regulate appetite and the production of body fat when injected into the brain of mice and rats.

Unniappan's findings indicate that the protein stimulates insulin secretion from the pancreas, a glandular organ, which contains clusters of cells called the islets of Langerhans. These islets produce several important hormones, including the primary glucose-lowering hormone, insulin.

Previously, Unniappan's team studied mice and found similar results; not only was insulin secretion stimulated, but nesfatin-1 was observed to be lowered in the pancreatic islets of mice with Type 1 diabetes and increased in those with Type 2 diabetes. In Type 1 diabetes, the body no longer produces insulin due to the destruction of cells within the pancreas. In Type 2 diabetes, the body becomes insulin resistant, and obesity often results.

Unniappan's research, conducted in the Laboratory of Integrative Neuroendocrinology, focuses on identifying and examining the biological effects of gut and brain-derived appetite-regulatory and metabolic hormones in fish and mammals.

"We call this the 'gut-brain axis,'" says Unniappan. "While the brain is involved in many factors that regulate our energy balance, the gut is also responsible for many neural and endocrine signals responsible for regulating hunger, satiety and blood sugar levels. A major question we're trying to address is how these peptides act and interact with other peptides in the endocrine network -- which is so complex -- in order to maintain steady blood glucose levels and body weight," he says.

A better understanding of this gut-brain axis could contribute to developing potential pharmacological interventions for diabetes and obesity.

"New hormone-based treatments that would suppress body weight and blood sugar would be very desirable. However, we are far from developing nesfatin-1 as a candidate molecule. Our current research focuses on further exploring the therapeutic potential of nesfatin-1 in metabolic diseases with debilitating complications," Unniappan says.

The lead author of both publications is Ronald Gonzalez, a recently graduated PhD student from Unniappan's lab. The research was conducted in close collaboration with co-authors and York professors Robert Tsushima and Rolando Ceddia. Unniappan's research is supported by grants from CIHR, the Natural Sciences and Engineering Research Council of Canada, (NSERC), the Canada Foundation for Innovation (CFI), the Ontario Ministry of Research and Innovation, and the James H. Cummings Foundation.

Weight

Marriage ups weight in women, divorce in men? (The Times of India: 23.8.2011)

It seems that marriage and divorce are both bad for the waistline — while women are most likely to gain weight after tying the knot, men tend to pile on the pounds following a break-up, say researchers.

A new study of more than 10,000 people surveyed between 1986 and 2008 found that both marrying and getting divorced can have a “weight shock” effect that leads to rapid weight gain, especially in over-30s.

But the researchers say there was a marked difference between men and women in which marital event was the most traumatic on the waistline, ‘The Daily Telegraph’ reported.

In fact, the researchers used data from the survey in which men and women were weighed every year to see how many pounds they gained or lost in the two years following a marriage or divorce. Up to the age of 30 there was little impact on the weight of either men or women, but after this point the probability of weight gain after marriage or divorce began to rise steadily until the age of 50.

Both sexes were more likely to gain weight in the two years after a divorce or marriage than someone who had never been married, the study showed. Dmitry Tumin of Ohio State University said, “Clearly, the effect of marital transitions on weight changes differs by gender.”

Weight

Weight loss by diet shakes is temporary, say experts (New Kerala: 12.9.2011)

Health experts have expressed uncertainty regarding the effectiveness of diet shakes for weight loss. At least 15 brands of diet shakes - some promising "a new you" in a matter of weeks - are on the market in Australia, but nutritionists remain sceptical about their benefits. The Dietitians Association of Australia said 95 percent of all dieters would regain their lost weight in one to five years.

Weight Watchers' nutritionist Emma Stirling said the key concern for many health professionals is that meal replacement shakes are a temporary fix. "Contrary to popular belief, there is no miracle weight-loss cure or proven fat-blasting ingredients lurking

within a chocolate diet shake," the Sydney Morning Herald quoted her as saying. "They are simply a combination of vitamins, minerals and other additives in a flavoured milk or water-based drink.

"Diet shakes are designed to be partial meal replacements, where one or two meals a day are replaced with the shake and the remaining meals made up of regular food," she explained.

She said that eating a couple of small pieces of fruit instead of a couple of meals a day would create the same loss of calories. Dr Ken Harvey, senior research fellow at La Trobe University's School of Public Health, said his main concern with the diet shake industry was the unsubstantiated miracle weight-loss claims being made by several companies.

He filed a complaint to the Therapeutic Goods Administration's complaints resolution panel about Pharmicare Laboratories' Xantrax shakes after the company claimed that "a new slimmer you is less than 30 days away - with the doctor-recommended diet shakes".

Overweight

Overweight mothers give birth fat babies (world Newspapers: 28.9.2011)

Childhood obesity originates in the mother's womb, says a new study which used the latest technology to monitor fat levels in unborn babies. These babies, part of the study at Chelsea and Westminster Hospital, west London, were found to have a similar build-up of abdominal fat that adults in their 50s have. The study used magnetic resonance imaging (MRI) scans to investigate links between obesity in children and their mothers. It reportedly found evidence that being overweight or obese in pregnancy could result in potentially harmful changes in a baby's fat levels in the womb, The Telegraph reports.

The study, led by Neena Modi, professor of neonatal medicine at Imperial College London, found nearly a third of children had more fat than expected. Of the 105 babies -- 54 boys and 51 girls -- a total of 31 babies had more adipose, or fat, tissue around their abdomen than normal. Experts said the study was the first direct link that proved the weight of a mother-to-be was passed on to her child and showed that overweight mothers gave birth to fat babies.

"I was very surprised to be able to detect such a clear continuum of effect of maternal BMI (body mass index) on the baby," said Modi. "This is a very important finding indeed, opening the door to a new understanding of how a mother's metabolism affects her baby."

Population

World Population to Hit 7bn Mark (Med India: 2.8.2011)

This year the global population is expected to hit seven billion, up from six billion in 1999, indicates estimate. Between now and 2050, an estimated 2.3 billion more people will be added-nearly as many as inhabited the planet as recently as 1950. The estimates from the Population Division of the Department of Economic and Social Affairs of the United Nations also project that the population will reach 10.1 billion in 2100.

These sizable increases represent an unprecedented global demographic upheaval, according to David Bloom, Clarence James Gamble Professor of Economics and Demography at the Harvard School of Public Health. Over the next forty years, nearly all (97 pc) of the 2.3 billion projected increase will be in the less developed regions, with nearly half (49 pc) in Africa. By contrast, the populations of more developed countries will remain flat, but will age, with fewer working-age adults to support retirees living on social pensions.

"Although the issues immediately confronting developing countries are different from those facing the rich countries, in a globalized world demographic challenges anywhere are demographic challenges everywhere," said Bloom. The study has been published in Science.

Urban population

Srinagar has highest urban population (The Tribune: 15.9.2011)

Even as a majority of the population of Jammu and Kashmir resides in villages, there is an increasing trend of urbanisation in the state, according to Census- 2011. The Director, Census Operations, Farooq Ahmad Factoo, released the details of the urban-rural population of the state here today.

As per the data, the urban population has increased from 24.81 per cent in 2001 to 27.21 per cent in 2011. The total rural population of the state is 91.34 lakh and the urban population stands at 34.14 lakh. The population of the state is 1.25 crore.

Srinagar with 12.34 lakh people tops the 22 districts in urban population. It also has the lowest number of rural population of 15,928. Jammu has the second highest urban population of 7.68 lakh followed by Anantnag with 2.48 lakh urban people.

The largest rural population is found in Baramulla district with 8.4 lakh people living in villages followed by Anantnag district with 7.91 lakh and Kupwara with 7.76 lakh villagers. Ramban has the lowest urban population with 11,786 persons living in towns. Kargil has 12,753 people living in the urban areas.

The sex ratio in the rural area has shown a fall from 917 in 2001 to 899 in 2011. However, the sex ratio in the urban areas has shown an increase from 819 in 2001 to 840 in 2011. The overall sex ratio in the state caused an alarm when it was revealed that the number had fallen from 892 to 883 in the last 10 years.

According to the data, the child sex ratio at 859 per 1,000 males is well below the national average of 914. It is also below the child sex ratio recorded during the previous Census. Kargil with 978 and Leh with 944 have the highest child sex ratio. The districts with the lowest child sex ratio are Samba (787), Jammu (795) and Anantnag (832).

The literacy rate in the state has increased from 55.52 per cent in 2001 to 68.74 per cent in 2011. Jammu district has the highest literacy rate of 83.98 per cent, followed by Samba with 81.08 per cent. Ramban with 56.90 per cent and Bandipora with 57.82 per cent are the districts with the least literacy rate.

Gender inequality

Girls with cardiac defects face bias, reveals study (The Asian age: 22.9.2011)

In what can be said as another evidence clearly showing gender “inequality” in India, doctors at All India Institute of Medical Sciences (AIIMS), in a first-of-its-kind study, have found that girls with cardiac defects are not receiving equitable care as compared to boys. The AIIMS study, published in British medical journal Heart, revealed that significant gender bias exists in the acceptance heart surgery among children. “Female gender is an important determinant of non-compliance with paediatric cardiac surgery.

Deep-seated social factors underlie this gender bias,” it said. In a two year-long study, the doctors found that “only a few parents of girls turned up for the getting them operated. Some were apprehensive of the scar and argued that nobody would marry their girl due to the scar on their body so they never went for surgery. “Over all we saw that only 44 per cent of the girls underwent the surgery after a year,” said Dr Rama Krishnan, the lead author of the study.

According to doctors at the AIIMS, in India approximately 180,000 children are born with congenital heart disease (CHD) each year, of whom 60,000 to 90,000 require early intervention. However, girls do not receive the required treatment. In this study, parents or guardians of 405 consecutive children aged up to 12 years who had been advised to undergo elective paediatric cardiac surgery at AIIMS were interviewed.

During the study of the 405 patients studied, 44 per cent (59/134) of girls had undergone surgery at one year compared with 70 per cent (189/271) of boys. It is estimated that out of 100 boys and girls with congenital heart defects it can be estimated that, for 70 boys who have an operation, only 22 girls undergo surgery.

Census - rural distress

Census findings point to decade of rural distress (The Hindu: 26.9.2011)

For first time since 1921, India's urban population goes up by more than its rural

Is distress migration on a massive scale responsible for one of the most striking findings of Census 2011: that for the first time since 1921, urban India added more numbers to its population in a decade than rural India did?

At 833.1 million, India's rural population today is 90.6 million higher than it was a decade ago. But the urban population is 91 million higher than it was in 2001. The Census cites three possible causes for the urban population to have risen by more than the rural: 'migration,' 'natural increase' and 'inclusion of new areas as 'urban.' But all three factors applied in earlier decades too, when additions to the rural population far outstripped those to the urban. Why then is the last decade so different? While valid in themselves, these factors cannot fully explain this huge urban increase. More so in a census in which the decadal growth percentage of population records "the sharpest decline since India's independence."

Take the 2001 Census. It showed us that the rural population had grown by more than 113 million since 1991. And the urban by over 68 million. So rural India had added 45 million people more than urban. In 2011, urban India's increase was greater than that of rural India's by nearly half a million, a huge change. The last time the urban increase surpassed the rural was 90 years ago, in 1921. Then, the rural total actually fell by close to three million compared to the 1911 Census.

However, the 1921 Census was unique. The 1918 Influenza epidemic that killed 50-100 million people worldwide, ravaged India. Studies of the 1921 Census data say it records between 11 and 22 million deaths more than would have been normal for that decade.

There was also the smaller impact of World War I in which tens of thousands of Indian soldiers died as cannon fodder for Imperial Britain in Europe and elsewhere.

If Influenza left its fatal imprint on the 1921 enumeration, the story behind the numbers of the 2011 Census speaks of another tragedy: the collapse of millions of livelihoods in agriculture and its related occupations. And the ongoing, despair-driven exodus that this sparked in the countryside.

The 2011 Census captures only the tip of an iceberg in terms of rural upheaval. The last time urban India added more numbers to its population than rural India was 90 years ago and that followed giant calamities in public health and war. Yet, without such conditions, urban India added 91 million to its 2001 total, against rural India's 90.6 million. (Table 1). Nor can this reversal be fully captured by the factors Census 2011 cites as driving the urban increase. Take 'migration.' In public debate, 'urban' is often equated with big metros. This conjures images of massive waves of people from villages heading straight for the big metros. And this flow, you will be assured, is falling. (Vital data on this will emerge only next year and might surprise us).

The Census data, however, do not convey the harshness and pain of the millions trapped in "footloose" migrations. That is, the desperate search for work driving poorer people in many directions without a clear final destination. Like Oriya migrants who work some weeks in Raipur. Then a couple of months at brick kilns in Andhra Pradesh. Then at construction sites in diverse towns in Maharashtra. Their hunger, and contractor, drive them to any place where there is work, however brief. There are rural migrations to both metros and non-metro urban areas. To towns and smaller cities. There are also rural to rural migrations. There are urban-urban migrations. And even, in smaller measure, urban to rural migrations.

Flight from agriculture

Neither the Census nor the National Sample Survey is geared to capture the complexity of India's migrations. A migrant in the Census is someone counted at a place other than his or her last place of residence. This records a single move — not multiple migrations. So it sees only the tip of the mobility iceberg, missing footloose migrations altogether. What we do know from Census 2001 is of the flight from agriculture. Between 1991 and 2001, over seven million people for whom cultivation was the main livelihood, quit farming. That is a mind-boggling figure. It suggests that, on average, close to 2,000 people a day abandon farming in the country. Where do they go? Nothing in employment data suggests they get absorbed in decent work in bustling cities.

What about 'natural increase' (the difference between the numbers of births and deaths in a population)? That does not explain the switch around in rural-urban increases either. Indeed, the rate of natural increase has declined in both rural and urban areas. Still the urban population and towns get bigger and bigger.

As Registrar General and Census Commissioner of India Dr. C. Chandramouli puts it: “Fertility has declined across the country. There has been a fall in numbers even in the 0-6 age group, as a proportion of the total population. In fact, in absolute numbers too, this group (now 158.8 million) has declined by five million, compared to the previous Census. This would suggest migrations as a significant factor in urban growth. But what kind of migrations we can only ascertain or comment on when their patterns emerge more clearly. The Census in itself is not structured to capture short-term or footloose migrations.”

We also get an extraordinary picture when viewing what demographers call the ‘Urban-rural growth differential.’ The URGD is simply the difference between the rates at which rural and urban populations expanded in each decade. It is also a rough and ready index of the extent of rural-urban migrations. The URGD in the 2011 Census is 19.8, the highest in 30 years.

‘Natural increase’ does not then account for the growth in urban numbers. Certainly not for the 30 per cent rise in urban population in the States. Thousands of towns today have far larger populations than they used to have — but not due to natural increase. The reason is migrations on a massive scale. Rural folk still outnumber urban people by more than two to one. In the 2001 Census, rural family size (5.4) remained bigger than urban family size (5.1). Also striking, States like Uttar Pradesh and Bihar show massive falls in growth rates in 2011. In the 2001 Census, Uttar Pradesh and Bihar were “the two States with largest number of net migrants migrating out of the state.”

The other factor cited by the current Census for the turnaround is interesting. “Inclusion of new areas under ‘Urban’.” The number of ‘statutory towns’ has gone up by a mere 241 since 2001. Compare that with the preceding decade when they rose by 813, or more than three times that number. (A ‘Statutory town’ is an urban unit with a municipality, corporation, cantonment board or notified town area committee.)

There is, however, a boom in the number of ‘Census towns.’ In the decade 1991-2001, Census towns actually declined from 1,702 to 1,361. In the 2011 Census, they nearly tripled to 3894. That is stunning (Tables 2 and 3). How did this happen? And what is a ‘Census town?’ This is a village or other unit declared as a town when: its population crosses 5,000; when the number of male workers in agriculture falls to less than 25 per cent of the total; and where population density is at least 400 per square kilometre.

At the very least, this means the male workforce in agriculture has collapsed in thousands of villages, falling to less than a quarter of all workers. So the farm exodus continues. What might the 2011 data on cultivators show us when it is out late next year? It could show us that the numbers quitting cultivation since 2001 might equal or exceed the over seven million dropouts of the previous decade.

Pregnancy and Obestrics

Exposure to Magnetic Fields in Pregnancy Increases Asthma Risk, Study Suggests (Science Daily: 2.8.2011)

Women with high exposure to magnetic fields during pregnancy may have a higher risk of asthma in their children, according to a Kaiser Permanente study appearing online in the Archives of Pediatrics & Adolescent Medicine.

In this prospective study, researchers compared the daily magnetic field exposure of 801 pregnant women in Kaiser Permanente Northern California and used electronic medical records to follow their children for 13 years to see which children developed asthma. The study found that women with high MF exposure in pregnancy had a more than threefold risk of asthma in their offspring compared with mothers whose exposure level was low.

This is the first study to demonstrate a link between maternal magnetic field exposure in pregnancy and the risk of asthma in offspring. Previous research has found that MF -- generated typically by power lines and appliances such as microwave ovens, hair dryers and vacuum cleaners -- could lead to miscarriage, poor semen quality, immune disorders, and certain type of cancers. Recently, the International Agency for Research on Cancer, a WHO agency, classified radio frequency EMF as a possible carcinogen.

"While the replication of the finding is needed, the message here is exposure to electromagnetic fields is not good, and we need to pay attention to its adverse effect on health," said study lead author De-Kun Li, MD, PhD, a reproductive and perinatal epidemiologist at the Kaiser Permanente Division of Research in Oakland, Calif. Dr. Li published the original study in 2002 that found high MF exposure can lead to miscarriage.

The prevalence of asthma has been steadily rising since the 1980s, making it the most common chronic condition among children. Thirteen percent of children under 18 have asthma, which is caused by malfunction of the respiratory organs and the immune system.

"EMF exposure is ubiquitous. Because of the widespread exposure, any adverse health effect of EMF could impact many people and cause a serious public health problem," said Dr. Li.

Studying the EMF health effect has been difficult because everyone is exposed to EMF at some level, so there is no truly "unexposed control group" for easy comparison, researchers said. Health researchers must rely on comparing those with high EMF exposure levels to those with low EMF exposure levels to detect potential adverse EMF effects, Li said.

Women in this study wore a small meter during their pregnancy that measured their daily exposure to low frequency MFs from electricity-related sources such as microwave ovens, hair dryers, vacuum cleaners, fans, coffee grinders and fluorescent light bulbs, power lines, and transformer stations. This study did not measure high frequency (radio frequency) MFs from wireless networks, wireless towers and wireless devices such as cell phones and smart meters. The researchers adjusted for study participants who lived near freeways but it did not change the results of the EMF-asthma association.

"In this study, we observed a dose-response relationship between mother's MF level in pregnancy and the asthma risk in her offspring. In other words, a higher maternal MF exposure during pregnancy led to a higher asthma risk in offspring," Dr. Li said.

In this new study, the researchers also found that two known risk factors for asthma, maternal history of asthma and being the first-born child, exacerbated the MF effect on the asthma risk. "This finding further supports the MF-asthma association," says Dr. Li.

"The best way to reduce your magnetic field exposure is distance. Magnetic field strength drops dramatically with increasing distance from the source," said Li. "So pregnant women should try to limit their exposure to known MF sources and keep distance from them when they are in use."

The study was funded in part by the California Public Health Foundation. Co-authors on the study include Hong Chen, MPH, and Roxana Odouli, MSPH, both of the Kaiser Permanente Division of Research.

Pregnancy

Smoking during pregnancy ups kids' asthma risk: Study (World Newspapers: 26.8.2011)

Children with severe asthma are 3.6 times more likely to have been exposed to tobacco smoking before birth than children with a mild form of the disease, according to a new study.

The prenatal exposure also was associated with three times the number of daily and night-time asthma symptoms later in the child's life, as well as nearly four times the number of asthma-related emergency room visits, the report said.

The prenatal impact far outweighed the role of exposure to cigarette smoke during the first two years of life, or current exposure to smoke, the study found.

This research team, which spanned 16 institutes and centers in the continental United States, Puerto Rico and Mexico, set out to determine when that exposure has the greatest impact, before birth, in the first two years, or at the time of the child's symptoms.

They assessed 295 children with asthma, aged 8 to 16 years, from an existing study group of participants with Mexican, Puerto Rican and African American heritage.

“The only outcome that had an impact on the severity of asthma was smoking during pregnancy,” said Haig Tcheurekdjian, MD, a professor at Case Western Reserve University who was the co-senior author on the paper with UCSF’s Esteban Burchard, MD, MPH.

“Even after controlling for all of the other co-factors, the children who had the most severe forms of asthma were more than three times more likely to have had a mother who smoked while she was pregnant,” he added.

Smoking during pregnancy has previously also been linked to asthma, the researchers said, but why prenatal exposure would affect the child’s lungs is unclear, since they’re not inhaling the smoke.

Researchers have speculated that this involved a genetic predisposition to lung inflammation, impaired lung development or the negative effects of tobacco smoke.

The current study points to genetic changes that occur long before a child takes its first breath.

“There are environmental factors that leave their fingerprint on DNA and may have their expression several years out,” explained Burchard, a UCSF clinical professor of Bioengineering and Therapeutic Sciences and Medicine who studies asthma genetics.

The study will be published in the journal *Pediatrics*.

Pregnancy

Right diet during pregnancy (The Tribune: 21.9.2011)

Right diet is essential for fitness and good health, and assumes great importance during pregnancy. Poor maternal nutrition is one of several factors which may result in growth restriction of the baby. Growth-retarded babies suffer from an increased risk of foetal, neonatal and infant death. Childhood growth, immunity and intellectual development may all suffer. Poor foetal nutrition has also been shown to result in a higher risk of chronic disease in adult life; notably, heart disease and diabetes.

Dietary requirements

Three hundred calories a day, over and above a daily requirement of 1500 calories, is what pregnant women additionally need. Your diet must include proteins, carbohydrates,

fats, vitamins, and minerals. Protein is essential for the buildup of tissues, and pregnant women need around 60 grams of protein per day.

Here is a list of things to incorporate in your diet:

Dairy products (milk, yoghurt, and cheese): 3 cups a day, preferably low fat.
Bread/chapatti/cereal/ rice: 6 ounce equivalent

Vegetables: 2.5 cups of fruit: 2 cups of meat/poultry/ fish/dry beans/eggs/ nuts: 5.5 ounce
oil and fats: sparingly.

Vitamins and minerals

Folate: It belongs to the B group of vitamins, and its synthetic form, present in supplements, is called folic acid. It helps prevent abnormalities of the brain as well as the spinal cord. Preterm delivery, low birth weight and poor foetal growth have been shown to be related to a deficiency of this vitamin. Nearly 600 micrograms of folate or folic acid is required per day before conception and during pregnancy. Naturally occurring folate is present in leafy green vegetables, dried beans and peas, and citrus fruits. Remember to take folic acid supplements, too, generally prescribed in tablet form by your doctor.

Calcium: The circulatory, muscular and nervous systems depend on an adequate intake of calcium for their normal functioning. Both you and your developing baby require calcium for strong bones and teeth. One thousand mg of calcium a day is needed during pregnancy, and is best obtained from dairy products. Your baby's needs during this period will be met by drawing on calcium reserves in your bones if your dietary calcium is found wanting.

Iron: Iron is required for the production of haemoglobin. This protein is contained in red blood cells and transports oxygen to your tissues. A deficiency of iron results in anaemia, with the loss of energy and fatigue. Premature delivery and low birth weight are often a consequence. Iron requirements double during pregnancy (27 milligrams a day) and can be derived from poultry, lean red meat and fish. Iron-fortified foods, dried fruit and nuts are other important sources. Dietary iron can rarely meet all your requirements. Supplements are a must.

Zinc: Eleven milligrams of zinc is required per day during pregnancy, an adequate intake of which is considered essential for normal growth and development. A deficiency of this mineral may result in prolonged labour and growth-retarded babies.

Fluids: Drink lots of fluids, especially water and fresh fruit juices. Make sure you drink clean, filtered water. Most diseases are caused by water-borne viruses. Go easy on packaged juices as they have a high sugar content.

What you must avoid

Avoid alcohol altogether during pregnancy, as alcohol intake is clearly harmful to the developing foetus. Smoking during pregnancy will adversely affect your health as well as your baby's health during pregnancy and thereafter. Substances like nicotine (the addictive substance in cigarettes) and carbon monoxide, inhaled while smoking, are carried through your bloodstream to your developing baby. Foetal growth may suffer as a result of maternal caffeine intake. Eight or more cups of coffee a day are associated with a higher risk of stillbirth. So, restrict the coffee breaks during pregnancy. Similarly, unnecessary use of drugs of any kind, especially the addictive ones, are a strict "no".

The other food to be avoided is raw seafood such as oysters or uncooked sushi, large predator fish such as shark or swordfish as it may contain unsafe levels of mercury. Also avoid processed or canned fish, which is preserved in a salt solution, which may lead to water retention.

Sleep Disorder

Sleep deprivation

Sleep deprivation and snoring can endanger health (The Tribune: 8-6-2011)

While the song “Yaad mein teri rat bhar karvatein badalte hain” may bring back the romantic nostalgia of the 1970s, it highlights the perils of sleep deprivation in medical parlance. Those who do not get enough sleep may be subjecting their bodies to various health concerns that can range from mild fatigue to severe heart attacks.

Chronic sleep deprivation can cause body pain, memory loss and difficulty in learning. It can also lead to weight gain and diabetes, and mistakes such as medical errors, air traffic mishaps and accidents. In the long run, it can alter immune functions besides mood changes like irritability, impatience, inability to concentrate and even sterility and impotence. The sleeplessness can also cause wrinkles on the face, cold and flu, high blood pressure and obesity.

If a person has excessive daytime sleepiness along with night time snoring, a condition called obstructive sleep apnoea (OSA), many problems can arise. Often, snoring (khurrate marna) has been taken amusingly by various people. Remember, snoring is no laughing matter. It is a serious health issue and you can ignore it at great health peril. Untreated OSA can severely affect the quality of married life, health and mortality, and can be a contributing factor to several health problems as mentioned above. The possibility of this disorder increases with a person's age and weight. The redeeming feature is that OSA is now manageable.

What is OSA?

Sleep apnoea — cessation of breathing during sleep at night for 10 seconds or more — affects about 20 per cent of the adult population. When an apnoea occurs, sleep is disrupted. Sometimes this means the person wakes up completely, but sometimes this can mean the person comes out of a deep level of sleep and into a more shallow level. It is estimated that about 90 per cent people with OSA remain undiagnosed and less than 1 per cent get treated. Research shows that 50 per cent of type2 diabetics also have OSA. In a patient with high blood pressure, stroke, daytime sleepiness, ischemic heart disease, OSA can worsen the situation. There are an estimated 30 million suspected sleep apnoea sufferers in the urban and metro areas alone in India, and there are only about 100 sleep laboratories in the country to cater to these patients. How to help so many sleep sufferers? Sleep apnoea is detected through ApneaLink, a compact automatic device that records the apnoea index, snoring, oxygen desaturation and pulse during sleep, and determines whether a person has sleep apnoea. The device can be comfortably worn by the person just before sleeping. It is an overnight study that can be done at the privacy and comfort of a person's home. In the morning, a simple, summarised and easy-to-interpret report

with a colourcoded risk indicator is generated for the doctor to diagnose the existence of OSA.

CPAP treatment

Once a person is diagnosed as a patient of OSA, the doctor prescribes continuous positive airway pressure (CPAP) therapy. It is the most common and widely accepted treatment for OSA. It is safe, effective and non-invasive, and does not require drugs or surgery. In CPAP therapy, a portable bedside device gently pushes air via a mask and the slight air pressure keeps the airway open and prevents apnoeas from occurring. Earlier CPAP devices were complex and bulkier. However, with technological advancements driven by innovation, CPAP devices have become smaller, lighter, and more sophisticated. Patient compliance and comfort levels have been enhanced. However, awareness and accessibility still remain a challenge.

By eliminating apnoeas, CPAP therapy improves a person's sleep, reduces OSA-related health risks and enables him/her to lead an energetic, healthy and potentially longer life. Among diabetics, CPAP therapy has shown improved insulin sensitivity, aftermeal blood glucose and HbA1C level, blood pressure and cardiovascular health, and reduced diabetesrelated complications. It also prevents marital discords due to snoring.

Sleep disorder

Sleep disorder could lead to Parkinson's disease

Rapid eye movement (REM) sleep behaviour disorder, which involves abnormal behaviour when one experiences nightmares and vivid dreams, could lead to Parkinson's disease. People find themselves screaming, crying or punching when they are being attacked and pursued during nightmares, in the sleep disorder.

Sickness

In sickness and in dearth (The Hindustan Times: 4.8.2011)

India's health infrastructure is in a comatose state and the poor are paying a heavy price

'T hese things take time' is the routine answer from officialdom when asked why things are not improving in India's public healthcare system. But for the chronically ill patients who have been forced to live in a urinal on the premises of India's premier referral hospital, the All India Institute of Medical Sciences (AIIMS), time is running out. In a shocking story, this paper has chronicled the appalling manner in which people from distant places, many with heart ailments and cancers, have no place to go while awaiting treatment other than the pavement and in some cases, as documented, a urinal. If this does not shake up a moribund health ministry, nothing will. That these unfortunate

people had to travel all the way to AIIMS for treatment is in itself a scandal. Clearly, it is because the specialised care they need is not remotely close at hand in other states.

With a patient to bed ratio of 1:65 and a doctor to patient ratio of 1:1,300, AIIMS is already stretched to breaking point. It is no secret that India today has a dual burden of disease with not just a deadly cocktail of communicable ailments but also lifestyle ones like diabetes and cardiovascular diseases. Seventy per cent of cancers are detected in advanced stages. These cannot be treated at local facilities, they require specialised care. But as the plight of those at AIIMS shows, the malaise at the bottom of the pyramid which is public health centres equally affects the top end. The same crippling infrastructural deficiencies have created a situation where getting the appropriate treatment is never guaranteed. The ministry of health and state health departments as always assure us that initiatives are underway. If so, we would like to hear more about them.

One ambitious plan has been to decongest AIIMS and move non-critical care to another facility. But that is a drop in the ocean given the millions who need the kind of care that facilities like AIIMS can provide. For years, the health ministry, run by one inept minister after another, has been proposing to set up AIIMS-like centres in other metros and towns across the country. This would mean that patients could access them far more easily and would not have to come all the way to the capital for affordable, quality care. Even if by some miracle such facilities sprang up overnight with adequate infrastructure, the next problem would be that of personnel. There are massive lacunae in the field of nursing and ancillary health staff, all vital for critical care. But, we presume, plugging that will 'take time'. If the government moves to provide safe, clean shelter for these patients living out their days in a urinal, it would send out a small, but right signal.

Sleep

Nightcaps can spoil your sleep: (The Times of India: 17.8.2011)

It's often said a shot of whisky at night is one of the best ways to go to bed. But, now a study claims that a wee dram before bedtime can spoil one's sleep. An international team, led by Akita University in Japan, has carried out the study and found that downing alcoholic drinks before bedtime can cause insomnia and spoil a person's nightcap.

Sleeping Beauty

Meet Sleeping Beauty in Real Life (Med India: 17.8.2011)

Lily Clarke, 21, can sleep for two months at a stretch, suffering from a rare medical condition called Kleine-Levin Syndrome.

Her 18th birthday went by without a party as she fell asleep just a few days before her birthday. She slept through University exams, Christmas and New Year.

Clarke came down with this condition in 2007. According to Adele, Lily Clarke's mother, she sleeps for 2 months at a stretch every seven months.

Unfortunately, there is no available cure for this syndrome which mostly affects young people.

Sleeping

Want a good night's rest? Sleep on your back (New Kerala: 18.8.2011)

It is proven that good night's sleep is important for numerous health benefits. But want to know what is the best sleep position to get a good night's rest?

The best position is to sleep on your back, according to a new study. It prevents neck and back pain, reduces acid reflux and minimizes wrinkles. Sleeping on your back makes it easy for your head, neck and spine to maintain a neutral position.

However, people with severe snoring or sleep apnea should avoid sleeping on their back. This position is recommended for people with neck pain along with a cervical roll or pillow.

The next best position is the side position. This position is great for your overall health. It prevents neck and back pain, reduces acid reflux and reduces snoring. This position is ideal for women who are pregnant. Women in late pregnancy should sleep on their left side to increase blood flow to the baby. Side sleeping keeps your spine elongated preventing back soreness.

Side-sleeping, however, tends to constrict the shoulder and neck muscles due to the weight of the head on the arm all night. Side-sleepers should do a shoulder stretch to stretch the back of the shoulders and prevent soreness.

Side-sleeping also might worsen facial wrinkles and increase breast sagging over time. This sleep position is recommended for people with back pain with a pillow under your knees to relieve strain on the lumbar spine.

The worst position to sleep in is on your stomach. The stomach position eases snoring but is bad for your neck and back. Stomach-sleeping makes it difficult to maintain a neutral position with your spine. It puts pressure on joints and muscles, which can irritate nerves and lead to pain, numbness and tingling.

Sleep Quality

New Tool to Assess Sleep Quality (Med India: 24.8.2011)

Australian researchers have devised a new tool called Actiwatch to assess the quality of one's sleep. And not just the sleep quality, but the duration and consistency of sleep, plus daytime activity patterns too. Resembling a wristwatch, the Actiwatch is worn 24 hours a day. It has colour light sensors that record measured sleep against the amount of light.

The Actiwatches have a highly-sensitive motion detector—known as an accelerometer—to measure activity levels, says Jennifer Girschik of the School of Population Health, University of Western Australia. “These are then processed by a computer algorithm that can infer being sleep and awake from the activity level,” she says.

“Because the watches measure sleep indirectly through activity levels, it is possible to ‘trick’ the watches. If people stay very still while awake the watch may interpret this as sleep, and similarly, if they are highly active during sleep the watch may interpret this as being awake. “However, they are surprisingly accurate. We also ask people to fill out sleep diaries so we can double-check on sleep–wake times and whether people took naps that might affect the output.”

The “gold standard” for measuring sleep is a polysomnogram (PSG), although it requires people to spend a couple of nights in a sleep lab. Newer PSG machines can be used at home but still require participants to be wired up with electrodes and measuring devices, which can actually affect their sleep quality.

Good night's sleep

Have a good night's sleep (The Times of India: 16.9.2011)

Rama Awasthi, hypnotherapist and healer, says that the body and mind must be in harmony to enjoy sound sleep every night. Any imbalance between the mind and body disturbs our sleep pattern.

Asound sleep helps our body remain physically and mentally fit. Any imbalance between the mind and body disturbs our sleep pattern. This usually happens in the following situations:

Tired body, active mind

At night, when your body becomes tired, it needs rest. At the same time, if your mind is active, then sound sleep is not possible. We make our mind active by watching TV till late in the night and by engaging in conversation which stimulates our endocrine glands to release hormones which make our brain waves high. The combination of a tired body and a brain with high waves is not conducive to a good night's sleep.

Tired mind, active body

This condition is common with people who have a sedentary lifestyle. By night, the mind becomes tired, but the body doesn't because you didn't use it much during the day. We further make our body more active by having a late dinner. We retire to bed with a tired mind, but also with an active body which is still engaged in digesting food, hence not ready to slow down.

Unconnected:

Restless sleepers are usually people not connected with themselves. Being less connected simply means the person cannot recognise his body's needs. Sleeplessness is a signal from your body that it requires your attention. Sleeping well is about bringing your body and mind to a point where both slow down after a hard day's work.

Say good night:

- Stop mental activity which raises brain waves an hour before sleeping. Avoid stimulating conversations on work or family matters and switch off TV. Listen to light instrumental music instead.

- Follow a relaxed breathing pattern when you lie down. Inhale deep, hold your breath for a few seconds and then exhale. While exhaling, say “release” in your mind. Repeat ten times. You will start relaxing.
- Working with soil for a few minutes everyday helps in getting a sound sleep. The soil (earth) absorbs our negativity. Maintain a small garden or keep potted plants and tend to them.
- Imagine yourself walking through a garden or relaxing on the beach. Recall this mental image when you go to bed every night. Also, do up your bedroom in soothing colours.

Sleep

Good Night's Sleep May Reduce Risk of Type 2 Diabetes in Obese Teens (Science Daily: 22.9.2011)

Obese teenagers who don't get the proper amount of sleep may have disruptions in insulin secretion and blood sugar (glucose) levels, say pediatric researchers. Their study suggests that getting a good night's sleep may stave off the development of type 2 diabetes in these adolescents.

"We already know that three out of four high school students report getting insufficient sleep," said study investigator Dorit Koren, M.D., a pediatric endocrinologist at The Children's Hospital of Philadelphia. "Our study found to keep glucose levels stable, the optimal amount of sleep for teenagers is 7.5 to 8.5 hours per night." She added that this is consistent with research in adults showing an association between sleep deprivation and increased risk of type 2 diabetes.

The study appears online in the journal Diabetes Care.

The researchers studied 62 obese adolescents with a mean age of 14 years at The Children's Hospital of Philadelphia. Over one and a half days, the children, who were white, African American and Hispanic teenagers, underwent glucose testing and an overnight sleep study. In addition to measuring total sleep time, the scientists studied "sleep architecture," analyzing stages of sleep such as slow-wave "deep" sleep and rapid eye movement (dream) sleep.

The optimal sleep duration was neither too little nor too much, said Koren; both insufficient and excessive sleep were linked to higher glucose levels. While sleep stages did not predict glucose levels, lower duration of N3 ("deep" sleep) correlated with decreased insulin secretion.

The current study was the first to associate sleep duration with glucose levels in children and to report a link between N3 sleep and insulin secretion.

"Reduced insulin secretion may lead to the higher glucose levels that we found in subjects who had insufficient sleep," said Koren. "We will seek to confirm these findings with home-based studies of sleep patterns in obese teenagers. In the meantime, our study reinforces the idea that getting adequate sleep in adolescence may help protect against type 2 diabetes."

Funding support for the study came from the Pennsylvania State Tobacco Settlement Fund and the National Center for Research Resources, (part of the National Institutes of Health). Koren's co-authors were Lorraine E. Levitt Katz, M.D., Paul R. Gallagher, M.A., Robert I. Berkowitz, M.D., and Lee J. Brooks, M.D., all of Children's Hospital; and Preneet C. Brar, M.D., of New York University School of Medicine. Koren, Levitt Katz, Berkowitz and Brooks are also from the Perelman School of Medicine at the University of Pennsylvania.

Smoking

Smoking

Quitting smoking at time of pregnancy leads to higher birth weight babies (New Kerala: 7-7-2011)

Washington, July 6 : Women who gave up smoking when their pregnancy was confirmed give birth to babies with a similar birthweight to those born to mothers who had never smoked, a new research has shown.

Professor Nick Macklon, from the Department of Obstetrics and Gynaecology and colleagues decided to investigate this question by studying clinical, lifestyle, and socioeconomic data collected from 50 000 pregnancies registered at the Southampton University Medical Centre between 2002 and 2010.

They identified seven groups of women – non-smokers, those who had stopped more than a year prior to conceiving, those who had stopped less than a year prior to conceiving, smokers who stopped once the pregnancy was confirmed, and those who continued to smoke up to 10 a day, between 10 and 20 a day, and more than 20 a day.

They proceeded to compare smoking behaviour in the mothers with perinatal outcomes in the children.

After correcting for gestational age, maternal age, BMI and socioeconomic class, all of which are known to affect birth outcomes, the researchers found that those babies whose mothers had stopped smoking in the periconceptional period – around the time of getting pregnant or as soon as the pregnancy was confirmed – had a significantly higher birthweight.

"Not only was birthweight much better in this group than it was in the groups where the mothers had continued to smoke, but we also found that the babies reached the same gestational age and head circumference as those born to women who had never smoked," said Professor Macklon.

The study was recently published at the annual conference of the European Society of Human Reproduction and Embryology.

Smoking

Withdrawal from Heavy Cigarette Smoking Associated With Brain Imaging Changes in Regions Related to Mood Regulation (Science Daily: 2.8.2011)

Findings from a brain imaging study may provide clues for why some individuals with heavy cigarette-smoking habits experience depressed mood upon withdrawal from smoking, according to a report in the August issue of Archives of General Psychiatry, one of the JAMA/Archives journals.

Cigarette smoking is the second leading cause of preventable death and is an important risk factor for coronary artery disease, lung disease, suicide and cancer, according to background information in the article. "Although many people who smoke cigarettes would like to quit, the effects of withdrawal frequently lead to relapse," write the authors. "Relapse is particularly problematic in early withdrawal because 50 percent of people relapse within the first 3 days of quitting."

Previous research into early cigarette withdrawal has focused on nicotine's modulation of dopamine-releasing neurons. "However, other neural targets that may be important in cigarette withdrawal are affected by cigarette smoke," write the authors. For instance, the enzyme monoamine oxidase A (MAO-A), which metabolizes mood-enhancing chemicals, has been shown to be affected by cigarette smoke. In regions of the brain that modulate affect (mood), such as the prefrontal cortex and anterior cingulate cortex, elevations in MAO-A binding are associated with depressive episodes. "The main hypothesis of this study," the authors explain, "is that MAO-A binding increases during acute cigarette withdrawal in regions implicated in affect regulation, such as the prefrontal cortex and the anterior cingulate cortex."

Ingrid Bacher, Ph.D., and colleagues from the Centre for Addiction and Mental Health, Toronto, and the University of Toronto, conducted a study of 24 healthy, nonsmoking individuals and 24 otherwise healthy cigarette-smoking individuals. Among the latter group, 12 were moderate smokers (15 to 24 cigarettes per day) and 12 were heavy smokers (25 or more cigarettes per day). Positron emission tomography (PET) scans were performed once in nonsmokers and twice in smokers (once after active cigarette smoking and once after acute withdrawal). Before scans were conducted, participants also completed an assessment of their mood, energy level, anxiety level and urge to smoke.

An elevation in MAO-A density during cigarette withdrawal was found in the heavy-smoking subgroup but not the moderate-smoking subgroup, with a magnitude of change of 23.7 percent and 33.3 percent in the prefrontal and anterior cingulate cortices, respectively. A highly significant interaction between smoking severity and condition (measurement of MAO-A density during active smoking and withdrawal) was noticed among participants who smoked heavily. The MAO-A density levels in the prefrontal and

anterior cingulate cortex were also significantly greater during heavy smokers' withdrawal period compared with healthy nonsmoking controls. In heavy-smoking individuals, researchers also noticed a change in depressed mood self-report between the withdrawal day and the active smoking day.

"These results have significant implications for quitting heavy smoking and for understanding what has previously appeared to be a paradoxical association of cigarette smoking with major depressive disorder and suicide," state the authors. "Understanding the neurobiology of heavy cigarette smoking is important because those who smoke heavily are much more likely to have major depressive disorder and to experience medical complications resulting from cigarette smoking." The researchers also call for clinical trials of MAO-A inhibiting drugs among individuals in the earliest stages of quitting heavy cigarette smoking.

Cigarette smoking,

Cigarette smoking, alcohol use ups risk of upper aero-digestive cancers (New Kerala: 4.8.2011)

A study has found that a combination of heavy alcohol use and cigarette smoking is the key factor in increasing the risk of upper aero-digestive cancers.

Upper aero-digestive tract cancers (UADT), especially those of the oral cavity, pharynx, and larynx, are often referred to as alcohol-related cancers as it has been shown repeatedly that heavy drinkers, in particular, are at increased risk.

A distinguished group of scientists from the International Agency for Research on Cancer (IRAC) evaluated the role of alcohol and tobacco consumption, based on 2,252 upper aerodigestive squamous-cell carcinoma cases and 1,707 controls from seven centres in Brazil, Argentina, and Cuba.

The case-control analysis showed that both alcohol consumption and smoking tended to increase the risk of such cancers.

However, the predominant cause of these cancers was the combination of smoking and alcohol consumption, with much higher risk than either exposure alone.

The effects on risk were greater for smoking than for alcohol: for non-smokers, there was little effect of alcohol alone on risk. For non-drinkers, the risk of cancer associated with smoking was still increased, but was lower than it was for current drinkers.

Overall, this study confirms that there is a tendency for an increase in risk for these cancers for both alcohol consumption and for tobacco use.

An especially important finding in this study was that, among ex-drinkers and former smokers, the increased risks associated with alcohol and tobacco use decreased steadily as the time since quitting increased.

As stated by the authors, most of these cancers "could be prevented by quitting the use of either of these two agents".

Early morning smokers

Early morning smokers at high risk of lung, head and neck cancers (World Newspapers: 9.8.2011)

Smokers who enjoy a cigarette soon after they wake up in the morning are more likely to develop lung and head and neck cancers than those who light up later in the day, a new study has shown.

Joshua Muscat, PhD, of the Penn State College of Medicine in Hershey, and his colleagues investigated whether nicotine dependence as characterised by the time to first cigarette after waking affects smokers' risk of lung and head and neck cancers independent of cigarette smoking frequency and duration.

The lung cancer analysis included 4,775 lung cancer cases and 2,835 controls, all of whom were regular cigarette smokers. Compared with individuals who smoked more than 60 minutes after waking, individuals who smoked 31 to 60 minutes after waking were 1.31 times as likely to develop lung cancer, and those who smoked within 30 minutes were 1.79 times as likely to develop lung cancer.

The head and neck cancer analysis included 1,055 head and neck cancer cases and 795 controls, all with a history of cigarette smoking. Compared with individuals who smoked more than 60 minutes after waking, individuals who smoked 31 to 60 minutes after waking were 1.42 times as likely to develop head and neck cancer, and those who smoked within 30 minutes were 1.59 times as likely to develop head and neck cancer.

"These smokers have higher levels of nicotine and possibly other tobacco toxins in their body, and they may be more addicted than smokers who refrain from smoking for a half hour or more," said Dr. Muscat.

The study has been published online in *Cancer*, a peer-reviewed journal of the American Cancer Society.

Morning smokers

Morning smokers at higher risk of cancer (The Times of India: 9.8.2011)

Are you among those who need a cigarette soon after waking up in the morning? Then, you have an increased risk of developing lung, and head and neck cancers, two new studies have warned.

Published online in the peer-reviewed American Cancer Society journal Cancer, the findings may help identify smokers who have an especially high risk of developing cancer and would benefit from targeted smoking interventions to reduce their risk.

"These (early morning) smokers have higher levels of nicotine and possibly other tobacco toxins in their body, and they may be more addicted than smokers who refrain from smoking for a half hour or more," said Joshua Muscat, of the Penn State College of Medicine in Hershey, who led both the studies.

"It may be a combination of genetic and personal factors that cause a higher dependence to nicotine," Muscat said.

Cigarette smoking increases one's risk of developing various types of cancers, but only some smokers get cancer.

Joshua Muscat and his colleagues tried to investigate whether nicotine dependence as characterized by the time to first cigarette after waking affects smokers' risk of lung and head and neck cancers independent of cigarette smoking frequency and duration.

Smoking

Smoking harms women more: Study (The Times of India: 12.8.2011)

Risk Of Developing Heart Disease Is 25% Higher Than In Men Who Smoke

This should come as a serious wake up call for female smokers. The risk of developing coronary heart disease is 25% higher for women smokers compared with men, according to a study published in the British medical journal 'The Lancet' on Thursday.

The authors say this could be due to the physiological differences between the sexes with cigarette smoke toxins having a more potent effect on women.

In India, more and more women are now taking to smoking. According to the Tobacco Atlas, the country ranks third in the top 20 female smoking populations across the globe. With around a crore female smokers in India, only the US with 2.3 crore female smokers and China with 1.3 crore female smokers, are worse off.

The study by Dr Rachel R Huxley from the University of Minnesota and Dr Mark Woodward from Johns Hopkins University involved a meta-analysis of around four million individuals and 67,000 coronary heart disease events from 86 studies.

The researchers found that the pooled adjusted female-to-male relative risk ratio (RRR) of smoking compared with not smoking for coronary heart disease (CHD) was 1.25 (25%) higher for women.

This RRR increased by 2% for every additional year of follow-up, meaning that the longer a woman smokes, the higher her risk of developing CHD becomes compared with a man who has smoked the same length of time.

The authors say: “The finding lends support to the idea of a pathophysiological basis for the sex difference. For example, women might extract a greater quantity of carcinogens and other toxic agents from the same number of cigarettes than men. This occurrence could explain why women who smoke have double the risk of lung cancer compared with their male counterparts.”

Worldwide, there are 1.1 billion smokers, of whom a fifth are women.

Every year, more than 5 million deaths occur that are directly attributed to tobacco, with 1.5 million of these deaths occurring in women. These figures are projected to increase to 8 million female smokers and 2.5 million deaths in women by 2030 if present patterns of smoking persist.

In a linked comment, Dr Matthew Steliga from the University of Arkansas says: “What makes the realisation that women are at increased risk worrisome is that the tobacco industry views women as its growth market.”

Cigarette smoking is one of the main causes of coronary heart disease worldwide. By 2030, coronary heart disease will be the main cause of death globally, and will be responsible for 9.6 million deaths — or 14% of the total every year.

The linked comment added, “In most societies smoking rates are higher for men than for women, but more men than women are giving up, and in some societies the number of female smokers is rising. With billions of pounds to spend on marketing -- by contrast with paltry funding for tobacco control --the tobacco industry continues to see a rise in profits globally. Thus, despite some success in reduction of smoking prevalence in men,

the rise or even stabilisation of smoking in women will unfortunately result in substantial, preventable coronary heart disease morbidity and mortality.”

According to Tobacco Atlas, India ranks third among the top 20 female smoking populations across the world

Cigarette Smoking

Cigarette Smoking Implicated in Half of Bladder Cancers in Women; Bladder Cancer Risk from Smoking Is Higher Than Previously Estimated, Study Confirms (Science Daily: 17.8.2011)

Current cigarette smokers have a higher risk of bladder cancer than previously reported, and the risk in women is now comparable to that in men, according to a study by scientists from the National Cancer Institute (NCI), part of the National Institutes of Health

The report was published on Aug. 16, 2011, in the Journal of the American Medical Association.

This latest study uses data from over 450,000 participants in the NIH-AARP Diet and Health Study, a questionnaire-based study that was initiated in 1995, with follow-up through the end of 2006.

While previous studies showed that only 20 to 30 percent of bladder cancer cases in women were caused by smoking, these new data indicate that smoking is responsible for about half of female bladder cancer cases -- similar to the proportion found in men in current and previous studies. The increase in the proportion of smoking-attributable bladder cancer cases among women may be a result of the increased prevalence of smoking by women, so that men and women are about equally likely to smoke, as observed in the current study and in the U.S. population overall, according to surveillance by the CDC. The majority of the earlier studies were conducted at time periods or in geographic regions where smoking was much less common among women.

The researchers found that the amount of risk brought on by smoking, called excess risk, was higher in this study than in previously reported. "Current smokers in our study had a fourfold excess risk of developing bladder cancer, compared to a threefold excess risk in previous studies. The stronger association between smoking and bladder cancer is possibly due to changes in cigarette composition or smoking habits over the years," said study author Neal Freedman, Ph.D., in NCI's Division of Cancer Epidemiology and Genetics (DCEG). "Incidence rates of bladder cancer in the United States have been relatively stable over the past 30 years, despite the fact that smoking rates have decreased

overall. The higher risk, as compared to studies reported in the mid-to-late 1990s, may explain why bladder cancer rates haven't declined."

Although there have been reductions in the concentrations of tar and nicotine in cigarette smoke, there have been apparent increases in the concentrations of certain carcinogens associated with bladder cancer. A 2009 NCI/DCEG study was the first to suggest a higher risk for smoking-induced bladder cancer than previously reported. That report, based on data from the New England Bladder Cancer Study, found that the association between cigarette smoking and risk of bladder cancer appeared to be stronger than it was in the mid-1990s. The results of the new study confirm the 2009 report.

In the current study, former smokers were twice as likely to develop bladder cancer as never smokers, and current smokers were four times more likely than those who never smoked. As with many other smoking-related cancers, smoking cessation was associated with reduced bladder cancer risk. Participants who had been smoke-free for at least 10 years had a lower incidence of bladder cancer compared to those who quit for shorter periods of time or who still smoked.

"Our findings provide additional evidence of the importance of preventing smoking initiation and promoting cessation for both men and women," said senior author Christian Abnet, Ph.D., also from DCEG. "Although the prevalence of cigarette smoking has declined, about 20 percent of the U.S. adult population continues to smoke."

Even though smoking carries the same risk for men and women, men are still about four times more likely to be diagnosed with bladder cancer. These results, as well as those from previous studies, suggest that difference in smoking rates explain only part of the higher incidence rates in American men. The researchers suggest that occupational exposures, as well as physiologic differences, may contribute to the gender disparity.

In 2011, approximately 69,250 people will be diagnosed with bladder cancer in the United States, and 14,990 will die from the disease.

Tobacco

Tobacco causing 50% head, neck cancers: Study (World Newspapers: 23.8.2011)

Tobacco consumption is causing nearly half of head and neck cancers in the country, a study by a cancer research centre said in Delhi on Sunday.

"Nearly 50 per cent of head and neck cancers are caused by the use of tobacco. This is contrary to the popular belief that consumption of tobacco only causes oral and lung cancer," said the study by Delhi's Dharamshila Hospital and Research Centre.

A total of 915 cases registered and operated under surgical oncology (head and neck) from 2000 to 2010 were considered.

"Around 96 per cent head and neck cancers are caused by consuming smokeless tobacco," the study said.

According to a study by the Global Adult Tobacco Survey (GATS) in 2009, India accounts for nearly 274.9 million tobacco users -- around 35 percent of the total population.

Smoking

Smoking during pregnancy ups kids' asthma risk (New Kerala: 24.8.2011)

Children with severe asthma are 3.6 times more likely to have been exposed to tobacco smoking before birth than children with a mild form of the disease, according to a new study.

The prenatal exposure also was associated with three times the number of daily and night-time asthma symptoms later in the child's life, as well as nearly four times the number of asthma-related emergency room visits, the report said.

The prenatal impact far outweighed the role of exposure to cigarette smoke during the first two years of life, or current exposure to smoke, the study found.

This research team, which spanned 16 institutes and centers in the continental United States, Puerto Rico and Mexico, set out to determine when that exposure has the greatest impact - before birth, in the first two years, or at the time of the child's symptoms.

They assessed 295 children with asthma, aged 8 to 16 years, from an existing study group of participants with Mexican, Puerto Rican and African American heritage.

"The only outcome that had an impact on the severity of asthma was smoking during pregnancy," said Haig Tcheurekdjian, MD, a professor at Case Western Reserve University who was the co-senior author on the paper with UCSF's Esteban Burchard, MD, MPH.

"Even after controlling for all of the other co-factors, the children who had the most severe forms of asthma were more than three times more likely to have had a mother who smoked while she was pregnant," he added.

Smoking during pregnancy has previously also been linked to asthma, the researchers said, but why prenatal exposure would affect the child's lungs is unclear, since they're not inhaling the smoke.

Researchers have speculated that this involved a genetic predisposition to lung inflammation, impaired lung development or the negative effects of tobacco smoke.

The current study points to genetic changes that occur long before a child takes its first breath.

"There are environmental factors that leave their fingerprint on DNA and may have their expression several years out," explained Burchard, a UCSF clinical professor of Bioengineering and Therapeutic Sciences and Medicine who studies asthma genetics.

The study will be published in the journal *Pediatrics*.

Early morning smokers

Early morning smokers at heightened cancer risk (New Kerala: 26.8.2011)

Smokers who enjoy a cigarette soon after they wake up in the morning are more likely to develop lung and head and neck cancers than those who light up later in the day, a new study has shown.

Joshua Muscat, PhD, of the Penn State College of Medicine in Hershey, and his colleagues investigated whether nicotine dependence as characterized by the time to first cigarette after waking affects smokers' risk of lung and head and neck cancers independent of cigarette smoking frequency and duration.

The lung cancer analysis included 4,775 lung cancer cases and 2,835 controls, all of whom were regular cigarette smokers. Compared with individuals who smoked more than 60 minutes after waking, individuals who smoked 31 to 60 minutes after waking were 1.31 times as likely to develop lung cancer, and those who smoked within 30 minutes were 1.79 times as likely to develop lung cancer.

The head and neck cancer analysis included 1,055 head and neck cancer cases and 795 controls, all with a history of cigarette smoking. Compared with individuals who smoked more than 60 minutes after waking, individuals who smoked 31 to 60 minutes after waking were 1.42 times as likely to develop head and neck cancer, and those who smoked within 30 minutes were 1.59 times as likely to develop head and neck cancer.

"These smokers have higher levels of nicotine and possibly other tobacco toxins in their body, and they may be more addicted than smokers who refrain from smoking for a half hour or more," said Dr. Muscat.

The study has been published online in *Cancer*, a peer-reviewed journal of the American Cancer Society.

Smoking

Smoking parents cause children to skip school more often (World Newspapers: 7.9.2011)

Children exposed to second-hand smoke at home miss more days of school than their peers who live in smoke-free homes, a new study has found.

Researchers at the Massachusetts General Hospital (MGH) in the US found that children living with smoker parents have higher rates of respiratory illnesses caused by second-hand smoke.

"Among children ages 6 to 11 who live with smokers, one quarter to one third of school absences are due to household smoking," said lead researcher Douglas Levy of the Mongan Institute for Health Policy at MGH.

"On a national basis these absences result in \$227 million in lost wages and time for caregivers or their employers," Levy said.

The researchers, who reported their study online in the journal *Pediatrics*, noted that one-third of US children live with at least one smoker, and more than half of those aged 3 to 11 years have detectable levels of a blood marker for tobacco exposure.

Second-hand smoking has been shown to increase incidence of ear infections and several respiratory conditions, and school absenteeism is an accessible measure of serious illness in children.

Earlier studies of the relationship between lost school days and household smoking have focused on local populations and did not evaluate the severity of the problem's impact.

For their research, the MGH team analysed data from the 2005 National Health Interview Study, an annual in-person survey of representative households nationwide.

They evaluated the children's general health by asking their parents about their smoking habits and the number of time the kids missed school due to illness. They also asked the type of illness the children suffered in the past.

Of the 3,087 children whose information was analysed for this study, more than 14 per cent lived in a home with at least one person who smoked in the house - 8 per cent lived with one household smoker and 6 per cent with two or more - which represents 2.6 million children nationwide.

Children living with one in-home smoker had an average of 1.06 more days absent, and those living with two or more had 1.54 more days absent than did children living in homes where no one smoked indoors.

Tobacco

Tobacco warning to put warning (The Asian Age: 16.9.2011)

After making “harsh” pictorial warnings mandatory to be depicted on tobacco products from December 1, the Union health ministry has now also made it compulsory for the tobacco sellers to ensure displaying of a board containing a pictorial depiction of the ill-effects of tobacco use on health.

According to a recent amendment in the rule, the board shall not have any advertisement or promotional messages or pictures or images of cigarettes or any other tobacco products.

The owner or the manager or the in-charge of the affairs of a place where cigarettes or other tobacco products are sold shall therefore have a board containing the warning “sale of tobacco products to a person below the age of 18 years is a punishable offence,” in Indian language(s) along with a photo depicting facets of “mouth cancer”.

The ministry officials feel that this will could act a deterrent for the smokers specially — the minors.

“The message should be loud and clear. The board shall big and of white background with a pictorial warning. There are many people who do not smoke in their residence and come out to smoke, especially the minors. This may make them realise how harmful smoking is,” said a senior official. The new rule gains significance as the recent Global Youth Tobacco Survey 2009 which is conducted among 13-15 years concluded that 14.6 per cent children of this age group are consuming tobacco.

The recent Global adult Tobacco Survey (GATS) also reveals that the age of initiation of tobacco use is less than 18 years. Some 35 per cent of adults in India use tobacco in some form or the other — 21 per cent or 163.7 million adults use

smokeless tobacco, 9 per cent smoke and 5 percent smoke as well as use smokeless tobacco.

While the sale to a minor is prohibited, it has also been mandatory that no tobacco products is handles or sold by a person below the age of 18 years. “The onus of proof that the buyer of the tobacco produce is not a person below 18 years lies with the seller of the tobacco product and the seller in case of doubts can request the buyer to provide appropriate evidence or age proof of having reached 18 years of age,” it reads.

Also, from now on “no tobacco would be sold through vending machines”. Tobacco kills about 90,0000 people in India every year, a major chunk of the 5.5 million tobacco-related deaths worldwide. “It has been seen that often minors catch hold of this habit due to its easy assess, we want this to be stopped,” added the official.

Smoking

Remember this: Kicking the butt boosts memory (The Times of India: 23.9.2011)

Here is another reason why you should kick the butt — people who smoke lose around one third of their everyday memory, a new British study has suggested. However, the Northumbria University study also found that giving up the habit can restore the ability to recollect information restored to almost the same level as nonsmokers.

For the latest study, the researchers recruited more than 70 people aged between 18 and 25 years who were participated in a tour of the university's campus. Those who took part were asked to recall small details, such as music acts listed to play at the students' union and tasks completed at various points —known as real world memory test. Smokers performed badly, remembering just 59% of tasks. However, those who had given up smoking remembered 74%, while those who had never smoked recalled 81% of tasks.

According Dr Tom Heffernan, head of the University's Drug and Alcohol Research Group, the findings would be useful in anti-smoking campaigns. Given that there are millions of smokers in the world, it's important to understand the effects smoking has on everyday cognitive function, of which prospective memory is an excellent example, he said. “This is the first time that a study has set out to examine whether giving up smoking has impact on memory.”

“We already know that giving up smoking has huge health benefits for the body, but this study also shows how it can have knock-on benefits for cognitive functions too,” he added.

Tobacco

Big Tobacco Knew Radioactive Particles in Cigarettes Posed Cancer Risk but Kept Quiet, Study Suggests (Science Daily: 30.9.2011)

Tobacco companies knew that cigarette smoke contained radioactive alpha particles for more than four decades and developed "deep and intimate" knowledge of these particles' cancer-causing potential, but they deliberately kept their findings from the public, according to a new study by UCLA researchers.

The analysis of dozens of previously unexamined internal tobacco industry documents, made available in 1998 as the result of a legal settlement, reveals that the industry was aware of cigarette radioactivity some five years earlier than previously thought and that tobacco companies, concerned about the potential lung cancer risk, began in-depth investigations into the possible effects of radioactivity on smokers as early as the 1960s.

"The documents show that the industry was well aware of the presence of a radioactive substance in tobacco as early as 1959," the authors write. "Furthermore, the industry was not only cognizant of the potential 'cancerous growth' in the lungs of regular smokers, but also did quantitative radiobiological calculations to estimate the long-term lung radiation absorption dose of ionizing alpha particles emitted from cigarette smoke." The study, published online Sept. 27 in *Nicotine & Tobacco Research*, the peer-reviewed journal of the Society for Research on Nicotine and Tobacco, adds to a growing body of research detailing the industry's knowledge of cigarette smoke radioactivity and its efforts to suppress that information.

"They knew that the cigarette smoke was radioactive way back then and that it could potentially result in cancer, and they deliberately kept that information under wraps," said the study's first author, Hrayr S. Karagueuzian, a professor of cardiology who conducts research at UCLA's Cardiovascular Research Laboratory, part of the David Geffen School of Medicine at UCLA. "Specifically, we show here that the industry used misleading statements to obfuscate the hazard of ionizing alpha particles to the lungs of smokers and, more importantly, banned any and all publication on tobacco smoke radioactivity."

The radioactive substance -- which the UCLA study shows was first brought to the attention of the tobacco industry in 1959 -- was identified in 1964 as the isotope polonium-210, which emits carcinogenic alpha radiation. Polonium-210 can be found in all commercially available domestic and foreign cigarette brands, Karagueuzian said, and is absorbed by tobacco leaves through naturally occurring radon gas in the atmosphere

and through high-phosphate chemical fertilizers used by tobacco growers. The substance is eventually inhaled by smokers into the lungs.

The study outlines the industry's growing concerns about the cancer risk posed by polonium-210 inhalation and the research that industry scientists conducted over the decades to assess the radioactive isotope's potential effect on smokers -- including one study that quantitatively measured the potential lung burden from radiation exposure in a two-pack-a-day smoker over a two-decade period.

Karagueuzian and his colleagues made independent calculations using industry and academic data and arrived at results that very closely mirrored those of that industry study, which was conducted nearly a quarter-century ago. They then compared those results to rates used by the Environmental Protection Agency to estimate lung cancer risk among individuals exposed to similar amounts of alpha particle-emitting radon gas in their homes.

"The gathered data from the documents on the relevant radiobiological parameters of the alpha particles -- such as dose, distribution and retention time -- permitted us to duplicate the industry's secretly estimated radiation absorbed dose by regular smokers over a 20- or 25-year period, which equaled 40 to 50 rads," he said. "These levels of rads, according to the EPA's estimate of lung cancer risk in residents exposed to radon gas, equal 120 to 138 deaths per 1,000 regular smokers over a 25-year period."

Despite the potential risk of lung cancer, tobacco companies declined to adopt a technique discovered in 1959 and then another developed in 1980 that could have helped eliminate polonium-210 from tobacco, the researchers said. The 1980 technique, known as an acid-wash, was found to be highly effective in removing the radioisotope from tobacco plants, where it forms a water-insoluble complex with the sticky, hair-like structures called trichomes that cover the leaves.

And while the industry frequently cited concerns over the cost and the possible environmental impact as rationales for not using the acid wash, UCLA researchers uncovered documents that they say indicate the real reason may have been far different.

"The industry was concerned that the acid media would ionize the nicotine, making it more difficult to be absorbed into the brains of smokers and depriving them of that instant nicotine rush that fuels their addiction," Karagueuzian said. "The industry also were well aware that the curing of the tobacco leaves for more than a one-year period also would not eliminate the polonium-210, which has a half-life of 135 days, from the tobacco leaves because it was derived from its parent, lead-210, which has a half-life of 22 years."

Karagueuzian said the insoluble alpha particles bind with resins in the cigarette smoke and get stuck and accumulate at the bronchial bifurcations of the lungs, forming "hot spots," instead of dispersing throughout the lungs. In fact, previous research on lung

autopsies in smokers who died of lung cancer showed that malignant growths were primarily located at the same bronchial bifurcations where these hot spots reside.

"We used to think that only the chemicals in the cigarettes were causing lung cancer," Karagueuzian said. "But the case of these hot spots, acknowledged by the industry and academia alike, makes a strong case for an increased probability of long-term development of malignancies caused by the alpha particles. If we're lucky, the alpha particle-irradiated cell dies. If it doesn't, it could mutate and become cancerous."

Karagueuzian said the findings are very timely in light of the June 2009 passage of the Family Smoking Prevention and Tobacco Control Act, which grants the U.S. Food and Drug Administration broad authority to regulate and remove harmful substances -- with the exception of nicotine -- from tobacco products. The UCLA research, he said, makes a strong case that the FDA ought to consider making the removal of alpha particles from tobacco products a top priority.

"Such a move could have a considerable public health impact, due to the public's graphic perception of radiation hazards," he said.

To uncover the information, Karagueuzian and his team combed through the internal tobacco industry documents made available online as part of the landmark 1998 Tobacco Master Settlement Agreement. Documents from Philip Morris, R.J. Reynolds, Lorillard, Brown I Williamson, the American Tobacco Company, the Tobacco Institutes and the Council for Tobacco Research, as well as the Bliley documents, were examined, Karagueuzian said.

The team searched for key terms such as "polonium-210," "atmospheric fallout," "bronchial epithelium," "hot particle" and "lung cancer," among others.

Karagueuzian said the earliest causal link between alpha particles and cancer was made in around 1920, when alpha particle-emitting radium paint was used to paint luminescent numbers on watch dials. The painting was done by hand, and the workers commonly used their lips to produce a point on the tip of the paint brush. Many workers accumulated significant burdens of alpha particles through ingestion and absorption of radium-226 into the bones and subsequently developed jaw and mouth cancers. The practice was eventually discontinued.

Another example involves liver cancer in patients exposed to chronic low-dose internal alpha particles emitted from the poorly soluble deposits of thorium dioxide after receiving the contrast agent Thorotrast. It has been suggested that the liver cancers resulted from point mutations of the tumor suppressor gene p53 by the accumulated alpha particles present in the contrast media. The use of Thorotrast as contrast agent was stopped in the 1950s.

In addition to Karagueuzian, authors of the study include the late Amos Norman, professor emeritus in the departments of radiation oncology and radiological sciences at

UCLA; James Sayre, of the departments of biostatistics and radiological sciences at UCLA; and Celia White, who served from 1999 to 2002 as director of content and services at the Legacy Tobacco Documents Library, which contains more than 13 million documents created by major tobacco companies related to their advertising, manufacturing, marketing, sales and scientific research activities.

The study was funded by the University of California Tobacco-Related Disease Research Program, established by the passage of California's SB1613 in 1989 to fund a comprehensive University of California grant program to support research into the prevention, causes and treatment of tobacco-related diseases.

Stress

Hypertension

Cutting Down on Salt Doesn't Reduce Your Chance of Dying, Review Suggests (Science Daily: 7-7- 2011)

Moderate reductions in the amount of salt people eat doesn't reduce their likelihood of dying or experiencing cardiovascular disease. This is the main conclusion from a systematic review published in the latest edition of The Cochrane Library.

There is lots of evidence that reducing dietary salt intake reduces blood pressure and the researchers did see some indication of this occurring. "Intensive support and encouragement to reduce salt intake did lead to a reduction in salt eaten and a small reduction in blood pressure after more than six months," says lead author Professor Rod Taylor who works at the Peninsula College of Medicine and Dentistry at the University of Exeter.

"What we wanted to see was whether this dietary change also reduced a person's risk of dying or suffering from cardiovascular events," says Taylor.

An earlier Cochrane review of dietary advice published in 2004 could not find enough evidence to allow the researchers to draw any conclusions about the effects of reducing salt intake on mortality or cardiovascular events. In Taylor's newly published research, however, the team managed to locate seven studies that together included 6,489 participants. This gave a sufficiently large set of data to be able to start drawing conclusions. Even so, Taylor believes he would need to have data from at least 18,000 individuals before he could expect to reveal any clear health benefits.

Most experts are agreed that consuming too much salt is not good for you and that salt reduction is beneficial in people with normal and high blood pressure. "We believe that we didn't see big benefits in this study because the people in the trials we analyzed only reduced their salt intake by a moderate amount, so the effect on blood pressure and heart disease was not large," says Taylor. He believes that health practitioners need to find more effective ways of reducing salt intake that are both practicable and inexpensive.

Many countries have government-sanctioned recommendations that call for reduced dietary sodium. In the UK, the National Institute of Health and Clinical Guidance (NICE) has recently called for an acceleration of the reduction in salt in the general population from a maximum intake of 6g per day per adult by 2015 to 3g by 2025.

"With governments setting ever lower targets for salt intake, and food manufacturers working to remove it from their products, it's really important that we do some large research trials to get a full understanding of the benefits and risks of reducing salt intake," says Taylor.

Stress

How stress hurts your heart (The Times of India: 5.8.2011)

People under a lot of stress have increased risk of heart disease. Cardiologist Upendra Kaul explains how stress affects the heart and what can be done about it

Chronic stress exposes your body to unhealthy and elevated levels of stress hormones like adrenaline and cortisol. Studies link stress to changes in the way blood clots, which increases risk of heart attack. Stress can be caused by physical or emotional change, or changes in your environment that require adjustment. Being able to identify stress factors and releasing the tension is the key to manage stress. Some common stressors are illness (your own or of a relative), death of a loved one, relationships, work and jobs, legal or financial problems, unwanted pregnancy and an obsession with perfectionism. If exposed to prolonged stress, your body gives warning signals in three ways — physical (dizziness, aches and pains, grinding teeth, clenched jaws, headaches, stomach upset, muscle tension, lack of sleep, sweaty palms, exhaustion, trembling, weight gain or loss), emotional (mood swings, irritability, negative thinking, nervousness, anger, anxiety, depression) and behavioural (impulsiveness, cynicism, compulsive eating, frequent job changes, alcohol/drug abuse, withdrawal from social interaction). Once you've identified the cause, learn techniques that can help you cope. Here are some:

-

Reduce stress:

For many, life is filled with too many demands and too little time. Learn to manage your time. Delegate work, set priorities. You can't give 100% to everything all the time.

-

Assert yourself:

You do not have to always meet others' expectations or demands. Being assertive allows you to stand up for your rights while respecting those of others.

-

Exercise regularly:

Set reasonable goals. Exercising releases endorphins — natural substances that make you feel happy and positive.

-

Examine values:

The more your actions reflect your beliefs, the better you will feel.

-

Eat, drink sensibly:

Extra food never reduces stress; it only adds to it.

-

Stop smoking:

Nicotine is a stimulant and brings on more stress.

-

Relax:

Relaxation is more than just sitting back quietly. Deep breathing, listening to soothing music, muscle relaxation, yoga and meditation help one unwind.

Stress

Why we eat more in times of stress (The Tribune: 17.8.2011)

Stress temporarily rewires nerve cells in the brain to amplify hunger pangs, a new research has revealed. Researchers in the Hotchkiss Brain Institute (HBI) at the University of Calgary's Faculty of Medicine have uncovered a mechanism by which stress increases food drive in rats. This new discovery could provide important insight into why stress is thought to be one of the underlying contributors to obesity. Normally, the brain produces neurotransmitters (chemicals responsible for how cells communicate in the brain) called endocannabinoids that send signals to control appetite. In this study, the researchers found that when food is not present, a stress response occurs that temporarily causes a functional re-wiring in the brain. This re-wiring may impair the

endocannabinoids' ability to regulate food intake and could contribute to enhanced food drive, the researchers said.

Stress

Stress Can Affect Future Offspring (Science Daily: 23.8.2011)

Rats exposed to stress during early development inherit the effects of that stress to their offspring, largely expressed in behavior impairments but also characteristics of resilience, shows a new study from the University of Haifa, published in the journal *Developmental Psychobiology*.

Providing environmental enrichment to the future mother rats had a remedial role on some of the negative effects. "The similarities between rats and humans raise the question of whether similar effects might transpire in humans; for example, exposure to war or natural disasters might have heritable effects," explains Prof. Micah Leshem who headed the study.

The study, conducted by Prof. Leshem of the Department of Psychology at the University of Haifa along with Prof. Jay Schulkin of Georgetown University and postgraduate students Hiba Zaidan and Neta Kvetniy-Ferdman, set out to examine the cross-generational effects of early exposure to stress and enrichment. The researchers examined rats because of their resemblance to humans and their rapid rate of development and reproduction, which facilitates cross-generational studies.

The researchers studied 40 female rats weaned at 27 days of age. One group of these females -- the control group -- was then raised normally in individual cages; the second group was exposed to different stressors; the third was enriched; and the fourth group was both stressed and enriched. The matured rats were mated at 60 days, had normal pregnancies and births, and their offspring pups were divided into two groups -- one raised normally, and the other raised in an enriched environment, so that the effect of "therapy" on the next generation could also be evaluated. The offspring groups were then evaluated with respect to social interaction, anxiety levels, ability to learn and capacity to cope with fear.

The study's main findings showed that the early treatment of the mothers impacted their offspring behavior. Stress to the mothers reduced social interaction in their offspring, but improved their ability to learn to avoid distress. Male offspring were also better at coping with fear. Some of these changes were mitigated by enrichment to the mothers, so that stressing the mothers and then providing them with a "therapeutic" (enriched) environment, prevented some, but not all, of the effects in the next generation. Providing enrichment to the offspring also offset some of the inherited effects.

According to the researchers, their study, with other evidence, "suggests that evolution equipped the parent generation to sample its environment, and then, possibly via heritable epigenetic changes, to prepare the next generation to better cope with this environment," Prof. Leshem explains. "It is important to investigate whether stressful experiences at a young age affect the next generation, and whether therapeutic experiences can minimize the trans-generational effects in humans too. As our study shows that the inheritance of the effects of adversity can be modified by timely intervention, this may have important educational and therapeutic implications," he concludes.

Stress

Stress turns hair grey (New Kerala: 24.8.2011)

Stress can turn your hair grey, say scientists

They have found how stress hormone adrenaline causes damage that could lead to a variety of conditions - such as grey hair or the more serious cancer, the Daily Mail reported.

The research is still at an early stage but it could one day lead to drugs that help counter some of the medical problems caused by one always being under pressure, it said.

The new hope comes from US researchers who worked out how adrenaline wreaks havoc on the body.

During brief but intense periods of stress, adrenaline is beneficial as it prepares the body to fight or flee.

But when the stress goes on and on, it can start to take its toll on the DNA at the very core of our being, researchers said.

To work out why, the researchers infused mice with adrenaline over several weeks to mimic the effects of being under long-term stress.

Levels of a key anti-cancer protein called p53 fell. This protein, sometimes nicknamed 'the guardian of the genome', usually springs into action when DNA is damaged, allowing potentially cancerous cells to carry out repairs.

DNA damage is also thought to impact on the cells that go on to produce the pigment in hair.

"This could give us a plausible explanation of how chronic stress may lead to a variety of human conditions and disorders, which range from merely cosmetic, like greying hair, to

life-threatening disorders like malignancies," the Mail quoted lead researcher professor Robert Lefkowitz of Duke University, North Carolina, as saying.

Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit in kids on the rise (World Newspapers: 6.9.2011)

The prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among children has zoomed in the past few years, a study by Associated Chambers of Commerce and Industry of India (Assocham) has found.

From 4% in 2005, the number of children - in the age group of 3 to 17 - having ADHD has gone up to 11% in 2011. Genetics, diet, social, physical and parental behaviour environment are the main reasons cited for the sharp rise in ADHD cases.

More boys are affected by ADHD than girls. The occurrence among boys increased from 6% to 11%, while among girls it rose from 2% to 5.5%, said the study titled 'Rising numbers of ADHD kids in metropolitan cities'.

Releasing the study, Assocham health council chairman, Dr BK Rao, said that ADHD is the most common behavioural disorder among children seen in the recent times. It makes it hard for kids to pay attention and control impulsive behaviour. It's often treated with drugs, behavioural therapy, or both.

The survey was conducted in Delhi-NCR, Mumbai, Ahmedabad, Kolkata, Bangalore, Chennai, Hyderabad, Chandigarh, Jaipur and Lucknow. It covered around 1,000 school teachers, who said that they have 1-3 children who are diagnosed with ADHD in every single class.

The symptoms of ADHD include restless feeling, often fidgeting with hands or feet, running, climbing, or leaving a seat, when they are expected to sit quiet or remain silent, blurting out answers before hearing the whole question, and having difficulty waiting in line or for their turn.

Other symptoms of dysfunction include lack of foresight and poor hindsight, poor organisation, sense of time, lack of sense of self-awareness and reading of social clues. Such children get frequently angry; they lie, curse, steal, and blame others. However, these children are very high on energy and good at multi-tasking.

The study said that ADHD tends to improve with age but can cause significant interference in a child's academics and interpersonal relations in the initial years. The child has a tendency to lose belongings in school or make multiple careless mistakes.

Dr Rao further said that ADHD generally develops during early childhood and can continue up to adulthood if left untreated or unattended. There are, however, a number of factors that may contribute to ADHD including genetics, diet and social and physical environments.

The survey indicates that the disorder is highly heritable and that genetics are a factor in about 75% of ADHD cases. The environmental factors implicated include alcohol and tobacco smoke exposure during pregnancy and environmental exposure to lead in early life. Complications during pregnancy and birth might also play a role.

Stress

Stress, fatty food 'behind lactose intolerance (New Kerala: 15.9.2011)

Do you think you are allergic to dairy products? May be not, as researchers say that lactose intolerance is all in the mind.

They found that many people who claim to react to the proteins in milk or the sugar lactose are simply stressed or may be eating too much fatty food.

"We see quite a few people who think they are either allergic or intolerant of milk and it is quite a difficult one to sort out," Prof Peter Whorewell, a gastroenterologist at the Wythenshawe Hospital, Manchester, told Mail Online.

"I often think that it is the fat in the milk rather than the milk itself that can cause trouble and we do see people who seem to be OK on skimmed milk, he said.

"We also see a lot of people who have changed to soya milk based on the belief that they are milk intolerant and we often encourage them to go back on milk again to check up on this," he added.

While milk allergies do exist, they are a rare phenomenon especially among adults. A cow's milk allergy (to the proteins in milk) affects up to seven per cent of babies under one year, but most outgrow it by the age of six.

Professor Whorewell said the confusion about allergies and intolerances left people vulnerable to bad advice.

"The whole area of food intolerance is full of hot air and not much science, which makes it a very good area for charlatans, who come up with some crazy new diets and techniques for testing," he added.

Whorewell's comments follows research by scientists at the University of Milan who found most people who thought they were lactose intolerant were no such thing.

Professor Guido Basilisco, who lead the research, said there was no doubt that some people's genes make it difficult for them to digest lactose and this causes stomach problems when they drink large amounts of milk.

But many of the people who claimed to suffer problems from a cup of coffee or a hot chocolate were perfectly capable of digesting lactose.

Hypertension

Estrogen Treatment May Help Reverse Severe Pulmonary Hypertension (Science Daily: 16.9.2011)

UCLA researchers have found that the hormone estrogen may help reverse advanced pulmonary hypertension, a rare and serious condition that affects 2 to 3 million individuals in the U.S., mostly women, and can lead to heart failure.

The condition causes a progressive increase in blood pressure in the main pulmonary artery, which originates in the heart's right ventricle and delivers blood to the lungs. The rise in pressure impairs heart function by enlarging the right ventricle, potentially leading to heart failure.

Published in the Sept. 15 issue of the American Journal of Respiratory and Critical Care Medicine, the preclinical study shows that in rats, estrogen treatment can reverse the progression of pulmonary hypertension to heart failure and can restore lung and ventricle structure and function.

The disease progresses slowly, so most patients don't seek treatment until major symptoms occur, such as shortness of breath, dizziness and fainting. According to researchers, current medication for pulmonary hypertension only temporarily reduces the disease's severity. For advanced pulmonary hypertension, there are fewer options, and the condition often necessitates a lung transplant.

"Unfortunately, up until now, there hasn't been an ideal pharmacological therapy to treat advanced pulmonary hypertension," said senior study author Mansoureh Eghbali, Ph.D., an assistant professor of anesthesiology at the David Geffen School of Medicine at UCLA who has a strong background in studying the role of gender and estrogen in

cardiovascular diseases. "We hope that this early study may offer insight into new therapies."

The UCLA team found that by treating rats with severe pulmonary hypertension with low doses of estrogen, they were able to prevent the disease from progressing to right-ventricular heart failure; this did not happen in untreated rats.

Systolic blood pressure and ejection fraction -- the volume of blood being pumped out of the heart's right chamber with each heart beat -- also improved. Tests showed that lung weight, which can increase with the disease and resulting heart-ventricle enlargement, was also corrected. After 10 days of estrogen treatment, function returned to an almost normal state.

The researchers stopped the estrogen therapy after 10 days but continued to observe some of the treated rats. They tracked the continued improvement and found almost full restoration of systolic blood pressure and ejection fraction to normal levels after an additional 12 days.

"We were surprised to find this continued benefit, even after we stopped the estrogen treatment," said the study's first author, Dr. Soban Umar, a UCLA Department of Anesthesiology researcher who has studied pulmonary hypertension and right-ventricular heart failure and is a key member of Eghbali's laboratory team. "These findings suggest that even short-term estrogen therapy may suffice to reverse the disease."

All rats with severe pulmonary hypertension that were treated with estrogen survived by the study's end. Only 25 percent of the untreated rats survived.

The team also explored how estrogen could work in reversing the disease by studying several cellular and molecular mechanisms.

They found that the number of inflammatory cells in rats with pulmonary hypertension increased five-fold, compared with normal rats. In the animals treated with estrogen, this was reversed to normal. The team found that estrogen reduced regulation of a pro-inflammatory gene that also plays a key role in disease development caused by pulmonary hypertension. They also found that estrogen had an inhibitory effect on lung fibrosis.

In addition, the team observed that estrogen therapy restored blood vessels in the lungs and right ventricle whose loss is associated with the disease.

Further study identified that estrogen exerts its biological effects on pulmonary hypertension through a receptor called estrogen receptor beta, a protein that regulates estrogen's activity in the body.

"Estrogen appears to work through an interplay of several factors, including suppression of lung inflammation and fibrosis, as well as reversal of ventricle enlargement," Eghbali

said. "We may be able to utilize estrogen receptor beta in the development of future therapies to stimulate estrogen activity to treat pulmonary hypertension."

Researchers had also tested estrogen receptor alpha, the other receptor that controls estrogen activity, but found that it wasn't as effective in treating pulmonary hypertension.

Eghbali added that estrogen receptor beta may prove to be a favorable therapeutic target, since this receptor may require only a short treatment duration and low dosage and has less pro-estrogenic effects on the breasts and uterus than estrogen receptor alpha.

Pulmonary hypertension affects mostly younger women, despite the fact that females in this age group should be under the protective benefits of natural estrogen produced by the body, Eghbali said.

"These patients may have a genetic mutation that is interfering in how estrogen receptor beta directs estrogen activity that is leading to pulmonary hypertension," she said.

Her team's next step is to explore these genetic questions. Currently, Umar and Eghbali are collaborating with UCLA pulmonary hypertension physicians to investigate gender-related issues and to define the role of estrogen in patients with this deadly disease.

The study was funded by the National Institutes of Health.

Additional authors included Andrea Lorga, Humann Matori, Rangarajan Nadadur, Jingyuan Li and Federica Maltese of the department of anesthesiology in the division of molecular medicine at the Geffen School of Medicine, and Arnoud van der Laarse of the department of cardiology at Leiden University Medical Center in the Netherlands.

Psychiatric disorders

Yoga effective in treating psychiatric disorders (new Kerala: 21.9.2011)

Many see yoga as a fad or simply a health enhancer. But a number of scientific studies have found it effective as a therapy in treating mental and psychiatric disorders.

Some believe that yoga should be used only for prevention and health promotion and not as a therapy for illnesses," said B.N. Gangadhar, who heads the psychiatry department at the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore.

"The reality is that it is being increasingly used as a method for treating various disorders, either alone or as in addition to other therapies, including psychiatric ones," Gangadhar, also director, Advanced Centre for Yoga at NIMHANS, told IANS.

A study co-authored by Gangadhar and three associates examined the effect of yoga as a therapy supplementing medical treatment of schizophrenia, a severe mental condition, which registers failure rates as high as 50 to 60 percent. The condition is ranked as the ninth leading cause of mental disability worldwide.

Roughly half of 61 schizophrenia patients were randomly assigned to yoga therapy and the other half to physical exercise for four months. Ten from each group had dropped out during the therapy.

The yoga therapy group showed significantly greater improvement in mental or behavioural disorders than those in the physical exercise group. The yoga group also performed better in social and occupational functioning.

Some of the symptoms of schizophrenia are hallucinations (hearing voices), delusions (often bizarre) and disorganized thinking and speech, which render the patient's life chaotic and distressful.

Another study led by Gangadhar found that Sudarshan Kriya Yoga (SKY) significantly lowered stress by bringing down high plasma cortisol levels among patients, which indicate stress or illness.

SKY is a method of breath control pioneered by Sri Sri Ravi Shankar's Art of Living Foundation.

Similarly, M. Javanbakht, a psychiatrist at Iran's Islamic Azad University, and others found yoga eased mental conditions such as depression and anxiety in women.

Participants in Iran were assigned to two groups: one that went through two yoga sessions of 90 minutes each every week for two months and another which did not do any yoga. Women in the yoga group registered a significant decrease in anxiety and depression levels.

Complementary and alternative medicine (CAM), which includes yoga, is now being increasingly used for easing anxiety, stress and depression. Some studies suggest that the percentage of patients availing themselves of CAM could be as high as 60 percent, said Gangadhar.

"A functional brain imaging study at NIMHANS demonstrated that chanting of Aum deactivated certain brain areas bearing on our emotions, particular anger and fear, (and producing a calming effect)," said psychiatry associate professor Shivarama Varambally.

"This indicates that Aum chanting may help in emotional control and reduce negative emotions," Varambally added.

Johns Hopkins University's Arthritis Centre reports that scientific studies on the effect of yoga on rheumatoid arthritis and osteoarthritis are "promising," with results showing "some improvement in joint health, physical functioning, and mental/ emotional well-being".

The centre suggests that such studies show yoga is a "safe and effective" way to increase muscle strength and improve flexibility, areas of core interests to arthritis sufferers. Besides, yoga can increase mental energy and help a patient develop positive feelings and help keep negative feelings in check.

Yoga, derived from a Sanskrit word meaning 'yoke,' is designed to integrate one's body, mind and soul so that the entire system functions harmoniously.

"Many might argue that such a time-tested practice does not require any proof, but contemporary medicine can accept yoga only after thorough validation through scientific tests," Gangadhar concluded.

Psychiatric disorders

Yoga effective in treating psychiatric disorders (new Kerala: 21.9.2011)

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Stress

Presence of best friend can help you beat stress (World Newspapers: 26.9.2011)

The presence of a best friend can help you feel better during stressful times, according to a study of children.

"One of the interesting things about these findings is that it's not just any friend " it's the best friend," ,” the Daily Mail quoted Ryan Adams, the study's lead author and an assistant professor of paediatrics at the Cincinnati Children's Hospital Medical Centre, as saying.

A hundred children aged ten to 12 were asked to fill out a diary five times a day for four school days, and rate how they felt about what they'd experienced in the past 20 minutes.

They were also asked whether they'd been alone or with parents, siblings, a best friend, a boy or girl friend, classmates, strangers, teachers or some other person.

And they had saliva samples take to measure for the stress hormone cortisol.

Researchers found that the presence of a best friend, more than anyone else, buffered the physical effects of a negative experience, so the child produced less cortisol.

When no friend was around during times of stress, cortisol levels shot up.

Although the study only looked at children, experts say its findings are likely to apply to adults too.

"A child's close friends can be problematic and lead them astray, but they can also be incredibly positive and supportive”said Dr Karen Majors, an education psychologist with Barking and Dagenham Community Educational Psychology Service.

'Friendships serve really important purposes socially, emotionally and cognitively as well as being a playmate and companion,” he added.

Hypermentalizing

Personality disorder in teens linked to hypermentalizing (New Kerala: 30.9.2011)

A new study has for the first time provided empirical evidence to support the relationship between borderline personality disorder (BPD) traits and "hypermentalizing" in adolescents.

Mentalizing is the social intelligence that refers to the ability to infer and attribute thoughts and feelings to understand and predict another person's behaviour.

"Borderline personality disorder is a condition in which people have long-term patterns of unstable or turbulent emotions about themselves and others. These inner experiences often cause them to take impulsive actions and have chaotic relationships," said Carla Sharp, an associate professor at the University of Houston (UH), and primary investigator of the study.

"The criteria for BPD includes: excessive anger, affective instability, a clear pattern of self-harm over two years - burning, cutting, suicide attempts, abandonment fears, relationship problems, significant impulsivity – drinking alcohol, drug abuse, eating, anorexia, overeating and illegal activities, she stated.

The UH research team found that young adults who met criteria for BPD had a higher frequency of these overmentalizing responses.

The second part of the finding was the hypermentalizing interacted with emotional regulation.

The individuals with BPD misread people's thoughts, upsetting the adolescent and creating a challenge with emotion regulation that leads to an increase in borderline personality disorder symptoms.

"This research study is groundbreaking in that it's the first to provide empirical evidence of the link between BPD and mentalizing in adolescents. By identifying precursors and treating BPD early in adolescence, we can use validated treatments to help these children," Sharp added.

The research featured on the cover of the June edition of the Journal of the American Academy of Child and Adolescent Psychiatry.

Stress

Stress may disturb your sex life (World Newspapers: 30.9.2011)

A diminished interest in sex is one of many symptoms that can develop as a result of increased psychological stress. Studies show that a decreased sex drive is a common complaint in people who have stressful jobs and work long hours.

Also, clinical studies have proved that people under stress are more likely to practise unhealthy behaviour (such as excessive consumption of alcohol, overeating and cigarette smoking).

They also tend to make poorer health choices than people who are not under stress. These unhealthy coping mechanisms can also have a negative effect on the overall well-being and therefore may contribute to fall in your sex drive. "Stress affects hormones, reduces levels of testosterone, and sex drive," explains Marilyn Glenville. 'It even affects the quantity and quality of a man's sperm. This happens anyway as we get older, but stress compounds the effect.

Vaccine

Needle-Free Vaccine

Funding Boost for Needle-Free Vaccine (Med India 5.8.2011)

The research for needle-free vaccine received a major boost after a group of investors pledged over \$15 million for the research currently undergoing at the Australian Institute for Bioengineering and Nanotechnology.

The investment was made by a group of international biotechnology firms such as Medial Research Commercialisation Fund and US-based HealthCare Ventures along with venture capital firms One Venture and Brandon Capital.

The investment will allow Professor Mark Kendall to continue his research into the technology, known as Nanopatch that promises to deliver vaccine to immune cells in the skins rather than the traditional method of delivering it through a syringe.

Latest trials of nanopatch revealed that the flu vaccination delivered through this method was effective using just 1/150th of the dose compared to a syringe.

Stating that the nanopatch will prevent cross-contamination, Professor Kendall said, “The Nanopatch offers a way to stop needle-stick injuries during vaccination which again is a particularly important problem in Africa; with a third of vaccines affected by other complications brought about through cross contamination needle stick injury.”

Polio vaccine

A new type of polio vaccine on the cards (The Hindu: 18.8.2011)

Oral vaccines have played huge part in the global battle to wipe out polio. When the WHO endorsed the goal of eradicating polio in 1988, some 350,000 children in 125 countries were being paralysed by the virus that caused the disease. That number has dropped precipitously and there were only about 1,000 cases of polio across the world last year.

If all goes well, this could be the year when the chain of transmission of wild polio is at last broken in India, one of just four countries in the world where the disease is still endemic.

The oral polio vaccines, which use live but weakened strains of the virus, are easy to administer as drops. But the live viruses they contain can occasionally turn virulent again. Such revertant viruses have the disease-causing potential of the wild forms and can readily spread.

Circulating vaccine-derived polio viruses have been implicated in over 15 outbreaks since 2000. One such outbreak began in Nigeria in 2005 and has still not been stamped out there. The virus turned up in two neighbouring countries as well and has been responsible for over 300 cases of paralysis.

In India, four lineages of vaccine-derived viruses that emerged independently have affected 16 patients in U.P. between July 2009 and March this year. So far there have been five such and only one caused by a wild virus.

Using the oral vaccine could be considered an example of fighting fire with fire, remarked Neal Nathanson of the University of Pennsylvania's School of Medicine in an editorial commentary in the *Journal of Infectious Diseases* earlier this year.

“In countries or continents where wild polio viruses have been eliminated, there should be a transition from OPV to inactivated polio virus vaccine.” Many industrialised countries had already made this shift, he pointed out.

The inactivated vaccine (or IPV) is currently made from virulent strains of the virus that are grown in cell culture and then killed before being administered as an injection.

Ironically, the issue of which sort of vaccine to use is one that goes back to an epic squabble between two giants in the field, Jonas Salk and Albert Sabin. The former developed the inactivated vaccine while the latter was responsible for OPV.

America began immunising children against polio with the inactivated vaccine, which was the first to become available in the mid-1950s. It then moved to the Sabin vaccine based on live attenuated viruses in the early 1960s. However, with the steady trickle of polio cases from vaccine-derived viruses, the country switched back to the Salk vaccine in 2000.

But developing countries that want to make a similar switch face a major hurdle. The injectable vaccine is considerably more expensive than OPV. As a way out of this conundrum, one option that is being seriously looked at would involve a mix of the Salk and Sabin approaches — inactivated vaccines made from attenuated strains.

The WHO has been working with the National Institute for Public Health and the Environment (RIVM) in the Netherlands on the development of a safe, effective and

affordable IPV using the Sabin virus strains and transferring the technology to vaccine manufacturers in developing countries.

In May this year, the global health agency announced that Pancea Biotech in India and LG Life Sciences in South Korea were the first two vaccine makers that had been selected to receive the RIVM's Sabin-IPV technology. Last month, the WHO again called for 'Expressions of Interest' from other manufacturers in developing countries that wanted the technology.

Safer ways to produce the inactivated polio vaccine will be needed in a world where polio has been eradicated, noted the RIVM scientists in a recent paper in the journal *Expert Review of Vaccines*. "Development of an IPV based on [a] nonvirulent strain, such as the attenuated Sabin strains, will help to increase the biosafety of the manufacturing process. Employees will not be exposed to the wild-type polio strains and accidental spills will not cause an immediate danger of reintroduction of wild virulent polio strains into the world."

The higher cost of IPV was the result of several factors, the scientists noted in another recent paper in the journal *Vaccine*. The IPV needed more vaccine per dose than the oral vaccine to elicit a protective immune response. Additional processing, including concentration, purification and inactivation of the virus, was necessary. Besides, quality control as well as the containment required in dealing with wild viruses also added to the vaccine's cost.

At present, the RIVM process to make Sabin-virus-based IPV was similar to the regular IPV production. "At this moment, the initial yields for Sabin-IPV are somewhat lower when compared to that for regular IPV," noted Wilfried Bakker, senior scientist for viral vaccines and project manager at the RIVM, in an email.

However, they were already engaged in an optimisation process to raise yields to levels comparable to or better than the conventional IPV, he added. If the attenuated Sabin strains were used for IPV production, the same stringent and expensive biosafety conditions for handling the wild viruses would not be necessary, said Oliver Rosenbauer, a spokesperson for the WHO-led Global Polio Eradication Initiative. That would help bring down the cost of the vaccine quite significantly. In addition, more manufacturers making the vaccine in developing countries could stabilise the market as well.

Apart from the RIVM, the Japanese Polio Research Institute in Tokyo and the Chinese Academy of Medical Sciences' Kunming Institute of Medical Biology have also been working on IPV's using attenuated Sabin strains. Indeed, the Kunming Institute has already completed Phase-II clinical studies. (Scientists in the Netherlands expect to begin the Phase-I clinical trials of their vaccine in Europe shortly.)

Before Sabin-IPV vaccines can be cleared for general use, their safety and efficacy will, however, have to be proven through such clinical trials.

Potential Vaccine Readies Immune System

Potential Vaccine Readies Immune System to Kill Tuberculosis in Mice (Science Daily: 5.9.2011)

A potential vaccine against tuberculosis has been found to completely eliminate tuberculosis bacteria from infected tissues in some mice. The vaccine was created with a strain of bacteria that, due to the absence of a few genes, are unable to avoid its host's first-line immune response. Once this first-line defense has been activated, it triggers the more specific immune response that can protect against future infections.

The research, by scientists at the Howard Hughes Medical Institute, Albert Einstein College of Medicine and Colorado State University, appears in the September 4, 2011, issue of *Nature Medicine*.

Tuberculosis, an infectious disease caused by *Mycobacterium tuberculosis*, is a global health concern, accounting for 2-3 million deaths annually. One third of the world's population is infected with the bacterium, and according to the World Health Organization, new infections occur at a rate of about one per second. Most people who are infected don't get sick, because the immune system keeps the bacteria under control. However, people whose immune systems are weakened, such as those with HIV/AIDS, are highly susceptible to the active form of the infection. With staggering rates of HIV infection in some parts of the world, such as Africa, co-infection with TB is a serious problem. To make matters worse, some strains of *M. tuberculosis* have become resistant to every drug currently used to treat tuberculosis.

"We're back to where we were before there were drugs for TB," says William R. Jacobs, Jr., an HHMI investigator at Albert Einstein College of Medicine.

The only vaccine in current use, called Bacille Calmette-Guérin (BCG), hasn't been consistently effective at protecting against the disease, especially in regions with the largest numbers of cases. BCG is a weakened strain of the tuberculosis bacteria that triggers the production of protective antibodies in some people. Although Jacobs and others have tried tinkering with BCG to make it more effective, "we've only been able to slow down the growth of *M. tuberculosis*," Jacobs says. "We haven't been able to kill TB with a vaccine until now."

In the first part of the work, Jacobs and colleagues investigated a set of genes called *esx-3* that is found in all mycobacteria. Previous research had suggested that mycobacteria need *esx-3* to protect themselves from their hosts' innate immune systems, a first-line defense against pathogens that responds to invaders quickly, but non-specifically. Jacobs and his team wanted to see if deleting the genes would affect the bacterium's virulence, but they couldn't do this directly with *M. tuberculosis*, because the bug can't live without that set of genes. Instead, the researchers deleted the genes from a closely related but usually

benign bacteria, *Mycobacterium smegmatis*, which can tolerate the deletion. They then infected mice with the *M. smegmatis* bacteria. Although the dose they injected was high enough that *M. smegmatis* with intact *esx-3* genes rapidly killed the mice, an equivalent dose of the modified bacteria caused no harm -- apparently because the immune system was able to find and kill bacteria that lacked *esx-3*.

These findings suggested that *esx-3* plays a key role in protecting *M. smegmatis* from innate immunity. A key feature of innate immunity is that unlike the second branch of the immune system, adaptive immunity, innate immunity does not confer lasting protection against subsequent infections by the same pathogen.

The research team dubbed their modified strain of *M. smegmatis* "IKE" for immune killing evasion. Next, they inserted *esx-3* genes from *M. tuberculosis* into the IKE strain, creating a new strain of *M. smegmatis* they called IKEPLUS. They thought this maneuver would restore the bacterium's ability to evade innate immune killing. To their surprise -- and initial disappointment -- that wasn't what happened. The IKEPLUS strain was just as susceptible as IKE to the mouse immune response. In fact, IKEPLUS induced an unusually strong adaptive immune response known as Th1 immunity (named for the T helper cells that coordinate it).

As lead author Kari Ann Sweeney and Jacobs dejectedly pored over the data, they had a flash of insight. "We said, 'Maybe we're just looking at this the wrong way. Maybe what we've really done is made the ideal vaccine vector. We have *M. smegmatis* eliciting Th1 immunity, and now that we've put in a bag of TB antigens, these mice might be protected against TB,' "says Jacobs.

To test that possibility, the researchers gave five IKEPLUS-immunized mice -- and a control group of five unimmunized mice -- massive, intravenous doses of *M. tuberculosis*. All five of the unimmunized mice were dead within five days; all the IKEPLUS-immunized mice were still alive 40 days later. Two of the IKEPLUS mice survived to 90 days, and one of those lived to 343 days after infection with *M. tuberculosis*. Jacobs's group repeated the experiments with more mice and compared the effects of IKEPLUS immunization with those of BCG immunization.

"We consistently protected mice better with IKEPLUS than with BCG," Jacobs says. What's more, when the researchers analyzed tissues from IKEPLUS-immunized mice that survived more than 200 days after exposure to *M. tuberculosis*, they found that the bacteria had been completely eliminated from the animals' livers.

"This is something we've dreamed about for years, to be able to get longer protection and bactericidal immunity," says Jacobs, whose group went on to explore the mechanism involved and found that IKEPLUS induces a shift in the CD4⁺ T cell response. Also known as T helper cells, CD4⁺ T cells are white blood cells that activate and direct other immune cells.

The next steps will be teasing out additional details of the mechanism and improving the IKEPLUS vaccine.

"We only get about 20 percent of the mice that are really long-term survivors, and it may be that we need to put in additional antigens," Jacobs says. "That's something we need to figure out. But nevertheless, IKEPLUS is different from any other TB vaccine, and it's a new tool for the TB arsenal."

New Vaccine

New Vaccine against Tuberculosis (Med India: 5.9.2011)

New tuberculosis vaccine developed by researchers in United States shows promising results in mice, reveals study.

Tuberculosis kills some 1.7 million people each year, with one in three people around the globe infected, according to the World Health Organisation (WHO). The only vaccine currently in use is notoriously inconsistent.

Researchers led by William Jacobs, a professor at Albert Einstein College of Medicine in New York, determined that the key to warding off TB was to better understand how the bacterium that causes it, *Mycobacterium tuberculosis*, circumvents the human immune system.

Their strategy was to work with a closely related species, called *Mycobacterium smegmatis*, that is lethal to mice at high doses but does not harm humans.

The scientists created a version of *M. smegmatis* lacking a set of genes, known as ESX-3, that allows the bug to evade host immunity.

As expected, even when injected with large doses of the altered bacteria, mice did not get sick. Without the missing genes, the modified bacterium could not get past their immune system, which fought off the infection using the same T-cells that a successful TB vaccine would need to activate.

But there was a hitch: removing the same set of ESX-3 genes from *M. tuberculosis* killed the bug, which meant that it could no longer be manipulated to create the long-sought after vaccine.

So Jacobs tried another tack: he created a hybrid of the two bacteria by inserting the immune-system beating ESX-3 genes from *M. tuberculosis* into the version of *M. smegmatis* from which the equivalent genes has been removed.

New vaccine

New vaccine offers hope (The Indian Express: 7.9.2011)

Scientists believe they have made a breakthrough in the development of a new vaccine against tuberculosis which kills an estimated 1.7m people in the world each year.

The existing vaccine, bacille Calmette-Guerin (BCG), provides some protection against childhood forms of the infection but is unreliable against the adult lung disease, which is steadily spreading.

Professor William Jacobs of Albert Einstein College of Medicine in New York has devised a prototype vaccine against the TB microbe, *Mycobacterium tuberculosis*.

Professor Jacobs and his colleagues deleted a set of genes called ESX-3 from the mouse bacterium and substituted them with ESX-3 genes of the human infectious agent. Mice inoculated with the new strain survived infection with TB microbes.

"Most notably, those vaccinated animals that survived for more than 200 days had livers that were completely clear of TB bacteria, and nobody has ever seen that before. — The Independent

Vaccine

Way to fight HIV found, hopes for vaccine soar (The Times of India: 21.9.2011)

Scientists have found a way to prevent HIV from damaging the immune system and say their discovery may offer a new approach to developing a vaccine against AIDS.

Researchers from the US and Europe working in laboratories on the HIV found it is unable to damage the immune system if cholesterol is removed from the virus's membrane. "It's like an army that has lost its weapons but still has flags, so another army can recognize it and attack it," said Adriano Boasso of Imperial College London, who led the study.

The team now plans to investigate how to use this way of inactivating the virus and possibly develop it into a vaccine. Usually when a person becomes infected with HIV, the body's innate immune response puts up an immediate defence. But some researchers believe HIV causes the innate immune system to overreact. This weakens the immune

system's next line of defence, known as the adaptive immune response. For this study the team removed cholesterol from the membrane around the virus and found that this stopped HIV from triggering the innate immune response.

New vaccine

New vaccine trial raises hope of fighting malaria (The Times of India: 23.9.2011)

Scientists are set to begin a larger clinical trial of a malaria vaccine after a preliminary study showed it was highly effective in protecting against the disease. The initial trial in Burkina Faso was designed to test the safety of the vaccine, called MSP3, but researchers found that vaccinated children had high levels of protection. Encouraged by the "promising results", the scientists are now planning a larger study involving 800 children in Mali, the BBC reported. The scientists involved the study said they were hopeful that the vaccine would ultimately be very cheap to produce.

Women Health

Anorexic women

Anorexic women may conceive late (The times of India: 4.8.2011)

Likely To Need Fertility Treatment Too

Aspiring moms, please note — it is high time that you see a doctor for any symptoms of eating disorders, for a new study says it may delay pregnancy. Researchers at King's College London have found that women with a history of eating disorders may struggle to fall pregnant quickly, reported 'BJOG: An International Journal of Obstetrics & Gynaecology'. These women are also more than twice as likely to need fertility treatment, the study of more than 11,000 UK mothers has claimed.

In the study, the researchers found that 39.5% of women with a history of bulimia or anorexia took over six months to conceive. This compares with a quarter of women in the general population. The subjects were also more likely to need fertility treatment (6.2% of women with eating disorders, compared with 2.7% of the general population).

However, perhaps surprisingly, more pregnancies in the group of women who had anorexia at some point were unplanned. Lead researcher Abigail Easter of the Institute of Psychiatry at King's College, was quoted by the 'BBC' as saying, "This research highlights that there are risks to fertility associated with eating disorders. However, high rates of unplanned pregnancies in women with a history of anorexia suggest that women may be underestimating their chances of conceiving."

She said pregnancy could be a difficult time for women with eating disorders. She added: "Women planning a pregnancy should ideally seek treatment for their eating disorder symptoms prior to conception, and health professionals should be aware of eating disorders when assessing fertility and providing treatment."

Leukemia

Killer cells to cure leukemia in 3 weeks (The Times of India: 12.8.2011)

Scientists claim to have developed "serial killer" cells that can wipe out leukemia within three weeks, a breakthrough they say could lead to new and effective treatments for the fatal blood cancer.

Researchers at the University of Pennsylvania's Abramson Cancer Centre in the US engineered a technique that involved leukemia patients being treated with their own T cells — a type of white blood cell — that have been genetically modified to attack and destroy tumours within their bodies.

The treatment was so powerful that tumours were “blown away” in under a month with few side effects, the Daily Mail reported.

After removing the patient's T cells, the researchers reprogrammed them to attack tumours by binding to a protein expressed by cancerous cells.

In most forms of cancer these crucial cells are unable to distinguish tumour cells from healthy tissue, which allows the cancer to spread unchecked. But they managed to reprogramme them to attack tumour cells by inserting a “secret ingredient” — a protein called a chimeric antigen receptor .

When this protein is on the surface of the T cells, it will bind with another protein, called CD19, which is found in leukemia tumour cells. By doing this it not only kills the cancer cells, but causes other T cells to rapidly multiply so they can attack the tumour too.

Professor Carl June, senior author of the study, said, “The infused T cells are serial killers. On average each fused T cell led to the killing of thousands of tumour cells — and overall, destroyed at least one kilo of tumour in each patient.”

Yoga and Physical Fitness

Physical Activity

New dietary guidelines for the average Indian (The Asian Age: 5-7-2011)

For the first time, the city-based National Institute of Nutrition has come up with an exercise-cum-diet plan for the average Indian -who had been defined by the Indian Council for Medical Research a few months ago. The NIN, in its first revision of dietary guidelines after 13 years, suggested that people should exercise at least for 15 minutes a day if they want to stay fit and burn extra calories.

“Since physical activity among Indians has come down, we have recommended physical exercise among our new dietary guidelines,” said the NIN director, Dr B.Sesikeran.

The new recommendations were released by the ICMR director-general Dr V.M Katoch, here on Monday. According to the revised dietary guidelines, an ideal breakfast for an adult Indian man leading a sedentary life should include half-a-cup (one cup equals 200 ml) of milk and either two cups of tea or one cup of coffee.

For breakfast, the alternatives are either one of these: Four idlis or three dosas, or one-and-a-half cups upma, or four slices of bread, or two cups of porridge or two cups of corn flakes with milk, or one cup of poha or two slices of toast or four pieces of dhokla.

For sedentary adult women the sample breakfast is 20 to 30 per cent smaller -three idlis, or two dosas or one cup upma, or three slices of bread. The ideal lunch for an adult man without much physical activity is two cups of rice, two phulkas, half-a-cup of dal, three-fourth cup of vegetable curry, eight slices of vegetable salad and a half-a-cup of curd. Non-vegetarians may substitute one pulse portion with one portion of egg/meat/chicken/fish. For adult women, the quantity of rice is reduced to one cup. The NIN's ideal dinner for a man is two cups of rice, two phulkas, half-a-cup dal, three-fourth cup of vegetable curry and 100 grams of any seasonal fruit. An adult woman may reduce rice intake by one cup. The new guidelines call for exclusive breast feeding of babies for six months and increase in consumption of vegetables and fruits.

Exercise

Exercise can cut risk of cancer returning (New Kerala: 9.8.2011)

London, Aug 8 : Regular exercise can cut by 40 percent the risk of cancer returning, say experts. Breast cancer patients who work out have more than a 40 percent lower risk of dying while prostate cancer patients 30 percent.

Exercise acts like a -wonder "drug" for survivors of some forms of the disease, according to Macmillan -Cancer Support.

Physical activity should be -"prescribed" by doctors after it was found not only to significantly help recovery but also prevent other long-term illnesses, the express.co.uk reported quoting the British -charity Monday.

Some cancers have high cure rates but others can return years after they were first treated.

Rather than patients being told to "rest up", doctors should encourage them to get moving as soon as they feel able, researchers believe.

A review of more than 60 studies for Macmillan found that being active did not worsen people's fatigue but had positive effects on their mood and well-being.

Once treatment has finished, exercise can reduce the impact of side-effects, such as swelling, anxiety, depression, fatigue, impaired mobility and changes to weight.

Women with breast cancer who exercise for two-and-a-half hours a week at moderate intensity have more than a 40 percent lower risk of dying and the disease returning compared with those who do less than one hour of activity a week, researchers said.

Prostate cancer patients have a 30 percent lower risk of dying from the disease and a 57 percent lower rate of disease progression if they exercise for three hours weekly.

Oncologist Jane Maher, chief medical officer of Macmillan, said: "The advice I would have given previously to my patients would have been to take it easy.

"This has now changed significantly because of the recognition that if physical exercise were a drug, it would be hitting the headlines."

"There really needs to be a cultural change, so that health professionals see physical activity as an integral part of cancer aftercare, not just an optional add-on," Express quoted her as saying.

Massage helps in relaxing the muscles. (The Tribune: 10.8.2011)

The above mentioned exercises/treatment, if undertaken effectively, can markedly minimise low back pain/stiffness. On persistence of pain/stiffness, it is always mandatory to consult a doctor.

The writer is a former doctor/physiotherapist, Indian cricket team. E-mail chadha_r2003@yahoo.co.in

Exercise

Exercise a ‘wonder’ drug to beat cancer (The Tribune: 10.8.2011)

A regular exercise like brisk walking, swimming, cycling and playing badminton acts like a ‘super drug’ for cancer survivors and can stop the disease from returning, according to a new study. Macmillan Cancer Support has suggested that cancer patients who exercise after treatment have higher survival rates. Rather than patients being told to rest as in the past, doctors should prescribe exercise as part of cancer care, it said. A review of more than 60 studies for the charity found that being active during treatment does not worsen fatigue and has positive effects on mood and well-being. Once treatment has finished, exercise can reduce the impact of side-effects such as swelling, anxiety, depression, fatigue, impaired mobility and changes to weight.

Exercise

Exercise Boosts Lifespan (Med India: 16.8.2011)

Exercising 15 minutes a day extends lifespan, while watching television cuts lifespan, find studies. Chi-Pang Wen of Taiwan's National Health Research Institutes and Jackson Pui Man Wai of the National Taiwan Sport University looked at more than 400,000 people who took part in a medical screening programme between 1996 and 2008. The volunteers were then followed for eight years on average.

Compared with individuals who said they were physically inactive, people who were in a group of "low-volume" exercise had a 14-percent reduced risk of premature death from all causes, and a 10-percent reduced risk of death from cancer. The "low volume" category applied to people whose total amount of exercise of all kinds averaged 92 minutes per week, or about 15 minutes a day.

On average, their life expectancy was three years longer than inactive counterparts. The benefits applied to all ages and to both sexes and are roughly equivalent in health impact to a successful campaign to discourage smoking, say the authors, who publish their work online in The Lancet.

Separately, researchers in Australia found that watching TV or videos for an average of six hours a day could shorten the viewer's life expectancy by almost five years. The investigators used data from a cross-sectional survey of 11,000 Australian adults who were aged at least 25 at the turn of the millennium. The data were then checked against Australia's national population and mortality figures for 2008.

15 mins exercise

15 mins exercise a day can keep disease away (The Times of India: 17.8.2011)

Forget about spending hours in the gym. Now, researchers say 15 minutes of daily physical activity can improve your health to a great extent.

In a study published in British medical journal Lancet, researchers from the National Health Research Institutes, Taiwan, and the China Medical University Hospital say a 15-minute workout every day reduces death risk by 14%, and increases

life expectancy by three years. It also reduces all cancer mortality by 10%.

Every additional 15 minutes of daily exercise further reduces all-cause mortality by 4% and all-cancer mortality by 1%. These results were applicable to all age groups and both sexes and to those with cardiovascular disease risks. Inactive individuals have a 17% increased risk of mortality compared to those who work out for 15 minutes a day. The World Health Organization recommends 150 minutes of workout a week.

Exercise

What type of exercise is preferable? (The Tribune: 17.8.2011)

It should include aerobic exercises (brisk walk, jogging, swimming, etc) of moderate intensity with a minimum duration of 30 minutes per day. Resistance-training exercises are complimentary if there is no contraindication for that. Those with coronary heart disease should consult a cardiologist before initiating any exercise protocol.

With these simple yet effective lifestyle modifications, a person can prevent/delay the onset of diabetes. In addition to diabetes prevention, recent studies indicate that adopting a healthy lifestyle is also beneficial regarding other diseases such as high blood pressure and coronary heart disease. But it is time to do it, not just know it.

The writer is Consultant, Diabetes and Endocrinology, Alchemist Hospital, Panchkula.

Slim

Alter taste buds to stay slim (The Times of India: 17.8.2011)

Altering taste buds' sensitivity to fatty food can help shed the flab, say researchers.

A team at Deakin University has found that eating a high fat diet can desensitize a person's ability to taste fat in foods which may lead to overeating of fatty foods and subsequent weight gain.

The study, published in the 'International Journal of Obesity and Clinical Nutrition', builds on the discovery last year of a sixth taste that is responsive to the fat content of foods.

"Last year we revealed the results of a study that found fat can be added to the tongue's taste repertoire, joining the other known tastes of sweet, salt, sour, bitter and umami (in protein rich foods).

"What we have found now is that the taste buds of overweight and obese people are less sensitive to fat in foods and that this could be a reason for their overconsumption of fatty foods," team leader Prof Russell Keast said.

For the latest study, participants were placed on a low and high fat diets for four weeks each. Their ability to taste fat pre and post diets was tested.

“We found that placing people on a low fat diet for four weeks increased their ability to identify low concentrations of fat.

When the same people were on a high fat diet, the sensitivity to fat did not change in the overweight people, whereas it was significantly reduced for those in the healthy weight range. PTI

‘Being fat may be healthier than constant dieting’

Contrary to general perception, being fat may actually be healthier than constantly trying to diet, say researchers. A new study of thousands of obese men and women found that more than one in three were perfectly healthy or had only slight health problems, as compared to those who had fought a constant battle with their weight by repeatedly dieting, only to pile the pounds back on. There is more to good health than how a person tips the scales — and some people classed as overweight are fine as they are, the Daily Mail reported. For their study, the researchers at Toronto’s York University tracked the health of more than 6,000 obese people for an average of 16 years. They underwent several tests and their results were compared with those of people of normal weight. This clearly revealed that being slim isn’t always superior. Men and women who are overweight but healthy may also exercise more and eat better than thin people who may smoke to suppress their appetites.

15 minutes of exercise

15 minutes of exercise per day can extend life by 3 yrs: study (The Indian Express: 18.8.2011)

As little as 15 minutes of exercise everyday can extend your life by as much as three years, a new research has found. Taiwanese researchers examined more than 400,000 study participants in a 12-year period, where patients self-reported their weekly exercise regimen and were then placed in one of five groups: inactive, low, medium, high or very high exercise activity.

The study found that people in the low-exercise group, who spent 15 minutes on fitness per day, reduced their risk of dying from cancer by 10 percent and had a three-year longer life expectancy than the inactive group. “The 30-minute a day for five or more days a week has been the golden rule for the last 15 years, but now we found even half that amount could be very beneficial,” ABC News quoted Dr Chi-Pang Wen, lead author of the study, as saying.

With every additional 15 minutes of exercise per day, participants reduced their risk of dying from cancer by another 1 percent, the research found.

Fitness mantra

6 small meals a day new fitness mantra (The Times of India: 18.8.2011)

Conventionally, eating less is considered to be the key to weight loss but dietitian Ritika Samaddar suggests that to lose weight and keep blood sugar in control, you must eat five to six small meals a day

A healthy diet is the key to good health. Sensible eating habits cultivated from childhood, along with a healthy lifestyle, delay aging and increase your lifespan besides improving your quality of life. A healthy and varied diet can help maintain the ideal body weight, enhance general well-being and reduce risk of diseases like heart disease, stroke, cancer, diabetes and osteoporosis. What we eat has a profound effect on our mind and body. What we eat is equally important as how we eat. Apart from a balanced diet, eating at the right time is equally important. Breakfast should be taken an hour after rising, and we should thereafter eat every three hours. The last meal should be three hours before bedtime.

Increasing the BMR:

Eating small frequent meals increases our BMR or baseline metabolic rate. This increases energy levels, and decreases appetite. The best way to lose weight is to actually eat more through the day. Skipping meals only increases chances of overeating later in the day. Eating five to six small meals is, therefore, a better strategy to lose weight. Most people try to save calories by skipping meals, but don't realize that they drastically slow their metabolism down by not eating. Six smaller meals is an excellent way to keep the metabolism burning high.

Calculate your calories:

The trick is to decrease your overall calorie consumption by 25% while eating six meals per day. Do this by including fruits, veggies and proteins in your diet. Since you are eating healthy, fibre-rich food regularly, you're not tempted to eat junk foods as you feel full.

Sugar levels :

Such a schedule also helps maintain a balanced blood sugar level, which is important for losing weight. If you starve yourself by skipping meals, blood sugar level will have peaks and lows that cause you to overeat. When you eat regularly through the day, your body knows that more food is on its way, and it's more likely to burn the calories you consume rather than store them as fat. This strategy helps you lose weight as well as gives health benefits. With this, half an hour daily of aerobic exercise is also recommended.

Fitness

Fitness is an addiction: Ashmit Pate (World Newspapers: 24.8.2011)

Even when actor Ashmit Patel was on reality show Bigg Boss, he ensured that he found enough time to work out. "Fitness is an addiction. It is something that I endorse wholeheartedly. I'm someone who believes that working out is intrinsic. I work out seven days a week, sometimes twice a day," he says.

The actor, who's been gymming ever since he can recall, says that the idea behind fitness needs to be right. "Everyone should take on fitness as a long term goal. You cannot end up expecting to be fit when you think of fitness as a seven-day plan. One needs to be determined and it needs to be part of your daily routine. Remember, rest is rust," says Ashmit.

Talking about how he's managed to keep his six-pack intact throughout, even before the fad caught on, Ashmit reveals a secret. "You need to work out and build your body in a realistic fashion. When one is working towards gaining a six-pack, you need to first ensure you have heavy legs. This will ensure in retaining the same," says he. The actor also insists that with age, one needs to take care all the more. "You need to be more regular to build endurance and strength with age. Also, the diet is just as important then. I always maintain that the body is made in the kitchen. You are eventually what you eat," says Ashmit.

The actor harbours a secret desire to start his own gym. "This is something I've wanted to try out since a long time. I still haven't shelved that desire. I want to encourage people to get into fitness and own that gym of mine someday," signs off Ashmit.

Fitness

Fitness is an addiction: Ashmit Patel (World Newspapers: 26.8.2011)

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Intense exercise

Intense exercise 'helps our body burn extra calories over 14 hrs after workout' (New Kerala: 5.9.2011)

A new study has found that our bodies continue to burn calories for hours after undertaking a vigorous fitness session.

Men who exercised on a stationary bike for around 45 minutes burned an additional 190 calories over the 14 hours afterwards, according to the study.

The researchers said the same theory should apply to any intense activity, be it football, swimming or running, and for the fairer sex.

However, to get the extra calorie-burning benefits, the workout needs to be enough that 'you're sweating, your body temperature is up and your heart beats fast'.

"That means a person would lose one pound after five intense exercise bouts if they resisted the temptation to eat more," the Daily Mail quoted researcher David Nieman, of Appalachian State University in Kannapolis, North Carolina, U.S. as saying.

"This shows that intense exercise can have a meaningful impact on your body fat stores if you don't counter it with an extra piece of cake. I hope this will motivate people to get out there to do sweat-producing activities. You get so much bang for your buck," he concluded.

Exercise

Exercise reduces dementia risk (New Kerala: 9.9.2011)

Any muscle flexing that gets the heart pumping is likely to cut dementia risk and slow down its progression, says a new research. Dementia is the slow deterioration of mental functions. It has adverse effects on the performance of daily activities and human interaction.

Researchers from Mayo Clinic, in the US, examined the role of aerobic exercise in preserving cognitive (mental) abilities and concluded that it should not be overlooked as an important therapy against dementia. The researchers broadly defined exercise as enough aerobic physical activity to raise the heart rate and increase the body's need for oxygen, reports the journal Mayo Clinic Proceedings.

Examples include walking, gym workouts and activities at home such as shovelling snow or raking leaves, according to a Mayo statement.

"We culled through all the scientific literature we could find on the subject of exercise and cognition, reviewing over 1,600 papers, with 130 bearing directly on this issue," said J. Eric Ahlskog, neurologist at Mayo Clinic.

The researchers noted that brain imaging studies revealed concrete evidence of favourable effects of exercise on human brain integrity. "Whether addressing our patients

in primary care or neurology clinics, we should continue to encourage exercise for not only general health, but also cognitive health," Ahlskog said.

Laughter therapy

Laughter therapy as effective as anti-psychotic drugs in treating dementia (New Kerala: 23.9.2011)

A new study has found that humour therapy is as effective as widely used anti-psychotic drugs in managing agitation in patients with dementia, and avoids serious drug side effects. The study of 3,000 adolescents has found that those who had poor diets filled with junk and processed foods were more likely to suffer mental health problems.

"The results of this study are consistent with what we have seen in adults but we think it could be more important because three quarters of psychiatric illnesses start before adulthood and once someone has depression they are likely to get it again," Stuff.co.nz quoted Dr Felice Jacka, from Deakin University's Barwon Psychiatric Research Unit Dr Jacka as saying.

"If you can prevent it before it starts in childhood and adolescence you are shutting the gate before the horse bolts." Having good nutrition-rich foods is really important for adolescents because it's a time when they are growing rapidly and it's essential they have adequate nutrition," she added.

The participants in the survey filled in questionnaires about their diets and psychological symptoms in 2005 and again in 2007. Those who ate healthy diets in 2005 were found to have fewer mental health problems than those with poor diets.

Stress-slayer exercises

Simple stress-slayer exercises at work (World Newspapers: 23.9.2011)

Long hours and a heavy workload can cause stress specially if it's combined with household responsibilities. Looking after kids, taking care of aging parents, cleaning, fixing dinner, negotiating traffic during the daily commute, ever-increasing price-rise and other factors can put a lot of stress on one's mind. Not only can it lead to anxiety and depression but also obesity, accelerated aging, hyperlipidemia, hypertension, insomnia, anorexia or bulimia, and many other stress-induced psychological as well as physiological diseases or conditions.

Typically, stress symptoms include a pounding heart or palpitations, dry mouth, headaches, odd aches and pains, loss of hunger or irregular uncontrolled hunger pangs and loss of libido.

Thanks to the effect of a group of chemicals secreted from the brain in response to vigorous physical exercise - endorphins - nothing can beat regular exercise as a stress-busting technique.

They send our mind into a 'high'. Endorphins have many beneficial effects on the body and mind of which one is a strong action to beat stress. Exercise is the best way to slay your stress, especially if you have a deskbound job.

Physical exercise also helps you get relief from muscular pains as exercise releases toxins accumulated in the body due to prolonged stress. Moreover, even a little exercise a day can improve your sleep quality which in turn reduces stress.

University of Bristol researchers found that employees who enjoyed a workout before going to work were better equipped to handle whatever the day threw at them. The research, published in the International Journal of Workplace Health Management, is the first of its kind to prove that exercise during work hours has mental, as well as physical benefits.

Take down 3 simple stress-slayer exercises that you can perform while at your workplace:

Stairs: Climbing stairs up and down for 7 minutes can reduce stress. The best time to perform stair work is right before your lunch or afternoon snack. If you are overweight, this exercise may not be for you.

Squats: Squats are simple. They can be performed in 8 sq ft space. The right way to perform squats is by sitting down bending your knees with your upper-body & lower back erect and standing back again. Inhale as you stand up, exhale as you sit. Perform 25 squats at a time; repeating it at least twice a day.

Raised-hand toe-touch: Stand erect with feet close together. Raise your hands straight above your head and arch back. Bend forward from your back making your palms touch your feet. Do not bend the knees. Slowly return to the starting position. Inhale as you arch the back and exhale when you reach out to your feet. Perform 30 - 50 counts.

Perform at least 2 out of these 3 stress-slayer exercises at work, whenever you get 5 minutes free time. Avoid exercising immediately after your meals - let an hour pass. These 3 simple exercises can keep you remarkably refreshed, energetic & stress-free!

Exercising - neurodegenerative diseases

Exercising pregnant women protect offspring against neurodegenerative diseases (New Kerala: 28.9.2011)

Working out during pregnancy will reduce the chances of unborn baby developing neurodegenerative diseases, such as Alzheimer's, later in life, says a new study.

German researchers found that mice bred to develop a neurodegenerative disease roughly equivalent to Alzheimer's disease showed fewer signs of the disease and greater brain plasticity later in life when their mothers exercised regularly than those whose mothers did not exercise.

"This research provides an experimental rationale for the effects of beneficial behavioral stimuli experienced by the pregnant mother affecting the disease status of an as yet-unborn child," said Kathy Keyvani, M.D., a researcher involved in the work from the Institute of Pathology and Neuropathology at the University Hospital Essen in Essen, Germany.

"Epigenetic alterations (alterations in gene and protein expression caused by mechanisms other than changes in the underlying DNA sequence) provide a most probable mechanism by which mothers could have transferred their own behavioral experience to their progeny," she said.

"A better understanding of the underlying pathways may provide novel treatment and/or prevention strategies for Alzheimer's disease and bring more insight into the fascinating link between brain and behavior," she added.