

Aging

Anti-Aging Health Alert: Vitamins Alter Aging(MedIndia: 21-12-2010)

A new study published in the American Journal of Clinical Nutrition found that multivitamins can keep you younger, longer. It shows that people who take a daily multivitamin had younger DNA.

Humble vitamin C has a secret life that nobody knows about. A Japanese study tested vitamin C's effect on telomeres and found that raising the level of vitamin C in the cells could slow down the loss of telomeres up to 62%.

What Are Telomeres?

Telomeres are the key to aging. And it's not just your life span that's affected... Short telomeres dramatically boost your risk of serious diseases. One study of 60 to 75 year olds showed those with short telomeres had a 300% higher death rate from heart disease and an 800% higher death rate from infectious diseases.

Govt unveils health plan - for elderly

Govt unveils health plan for elderly (The Times of India:31.1.2011)

Releases Funds For Programme To Be Rolled Out In 21 States By 2012

India has finally woken up to the needs of the country's elderly. With the number of people in the 60-plus age group in India expected to increase to 100 million in 2013 and to 198 million in 2030, the health ministry is all set to roll out the National Programme for the Health Care of the Elderly (NPHCE).

A ministry note, available with TOI, estimates that the elderly population will increase to 12% of the total population by 2025, 10% of which would be bedridden, requiring utmost care.

"That's why, we have formulated NPHCE to address various health-related problems of elderly people. The programme has got final approval from the expenditure finance committee. The ministry has already finalized operational guidelines and sent it to states for implementation," joint secretary B K Prasad told TOI.

Prasad added that funds were already being released and by 2012, the programme, "designed to be preventive, curative and rehabilitative for the elderly," would be rolled out in 100 districts of 21 states. According to the note, India will soon become home to the second largest number of older people in the world.

“However, the challenges are unique with this population in India. A majority (80%) of them are in the rural areas thus making service delivery a challenge, feminisation of the elderly population (51% of the elderly population would be women by 2016), increase in the number of the older-old (persons above 80 years) and 30% of the elderly are below poverty line,” the note said.

Under the programme, district hospitals are being aided to start a 10-bedded geriatric ward. Eight regional 30-bedded geriatric centres are being set up in places like AIIMS, PGI Chandigarh, Government Medical College in Jaipur and Madras Medical College.

In the sub-centres, male health workers will be trained to make domiciliary visits to the elderly in areas under their jurisdiction. They will give special attention to the elderly who are bedridden and provide training to the family in looking after the disabled. They will arrange suitable callipers and supportive devices and provide them to elderly disabled people to make them ambulatory.

The district hospital will provide regular dedicated OPD services to the elderly besides setting up a 10-bed geriatric ward. “With increasing life expectancy, demographic ageing is an emerging phenomenon which will hit India hard in the coming years.

Alcohol Dependence

Alcohol

Alcoholism Risk Linked To Obesity Risk (Medical News Today: 6.1.2011)

People who are at risk of alcoholism may also have a greater risk of being obese, researchers from Washington University School of Medicine in St. Louis reveal in an article published in Archives of General Psychiatry. The authors explained that the link between a family history of alcohol dependency and obesity risk has become more prominent over the last few years. A higher percentage of males and females with a family history of alcoholism were found to be obese in 2002 than in 1992.

First author, Richard A. Grucza, PhD., said

"In addiction research, we often look at what we call cross-heritability, which addresses the question of whether the predisposition to one condition also might contribute to other conditions. For example, alcoholism and drug abuse are cross-heritable. This new study demonstrates a cross-heritability between alcoholism and obesity, but it also says - and this is very important - that some of the risks must be a function of the environment. The environment is what changed between the 1990s and the 2000s. It wasn't people's genes." 15% of the US population was obese in the late 1970s, compared to 33% in 2004. An obese individual has a BMI (body mass index) of at least 30, and has a significantly higher risk of developing hypertension (high blood pressure), several cancers, stroke, heart disease and diabetes.

In this latest study, researchers found that individuals with a family history of alcoholism had a higher risk of obesity, especially females. Grucza explains that this risk is growing and may be partly caused by dietary changes and the availability of more foods which interact with the same brain areas as addictive drugs.

Grucza said:

"Much of what we eat nowadays contains more calories than the food we ate in the 1970s and 1980s, but it also contains the sorts of calories - particularly a combination of sugar, salt and fat - that appeal to what are commonly called the reward centers in the brain. Alcohol and drugs affect those same parts of the brain, and our thinking was that because the same brain structures are being stimulated, overconsumption of those foods might be greater in people with a predisposition to addiction."

As Americans eat high-calorie and hyper-palatable foods which hit the reward centers in the brain with greater impact, individuals with a higher genetic risk for addiction may face a greater risk of obesity, Grucza suggests

Diabetic Diet & Meals - Free Diabetic Recipes > Breakfast, Lunch - Snack - Dinner - Dessert. - www.diabetesinfocenter.org

Get Natural Weight Loss - Eat natural food & balanced meals Lose Weight & Inches & keep it off - www.Fitho.in/Healthy-WeightLoss

Anticancer TCM Drug - KLT - Treat lung, liver, breast & other cancers with over 550,000 cases. - www.kanglaite.com

The team gathered data from the 1991-1992 National Longitudinal Alcohol Epidemiologic Survey, and the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions, involving approximately 80,000 individuals.

Grucza wrote

"We looked particularly at family history of alcoholism as a marker of risk. And we found that in 2001 and 2002, women with that history were 49 percent more likely to be obese than those without a family history of alcoholism. We also noticed a relationship in men, but it was not as striking in men as in women."

Some people may be swapping one addiction for another, Grucza suggests, hence explaining why obesity occurs more frequently in those with a family history of alcoholism. Some individuals may resist alcohol after witnessing the devastating effects of alcoholism on a family member. However, hyper-palatable high-calorie foods might substitute alcohol because they stimulate reward centers in the brain, giving them a similar experience to what they would have obtained from alcohol.

Grucza said:

"Ironically, people with alcoholism tend not to be obese. They tend to be malnourished, or at least under-nourished because many replace their food intake with alcohol. One might think that the excess calories associated with alcohol consumption could, in theory, contribute to obesity, but that's not what we saw in these individuals."

Other factors, such as smoking, alcohol intake, age and education cannot explain the link between alcoholism risk and obesity, the researchers explained.

Grucza said

"It really does appear to be a change in the environment. I would speculate, although I can't really prove this, that a change in the food environment brought this association about. There is a whole slew of literature out there suggesting these hyper-palatable foods appeal to people with addictive tendencies, and I would guess that's what we're seeing in our study."

Alcohol, addiction and obesity researchers should be liaising more, Grucza believes. Treating one of the disorders may result in helping prevent or treat the other.

Alcohol (Beer)

Cheers! Drinking a pint of beer a day 'is good for your health' (New Kerala: 14.1.2011)

London, Jan 14 : Doctors have suggested that drinking up to a pint of beer a day is good for the health and can reduce the risk of diabetes and high blood pressure.

They claimed that moderate consumption could even help people lose weight if combined with a healthy diet.

Doctors Ramon Estruch and Rosa Lamuela tested 1,249 men and women over 57 years old.

Those who accompanied a Mediterranean diet with up to a pint of beer 'not only did not put on weight, but in some cases even lost weight'.

The doctors found beer provides the same health benefits attributed to moderate consumption of wine.

“In this study we banish myths. We know that beer is not to blame for obesity,” the Daily Mail quoted Dr Lamuela as saying.

Beer contains folic acid, vitamins, iron and calcium, which the study claims provide a ‘protective’ effect on the cardiovascular system.

The subjects who regularly drank moderate amounts of beer were less likely to suffer from diabetes and high blood pressure, and had a lower body fat content.

The researchers from Barcelona and Madrid suggested women should drink two small glasses of beer a day while men should drink three, combined with a healthy diet and exercise.

Alcohol

Take heart, alcohol sometimes cures (The times of India: 19.1.2011)

One Shot And Stiff Heart Muscle Melts

Excessive alcohol consumption causes health risks, including high chances of heart attack. But doctors in the city are now using alcohol to treat heart patients. The new method — alcohol septal ablation — cures a disease in which the heart muscles grow thick and can cause sudden death. The results, the doctors say, are encouraging.

In this procedure, doctors inject a few drops of pure alcohol into the arteries supplying blood to the diseased part. This blocks blood supply to that area and finally leads to degeneration of the muscles. Unlike bypass surgery and pacemaker implant, this process is cheaper and the recovery is fast, say doctors.

“Pure alcohol causes instant clotting of blood and blocks blood supply to the diseased muscles. Without blood, the muscles start degenerating and the obstruction is removed. Our hospital has treated 18 patients using this method and they have recovered well,” said Dr Praveen Chandra, chairman, division of interventional cardiology, Medanta Medicity, Gurgaon. Dr Chandra said that alcohol septal ablation is the best treatment option for the disease, hypertrophic cardiomyopathy, in which the heart muscles grow thick. The treatment costs around Rs 1 lakh.

According to Dr Chandra, the procedure takes less than 30 minutes and the patient can be discharged within two days. “The procedure is minimally invasive and hence the recovery is fast. We insert a 3-mm tube into the groin area from where the ‘culprit’ blood vessel is accessed and alcohol is pumped in. A small balloon is used to inflate the culprit vessel to prevent back flow in other vessels. Alcohol causes instant clotting of blood and

blocks supply to the heart. Due to this, the thickened part shrinks and the patient is relieved from obstruction, which could lead to cardiac arrest and sudden death,” Dr Chandra said.

He added that there is over 50% reduction in thickness post procedure and it further shrinks over a period of six months.

“Earlier, we used to prescribe betablockers, a medicine, to patients for life or operate surgically to remove the diseased muscle. But the treatment was not fool proof. Use of pacemaker proved successful in some cases but the patient was supposed to live with a foreign object in the body and get its battery changed periodically. The treatment cost for the common methods — surgery and defibrillator implantation — ranged from Rs 2 lakh to Rs 5 lakh, which is higher than that for alcohol septal ablation,” said the cardiologist.

Doctors say this hereditary disease is a leading cause of sudden cardiac arrest in young athletes. Such patients suffer shortness of breath, chest pain, uncomfortable awareness of heart beat and sometimes faint. “My mother had difficulty in breathing and she often complained of chest pain. One of her relatives had died in sleep but no one ever came to know the cause. When my mother’s condition deteriorated and medicines proved ineffective, an echocardiogram showed that she was suffering from hypertrophic cardiomyopathy. Doctors advised cardiac surgery for which we came to Delhi. But here, experts conducted this new treatment procedure and her condition has significantly improved,” said Mohit Lamba, a resident of Ambala, Haryana.

Alcoholism

Alcoholism Tied To Later Marriage, Earlier Separation (Medical News Today: 20.1.2011)

Alcohol dependence is a strong predictor of later marriage and earlier separation, said researchers who studied over 5,000 Australian twins of various ages.

You can read how lead author Dr Mary Waldron, an assistant professor at the Indiana University School of Education in Bloomington, and also of the Midwest Alcoholism Research Center, Washington University School of Medicine in St Louis, Missouri, and colleagues arrived at these findings in the 18 January online early view of Alcoholism: Clinical and Experimental Research.

Waldron and colleagues wrote in their background information that although there is a lot of published research on the links between drinking behavior and marital status, there is little empirical evidence on how it might affect the timing or duration of marriage.

"Previous research documented associations between adolescent substance use and early marriage or cohabitation, but much of this work did not follow participants past their 20s," Waldron told the press.

So they decided to investigate this further by conducting a study of first marriages and how their timing and duration related to a lifetime history of alcohol dependence in a group of 3,575 female and 1,845 male adult Australian twins born mostly between 1940 and 1964.

They recruited the participants in the early 1980s, and assessed psychological and physical symptoms of alcohol use, and where applicable, what age they became dependent on it. The subjects were between 28 and 92 years old at their final assessment, when the researchers also noted, where applicable, how old they were when they first got married and when they separated.

When they analyzed the results, the researchers found that:

"Moderate" delays in marriage were linked with alcohol dependence for both men and women.

Among participants who had ever married, alcohol dependence was strongly predictive of early separation, with men and women showing similar patterns.

Genetic influences appeared to contribute to these links, for both men and women.

For women, there were genetic influences between early onset of alcohol dependence and timing of first marriage.

For women, genetic influences common to alcohol dependence and duration of marriage were there regardless of when they became alcohol dependent, whereas for men, this was only apparent for later onset of alcohol dependence.

Waldron and colleagues concluded that their results confirmed the importance of alcohol dependence "as a predictor of both timing and survival of first marriages, with genetic influences contributing to observed associations".

Waldron cautioned that while genetic influences appear to be important, more studies are needed before we can fully understand the role that genes might play, and how they interact with environment to produce any effects, in this area.

Nevertheless, even without further studies, these results highlight how alcoholism impacts more than just the person with the drinking problem:

"Young adults who drink alcohol may want to consider the longer-term consequences for marriage," said Waldron.

"If drinking continues or increases to levels of problem use,

Biomedical Science

Immune Response

New Imaging Advance Illuminates Immune Response in Breathing Lung (Science daily: 30.12.2010)

Fast-moving objects create blurry images in photography, and the same challenge exists when scientists observe cellular interactions within tissues constantly in motion, such as the breathing lung. In a recent UCSF-led study in mice, researchers developed a method to stabilize living lung tissue for imaging without disrupting the normal function of the organ. The method allowed the team to observe, for the first time, both the live interaction of living cells in the context of their environment and the unfolding of events in the immune response to lung injury.

The finding impacts disease research, the authors say, because the ability to image the lung and other organs with minimum tissue disruption allows scientists to look deeper into the many physiological aspects of injury and diseases like diabetes or cancer.

"The nature of disease is complex, so if scientists can observe in real-time what's happening in tumors or immune responses as they occur, we can find new ways to intervene," said senior author Max Krummel, PhD, UCSF associate professor of Pathology, whose lab developed the new imaging technique for seeing minute details of cellular interaction in tissues.

"We figured out a method for holding cells still enough to image them without interrupting their normal processes. This enabled us to observe cellular events as they happen naturally rather than the usual way, which is to stop the motion of cellular processes in order to photograph them."

The research, published online this week in Nature Methods, includes videos of these immune cell interactions: <http://www.nature.com/nmeth/journal/vaop/ncurrent/full/nmeth.1543.html>.

To achieve such clear imaging of the fast-moving lung cells, the team developed a custom rig device that applies a gentle amount of suction to the tissue surface, holding the region for viewing inside the range of their microscope. They then used super-fast imaging with a two-photon microscope to photograph the tissue. Footage was taken 30 times each second, revealing the full progression of cellular participants involved in different biological processes -- for example: which cells worked together to mount a response to an injury. With that information, the team was able to identify the function of different cell types.

The fast, two-photon microscopy technique previously was developed by the team to monitor immune cells in the lymph nodes and other biological processes. Two-photon microscopy is a light-based high-resolution imaging technology using infrared pulsed lasers to penetrate deep into tissue layers, capturing details as small as one micron (or one ten-thousandth of a centimeter) in diameter. The study uses custom-built microscopes that the team constructed on-site at UCSF.

With more than 20 previously published articles using microscopy, the team is focused on continuing to improve the ability to observe molecules and cells deep within tissues.

"Imaging tissues or organs is ideally done within the living organism and as noninvasively as possible, but there are many challenges," said Mark R. Looney, MD, co-first author and assistant professor in Medicine and Laboratory Medicine at UCSF.

"Light is absorbed and scattered as it passes through tissue, which degrades image quality. And even anesthetized animals have vascular and respiratory movements, complicating the imaging of dynamic processes. Many of these problems are exacerbated in the lung," said Emily Thornton, co-first author and a graduate student in Krummel's laboratory.

Although the lung is a challenging organ to image, it is the site of several important biological functions useful in the study of diseases. For instance, the lung is where the body's internal systems encounter the outside environment through the inhalation of air, allergens, toxins and pathogens. The lung also is in constant contact with inhaled air and with circulating blood cells.

"As a result of achieving video-rate imaging of events within the lung, we've shown how the immune system behaves during normal function and how tissues are affected in acute lung injury," Looney said. "For other disease processes in other organs, we hope to define how collections of cells participate and how they're organized."

In the future, the team plans to miniaturize the stabilizing rig in order to image live tissue biopsies.

"Many different specialties of clinical scientists and pathologists can use this imaging method to learn how disease progression unfolds, but miniaturizing the rig to image biopsied tissue would be a tremendous improvement," Krummel said. "In real-time, for instance, we can catch how cells interact with tumors and observe whether they promote growth or rejection, and whether medical therapy is working."

Immune System

Structure of immune system's key molecule offers clues for designing drugs (World Newspaper: 30.12.2010)

Researchers from the University of Pennsylvania and Utrecht University have deciphered a key step in an evolutionarily old branch of the immune response.

This system, called complement, comprises a network of proteins that "complement" the work of antibodies in destroying foreign invaders. It serves as a rapid defence mechanism in most species from primitive sponges to humans.

Molecular structure of the complement pro-convertase in complex with factor D. A double safety catch mechanism that involves a tiered and meticulously orchestrated interplay of three proteins (C3b, factor B, factor D) ensures that the destructive action of complement is restricted to target cells such as microbial intruders.

In a study, the groups of John Lambris, the Dr. Ralph and Sally Weaver Professor of Research Medicine at Penn, and Piet Gros at Utrecht, detail the atomic structure of two key transient enzyme complexes in the human complement system.

Complement proteins mark both bacterial and dying host cells for elimination by the body's cellular cleanup services and have been implicated in at least 30 diseases, including stroke, myocardial infarction, and age-related macular degeneration.

"Now we will be able to design specific complement inhibitors to target this complex and in that way inhibit activation of the complement cascade, because now we know which parts of the proteins are essential for activity," said Lambris.

The two enzyme complexes Lambris studied, called C3bB and C3bBD, drive a central step in amplifying the response by complement proteins.

Skintillating

‘Skintillating’: How to save your neck without surgery (Times of India: 27-12-2010)

Necks don't lie. Sagging there betrays age like the rings on a tree, and now common Botox and fillers in the face make neck imperfections stand out in stark relief. In her 2006 best-seller, "I Feel Bad About My Neck," Nora Ephron, by then 65 and a resolved

turtleneck wearer, raged against the injustice of having no remedy for her slackening throat skin, short of surgery.

But it turns out that isn't true. These days, less-invasive options exist to improve the look of one's neck, provided it isn't a fullblown turkey wattle. Like a romance, a neck can go wrong in many ways. Weight gain or genetics may lead to a double chin. Loose skin can be compounded by underlying lax muscle.

A neck-lift (on its own or with a face lift) remains the best bet for a striking, lasting fix.

But careful liposuctioning of excess fat can also help streamline the full necked, especially those who still have relatively youthful elastic skin that can bounce back after the procedure. The trick is not to be suctioned to the point of looking skeletal.

If the issue is these isolated bands, injecting Botox into the neck muscle can make them less conspicuous in a patient with great skin tone, said Dr Rod Rohrich, chairman of the plastic surgery department at the University of Texas . But the fix lasts only three to four months.

Ulthera is a new skin-lifting procedure using focused ultrasound to spur collagen growth deep under the epidermis. A single treatment may improve the contours of under-chin laxity in patients roughly 40 to 55 years old who feel they aren't ready for surgery or amenable to it, several doctors said, including Dr Matthew White, a facial plastic surgeon at NYU Langone Medical Center.

The Ulthera handpiece pressed to skin allows doctors to see underlying layers on a screen (as with gynecological ultrasounds) before they start treatment, a first for noninvasive dermatological procedures. "We deposit energy to a precise depth below the surface of the skin without affecting the intervening tissue," said Matthew Likens, chief executive of Ulthera.

Patients may feel pain during treatment. Prospective candidates should also be aware that peer-reviewed published studies have yet to quantify just how much tightening can be expected in the neck and lower face. "That's true," Likens confirmed.

That didn't stop Dr Mehmet Oz, a cardiologist, from proclaiming on his TV show last month that Ulthera was a "revolutionary nonsurgical face-lift" and promising to get rid of a viewer's sagging neck live onstage. In the segment, Dr Haideh Hirmand, a plastic surgeon in Manhattan, said it was the first time she was "really excited" about a noninvasive technology for tissue-lifting. NYT NEWS SERVICE

Human Immune System

Human Immune System Has Emergency Backup Plan (Science Daily: 27-12-2010)

The innate immune system defends the body against infections caused by bacteria and viruses, but also causes inflammation which, when uncontrolled, can contribute to chronic illnesses such as heart disease, arthritis, type 2 diabetes and cancer. A molecule known as nuclear factor kappa B (NF- κ B) has been regarded as the "master regulator" of the body's innate immune response, receiving signals of injury or infection and activating genes for microbial killing and inflammation.

Led by Michael Karin, PhD, Distinguished Professor of Pharmacology, the UC San Diego team studied the immune function of laboratory mice in which genetic tools were used to block the pathway for NF- κ B activation. While prevailing logic suggested these mice should be highly susceptible to bacterial infection, the researchers made the unexpected and counterintuitive discovery that NF- κ B-deficient mice were able to clear bacteria that cause a skin infection even more quickly than normal mice.

"We discovered that loss of NF- κ B caused mice to produce a potent immune-activating molecule known as interleukin-1 beta (IL-1 β), which in turn stimulated their bone marrow to produce dramatically increased numbers of white blood cells known as neutrophils," said Karin. Neutrophils are the body's front-line defenders against infection, capable of swallowing and killing bacteria with a variety of natural antibiotic enzymes and proteases.

The new research demonstrates that the innate immune system deploys two effective strategies to deal with invasive bacterial infection, and that the IL-1 β system provides an important safety net when NF- κ B falls short.

"Having a backup system in place is critical given the diverse strategies that bacterial pathogens have evolved to avoid bacterial clearance," said Victor Nizet, MD, professor of pediatrics and pharmacy, whose laboratory conducted the infectious challenge experiments in the study. "A number of bacteria are known to suppress pathways required for NF- κ B activation, so IL-1 β signaling could help us recognize and respond to these threats."

While helpful in short-term defense against a severe bacterial infection, the dramatic increase in neutrophil counts seen in the NF- κ B-deficient mice ultimately came at a cost. Over many weeks, these activated immune cells produced inflammation in multiple organs and led to the premature death of the animals. Long-term blockade of NF- κ B signaling has been explored extensively by the biotechnology and pharmaceutical industry as a strategy for anti-inflammatory or anti-cancer therapy, perhaps unaware of the risks suggested by this new research.

"One might contemplate adding a second inhibitor of IL-1 β signaling to protect against the over-exuberant neutrophil response," said Karin. "Unfortunately, loss of both the NF- κ B pathway and the backup IL-1 β pathway rendered the mice highly susceptible to invasive bacterial infection which they no longer cleared."

Altogether, the UC San Diego research sheds new light on the complex and elegant regulatory pathways required for a highly effective innate immune system. The scientists noted that future investigations must take into account these interrelationships in order to design novel drugs against inflammatory diseases that achieve their treatment goals while minimizing the risk of infection.

Lead authors of the study were former UC San Diego postdoctoral fellows Li-Chung Hsu, now at National Taiwan University in Taipei, and Thomas Enzler, currently at the University of Goettingen in Germany. Additional contributors include Guan-Yi Yu and Vladislav Temkin of the UCSD Department of Pharmacology; Anjuli Timmer of the UCSD Department of Pediatrics; Jun Seita and Irving Weissman of the Institute for Stem Cell Biology at Stanford University School of Medicine; Chih-Yuan Lee, Ting-Yu Lai, Guann-Yi Yu, and Liang-Chuan Lai of National Taiwan University; and Ursula Sinzig and Thiha Aung of the University of Goettingen.

Radiation

Docs want Govt to study radiation effects from mobile towers (The Times of India: 24-12-2010)

Are the mobile phone towers dotting the country health hazards? While the Telecom industry claims that the cell phone structures have no health impact as electromagnetic radiation (EMR) emitted from them is well within the prescribed limits, doctors prefer to adopt a cautious approach and seek a long-term study preferably to be conducted by the Government in this connection for the welfare of the people.

“There is a need for longterm scientific study on the possible health impacts of radiations emanating from mobile towers in the country.

In April, we initiated a threeyear study to assess the impact of radiation emitted from the cell towers,” VM Katoch, Director General of Indian Council for Medical Research (ICMR) told The Pioneer.

He added: “We need not blame technology just for the sake of it. But in view of divergent views coming from vari

ous sections of the society, air must be cleared by unbiased surveys. ” Besides, as users become more and more dependent on electronic gadgets such as microwave, television and cell phones, their impact in relation to the health must be assessed, he added.

Dr Anoop Kohli, senior consultant neurologist at Indraparstha Apollo Hospital said: “At present, there is no data that associates adverse human events with use of mobiles or EMR emissions from cell towers. ” He, however, admitted

that regular exposure to radiation can be harmful for the human body and hence, more researches need to be conducted in the area before it turns into a public health crisis.

Dr Munish Gairola, head of Radiation Oncology Department in SMH Curie Cancer Centre, too suggested the need for the Government backed studies to provide authentic data on the public health. "Low dose of radiation for long period is certainly harmful to the human body.

Cardiac disruption, sleep disturbance, chronic fatigue could be early indicators of the adverse health effects, while brain tumour can be the long term effects," said Gairola.

Under scanner of the health experts and advocacy groups, the telecom lobby, represented by the Cellular Operators Association of India (COAI), has claimed that no studies have shown conclusive evidence that radio-frequency emissions from cell towers are harmful.

Director General of COAI Rajan S Mathew said in fact a recent study commissioned by the Association and conducted by IIT Madras has shown that the level of radiation from cellular base stations in Delhi at over 180 locations "falls hundreds times below international safety standards and that in all circumstances, the cumulative measurements were well below the compliance limit set by the International Commission on Non-Ionising Radiation Protection (ICNIRP)".

He asserted that the radiation from mobile towers should not be related to health ailments since there was no major study across the world, which has established a correlation between mobile tower radiation and increase in health related issues or genetic damage.

Mathew, however, admitted that the study does not go into the reasons for the vanishing of birds and bees as pointed out by various researches in India and abroad which have attributed their decline to the harmful radiation emitted by the towers.

Computer vision syndrome

Protect yourself from computer vision syndrome (World Newspaper: 24-12-2010)_

The drastic rise in cases of computer vision syndrome (CVS) in the past two years has become a cause for concern for Pune ophthalmologists.

The cases are not only common among professionals who work full time on computers but also children.

There has been a 15% rise in cases of CVS in the past two years, which is very high, said doctors. Chairman of the Maharashtra Ophthalmological Society (MOS), Dr Jeevan Ladi, said five years ago the rate of CVS was about 8%. Today almost 25% of the total cases in outpatient departments are of CVS.

“The increase is drastic and the main concern is that it is not only seen among people of productive age but also children above 10 years,” said Ladi. He said CVS relates to reduced blinking while working on computers and associated problems.

“Normally it is noticed that while working on the computer our rate of blinking reduces. This is because we try to concentrate on the printed matter, which is less clear than written copy. This causes muscle strain, eye pain, headache, eye strain, tiredness, burning of eyes, dryness, redness and itching,” said Ladi.

“We have seen CVS cases among children who are addicted to computer games, info-tech (IT) professionals and netizens. Almost 70% of people working in the IT sector (full time) face this problem and are a regular at the eye clinics,” the ophthalmologist said, adding that this can be avoided and further deterioration of eyes can be curbed.

Ladi recommended the 20x20x20 exercise to prevent CVS. This exercise basically refers to shifting your gaze after 20 minutes; looking at an object about 20 metres away for about 20 seconds. “During this exercise, blink continuously and let the eye muscles relax. Get back to work once you feel better. This will help keep eye strain away,” he said.

He said problems related to CVS have risen manifold due to the phenomenal rise in IT-related activities, whether by software professionals or others. “Professional use of computers has also gone up along with personal use,” he said.

Poona Ophthalmological Society (POS) president, Dr Jignesh Taswala, said frequent movement of eyes is very important for good blood circulation. “If not treated on time CVS can lead to severe dryness in eyes, major headache, strain, muscle spasm and other problems,” he said.

Steam inhalation

Inhalation claim appears to be losing steam (World Newspaper: 24-12-2010)

The age old remedy for cold and cough — steam inhalation — may not be as effective for children as thought. According to a new research, it only makes a patient feel better but does not necessarily improve his/her condition.

The research published in Indian Academy of Pediatrics journal Indian Pediatrics did not find enough evidence supporting benefit of steam inhalation in acute (upper and lower) respiratory tract infections in children.

Upper tract infections result in common cold, croup and sore throat, while lower tract infections cause bronchiolitis, pneumonia, etc.

After examining this age-old remedy's relevance in modern evidence-based healthcare practices and whether it resulted in clinical improvement in people with respiratory illnesses, Joseph L Mathew of Advanced Pediatrics Centre, PGIMER, Chandigarh, wrote that there was no scientific ground to encourage steam inhalation by children.

“The practice of steam inhalation could have been relatively justifiable at a time when there was limited understanding of pathophysiologic mechanisms in various respiratory tract illnesses, coupled with limited therapeutic options. Both situations have dramatically changed for most respiratory conditions,” he wrote.

Mathew believes that subjective improvement/perception of relief often do not correlate with objective measurements. “This raises the tricky issue of whether feeling better is superior to being better. In the context of conditions as diverse as acute common cold to chronic arthritis, the former cannot be ignored, and may take precedence over precise objective measurements. On the other hand, for most other clinical conditions, demonstration of subjective improvement may be inadequate to prove that an intervention works. The precise balance between subjective and objective outcome measures in common cold is not clear,” he wrote.

So, is there harm in recommending steam inhalation? “Many care-givers [physicians and parents] may favour steam inhalation based on personal [favourable] experiences, and might argue that this outweighs the [absence of] data from research. It must be emphasised that one of the goals of evidence-based healthcare is to protect patients from precisely this tendency,” Mathew wrote.

However, there are voices of disagreement. “Steam inhalation liquefies dry mucus in the thin nasal passage of children and helps clear it easily, decongesting nose,”

Bio-Medical Waste

Tackling Bio-Medical Waste

Pollution control board to hold camps for pvt hospitals (The Tribune: 22-12-2010)

Responding to a wake up call given by the Central Pollution Control Board for the strict implementation of the bio-medical waste (management and handling) rules in the state, the Punjab Pollution Control Board (PPCB) has scheduled special camps to grant and renew authorisation to private hospitals and nursing homes.

The PPCB, in its advertisement dated December 17 in a section of the media, had categorically mentioned that some of the hospitals/ healthcare facilities were operating without a valid authorisation as required under the rules, which is punishable under the provisions of the Environment Protection Act, 1986.

It further reads that the PPCB in order to give the last chance to the erring hospitals/healthcare facilities was organising special camps for an on-the-spot processing and grant of authorisation applications.

The special camps for authorisation will be held on December 23 at Patiala, Ludhiana, Khanna, Jalandhar, Amritsar, Bathinda, Sangrur, Faridkot, Hoshiarpur, Mandi Gobindgarh, and Mohali.

The regional offices of the PPCB will grant new authorisation to private hospitals and renew the expired authorisations under bio-medical waste (management and handling) rules.

The hospitals have also been asked to come with all documents, including a valid agreement with the common bio-medical waste treatment facility; self-declaration of bed capacity; a demand draft according to the prescribed fee as per the bed capacity, partnership/proprietor certificate/list of directors and annual report containing the details of the generation of bio- medical waste.

Interestingly, the PPCB was oblivious to the violations of the BMW rules for years, as no action had been initiated against the government or private healthcare facilities.

The rules were implemented in 1998.

Stem cell

Stem cell cure for baldness (The Asian Age: 21-12-2010)

London, Dec. 20: Scientists may be close to creating a cure for baldness, following a stem cell breakthrough.

Researchers at the Berlin Technical University in Germany have grown the world's first artificial hair follicles from stem cells.

The follicles were created from animal cells and were somewhat thinner than normal, but the team were optimistic they could grow human hairs from stem cells within a year.

Mr Roland Lauster, who led the study, said within five years millions of hair-loss sufferers could grow new hair from their own stem cells and have it implanted in their

bald spots, reports the Daily Mail. Mr Lauster told the German newspaper Die Welt that preparations for clinical trials were already in motion.

Stem cells are the body's master cells. When manipulated in a lab they can be grown into any tissue in the human body from blood to bone and even whole organs. Current treatments for baldness include hair plugs where stronger hair follicles from the side and back of the head are transplanted to the bald spots.

Nerve Cells

Key Protein Discovered That Allows Nerve Cells to Repair Themselves(Science daily: 3.1.2010)

A team of scientists led by Melissa Rolls, an assistant professor of biochemistry and molecular biology at Penn State University, has peered inside neurons to discover an unexpected process that is required for regeneration after severe neuron injury. The process was discovered during Rolls's studies aimed at deciphering the inner workings of dendrites -- the part of the neuron that receives information from other cells and from the outside world

The research will be published in the print edition of the scientific journal Current Biology on 21 December 2010.

"We already know a lot about axons -- the part of the nerve cell that is responsible for sending signals," Rolls said. "However, dendrites -- the receiving end of nerve cells -- have always been quite mysterious." Unlike axons, which form large, easily recognizable bundles, dendrites are highly branched and often buried deep in the nervous system, so they have always been harder to visualize and to study. However, Rolls and her team were able to get around these difficulties. They looked inside dendrites in vivo by using a simple model organism -- the fruit fly -- whose nerve cells are similar to human nerve cells. One of the first mysteries they tackled was the layout of what Rolls referred to as intracellular "highways" -- or microtubules.

"Imagine the nerve cell with two branches -- or arms -- splayed out from it on opposite sides," Rolls explained. "Both arms have highways -- microtubules -- that run along their length and allow all the raw building materials made in the cell body to be carried to the far reaches of the cell. But the highways point in opposite directions. In axons, the growing ends -- or plus ends -- of the microtubules point away from the cell body. In contrast, in the dendrites the plus ends point towards the cell body. No one understands how a single cell can set up two different highway systems."

Unlike many other cells in our bodies, most neurons must last a lifetime. They rely on their key infrastructure -- microtubules -- to be extremely well organized, but also to be flexible so that they can be rebuilt in response to injury. Part of that flexibility comes

microtubules' ability to grow constantly. Rolls and her team visualized this growth and realized that there must be a set of proteins controlling just how the highways are laid down at key intersections -- or branch points -- to keep all the microtubules pointing the same way. They identified the proteins, which include the motor protein kinesin-2, and found that when these proteins were missing the microtubules no longer pointed the same way in dendrites; that is, their polarity became disorganized.

After identifying the set of proteins required to maintain an orderly microtubule infrastructure in dendrites, the team tested whether these proteins play a role in the ability of neurons to respond to injury. Most neurons are irreplaceable, and yet they have an incredible ability to regenerate their missing parts. In earlier studies, Rolls and her team had found that, after an axon is cut off and the nerve cell no longer is able to send signals, a new axon grows from the other side of the cell; that is, from a dendrite. As part of this process, the microtubules must flip polarity. In other words, the dendrite highways must be completely rebuilt in the axonal direction. "When we disabled the flies' ability to produce the kinesin-2 protein, we found that the highways could not be rebuilt correctly, and nerve regeneration failed," Rolls explained. "Apparently, kinesin-2 is a crucial protein for polarity maintenance and for the ability to set up a new highway system when neurons need to regenerate."

Rolls also explained that visualizing how nerves maintain their intracellular highways is important for understanding neurodegenerative disease as well as response to nerve injury, which often occurs after accidents and other trauma. If the proteins that control the layout of microtubules, or carry cargo along them, do not function properly, they can become culprits in neurodegenerative diseases such as hereditary spastic paraplegia. "We hope that by showing how microtubules are built in healthy neurons and rebuilt in response to injury, our study might provide insights for future researchers who are developing drug therapies for patients with nerve disease or damage," Rolls said.

Gene

Researchers Find Gene That Protects Against Dementia In High-Risk Individuals(Medical News Today: 3.1.2011)

Neuroscientists had assumed that a mutation in the progranulin gene, which makes the progranulin protein and supports brain neurons, was sufficient to produce a kind of dementia known as frontotemporal lobar degeneration (FTLD). But now an international team of scientists led by researchers at Mayo Clinic's campus in Florida have found another genetic factor they say appears to protect against the disorder in progranulin mutation carriers.

In an article published in *Neurology*, the medical journal of the American Academy of Neurology, the researchers report that people with a mutated progranulin gene who also inherited two copies of a specific variant of the TMEM106B gene are significantly less likely to develop FTLN or they have their disease onset delayed.

"This was an unexpected but very exciting finding because it suggests that if we could understand what TMEM106B is, and how it and its variants work, this could provide a new avenue for development of an agent that protects against FTLN," says the study's lead author, neuroscientist Rosa Rademakers, Ph.D.

The study was a follow-up to a genome-wide association study led by researchers from the University of Pennsylvania School of Medicine, which included 45 centers around the world and was published in March 2010 in *Nature Genetics*. This study used postmortem brain tissue to pinpoint variation in the TMEM106B gene as a risk factor for FTLN. What these patients all had in common was that they had lesions of misfolded TDP-43 proteins inside brain neurons. Researchers found that TMEM106B variants also played a role in FTLN patients with a progranulin mutation who invariably have these brain lesions.

"This research was designed to confirm the findings of the earlier study and to expand it to see if TMEM106B could modulate progranulin levels," Dr. Rademakers says. To do this, the researchers looked for the TMEM106B variant in a new set of patients, including 82 FTLN patients who had progranulin mutations, 562 FTLN patients without mutations, as well as a group of 822 healthy controls.

In the group as a whole, they did not see a significant association with TMEM106B, but there was a very significant association between TMEM106B variants and the development of FTLN in individuals with progranulin mutations.

The researchers found that individuals with a progranulin mutation who also inherited two copies of the protective TMEM106B allele did not develop FTLN or developed it at a much later age than is typical, which is normally around age 60, Dr. Rademakers says. "Since progranulin mutation carriers produce 50 percent less progranulin protein, we believe TMEM106B may affect progranulin levels and therefore specifically works in people with progranulin mutations," she says.

In support of their hypothesis, they found that individuals carrying the protective TMEM106B allele have more progranulin in their blood plasma, suggesting that the TMEM106B allele works to increase progranulin protein levels.

"The protective form of TMEM106B leads to higher levels of progranulin in the blood. Whether it also increases the levels of progranulin in the brain has not yet been studied and will be the focus of our future research," Dr. Rademakers says.

Not only could the beneficial TMEM106B allele be the basis of a novel therapy for individuals with a progranulin mutation, it might also help others who are at risk, for dementia she adds. "Subtle changes in progranulin levels have been linked to an

increased risk for the development of FTLT, so now we have an interesting new lead to explore."

The study was funded by the National Institutes of Health and the Consortium for Frontotemporal Dementia Research. The authors declare no conflicts of interest.

Heart Surgery

Alternative To Open Heart Surgery(Science Daily: 4.1.20109)

Interventional Cardiologists Help The Faint Of Heart Without Surgery

Interventional cardiologists created an alternative to open heart surgery by developing a mitral valve clip. To alleviate mitral valve regurgitation--a condition where the heart's mitral valve does not close properly, allowing blood to leak back into the heart--cardiologists insert a catheter into the patient's groin that travels up into the mitral valve. The clip is fed through this catheter, where it finally grasps and tightens the valves' leaflets--effectively preventing blood from leaking. The clip remains in place while the catheter is removed, the entire procedure taking approximately two hours and recovery a few weeks. The procedure is good for those with weaker hearts, when traditional surgery is more dangerous.

Chances are you know someone who has had heart problems. In fact, one in five people over the age of 55 has a problem with their mitral valve. A new alternative to open heart surgery can get their blood flowing again.

Nothing keeps 77-year-old Josephine Herndon from shopping, but her hobby was slowed down by a heart problem called mitral regurgitation.

"In the store, I sat down, and I was breathing pretty heavily," said Herndon. "I could barely make it back to the car."

Mitral regurgitation is a condition in which the heart's mitral valve doesn't close tightly, allowing blood to flow backward into the heart.

"I had a leaky valve and didn't even know it," Herndon said.

"A lot of these patients have shortness of breath," said George Hanzel, M.D., an interventional cardiologist at William Beaumont Hospital in Royal Oak, Mich. "The main thing they have is fatigue, exercise intolerance, shortness of breath and swelling."

Herndon was one of the first patients in the United States to have the mitral clip procedure. First, interventional cardiologists inserted a catheter into her groin up into the mitral valve. Next, a clip was fed through. The clip grasped and tightened the valves' leaflets, preventing blood from leaking.

"By pulling them together and approximating them, it reduces the leakiness," Dr. Hanzel said.

The clip stays and keeps blood from leaking, and the catheter is removed. The procedure takes two hours, the same as for open-heart surgery. The difference is in the recovery -- down from months to just weeks.

"Patients typically say they feel better," Dr. Hanzel said. "They can breathe better. They can do more without having to stop and rest."

Herndon's mitral regurgitation was reduced from severe to trivial, and she's back looking for bargains again. "I always did love to go shopping," Herndon said.

The mitral clip procedure is good for patients who have a weak heart and may not make it through traditional surgery. The procedure is being investigated in clinical trials in 38 hospitals across the country.

ABOUT MITRA CLIP: The Mitra Clip is a device inserted into the heart by a catheter. It is used to gather and fasten the leaflets of the mitral valve of the heart, which can become loose enough to allow blood to leak when the valve is closed. Doctors insert the catheter into the femoral artery, and then work it through the body to the heart. Using this technique can help patients recover more quickly from mitral valve repairs.

HAVE A HEART: The heart pumps 5.6 liters of blood through the entire body in roughly 20 seconds; each day your blood travels some 12,000 miles, and your heart beats about 100,000 times. This delivers oxygen and other essential nutrients to the body's cells and organs. A heart attack occurs when the blood supply to the heart muscle is cut off, either because part of the heart is damaged (such as the valves to the chambers), or because plaque has built up inside the arteries, narrowing them and severely restricting blood flow. Symptoms of a heart attack include a squeezing discomfort in the center of the chest, pain or tingling in the left arm, shortness of breath and sometimes a cold sweat, nausea, or dizziness.

ABOUT HEART DISEASE: Most heart diseases arise from hardening of the arteries, especially from the buildup of fatty material along the inner lining of the arteries. Coronary arteries supply blood to the heart. When a blockage occurs, this flow is decreased. Heart medications target these blockages in several different ways. Nitrates dilate the veins, decreasing the oxygen requirements of the heart. They also dilate the coronary arteries to increase blood flow to the heart. Beta-blockers decrease the heart rate and the force of the heart's contractions. Aspirin prevents platelets in the blood from clotting and clumping on blood vessel walls.

Tumor Cells

New Blood Test That Counts Circulating Tumor Cells to Be Developed (Medical News Today: 4.1.2011)

Using next-generation Circulating Tumor Cell (CTC) technology to capture, count and characterize circulating tumor cells in patients' blood, Johnson and Johnson and Massachusetts General Hospital hope to equip doctors with a more advanced non-invasive way to find out from a few cells how much a cancer has spread, personalize treatment for patients, and monitor their progress.

Circulating tumor cells (CTCs) are cells that have come away from a primary tumor, are circulating in the bloodstream, and have the potential to seed secondary tumors in another part of the body.

On Monday, Veridex, a Johnson and Johnson company, announced the new partnership will also involve Ortho Biotech Oncology Research & Development (ORD), a unit of Johnson & Johnson Pharmaceutical Research & Development that has expertise in oncology therapeutics, biomarkers and companion diagnostics.

Veridex already markets the first FDA-approved CTC test, the CellSearch blood test, launched in 2004.

The company says that "CTCs are proven to be an independent predictor of Overall Survival (OS) and Progression Free Survival (PFS)", and that "... monitoring of CTCs can indicate a significant change in prognosis as early as after the first treatment cycle and at each step of the way".

By partnering with Massachusetts General Hospital (MGH), who bring expertise in new CTC technologies, Veridex hope the collaboration will be able to exploit the latest technological, biological and clinical innovations to produce a more advanced diagnostic tool that oncologists can use for personalizing patient care, and a more advanced investigative tool that researchers and developers can use to speed up and improve the discovery and development of new drugs.

The result will be a "bench-top system" that will "specifically isolate and explore the biology of rare cells at the protein, RNA and DNA levels", said the Veridex statement.

Dr Mehmet Toner, director of the BioMicroElectroMechanical Systems Resource Center in the MGH Center for Engineering in Medicine, said:

"We have developed and continue to develop a broad range of technologies that are evolving what we know about cancer and cancer care."

"This collaboration is an opportunity to apply our past learning to the advancement of a platform that will ultimately benefit patients with cancer," he added.

Veridex's Head of Technology Innovation and Strategy, Robert McCormack, told the press that:

"This new technology has the potential to facilitate an easy-to-administer, non-invasive blood test that would allow us to count tumor cells, and to characterize the biology of the cells."

"Harnessing the information contained in these cells in an in vitro clinical setting could enable tools to help select treatment and monitor how patients are responding," he added.

Nicholas Dracopoli, ORD's Vice President for Biomarkers, said new technologies that "allow us to use CTCs for the first time as templates for novel DNA, RNA and protein biomarkers" are giving CTCs a bigger role in drug discovery and development.

"Given the demand for actionable data to guide personalized medicine for patients with cancer, there is a rapidly growing need for advanced, automated non-invasive technologies that can aid in selection of treatment and monitor response throughout the course of their disease," he explained.

DNA

Rothberg to make DNA sequencing common (The Asian Age: 6.1.2011)

Rothberg fancies himself as the Steve Jobs of biotechnology. While much lesser known than the Apple leader, Dr Rothberg is also a wealthy entrepreneur with a reputation as a visionary, a masterful promoter and a demanding boss.

But what Dr Rothberg really means is that he wants to do for DNA sequencing what Mr Jobs did for computing — spread it to the masses.

Dr Rothberg is the founder of Ion Torrent, which only last month had began selling a sequencer called the Personal Genome Machine. While most sequencers cost a bomb and are at least the size of small refrigerators, this machine sells for just under \$50,000 and is the size of a large desktop printer.

While not intended for the general public, the machine could expand the use of DNA sequencing from specialised centres to smaller university and industrial labs, and into hospitals and doctors' offices, helping make DNA sequencing a standard part of medical practice.

"It's the same 200 people around the world who buy all these machines," Dr Rothberg, who has a Ph.D.

in biology, said of the sequencing centres. "I want to make this ubiquitous. I want to move this into the clinic."

Rather than culturing a bug to identify what is infecting a patient, for instance, a hospital might determine its DNA sequence. Massachusetts General Hospital is already sequencing 130 genes from patient tumour samples, looking for mutations that might predict which drugs will work best. It has won an Ion Torrent machine in a contest and hopes to put it to that use. "I think all the other technologies could not be easily implemented in a lab like ours," said Dr John Iafrate, director of molecular diagnostics at the hospital. Ion Torrent, he added, would "democratise" sequencing.

While most experts agree that sequencing will become commonplace in medicine, some say they think Dr Rothberg is overselling his machine. Like the early Apple II of Mr Jobs, it is too puny for many tasks, including sequencing the entire genome of a person. "It dies on its output," said Mr David I. Smith, a director of technology assessment at Mayo Clinic.

Dr Rothberg acknowledged that the existing model was good for sequencing a virus or bacterium or a handful of genes, and indicated that future models would be more powerful.

The Ion Torrent machine uses chips like those in a computer to do sequencing, rather than the complicated cameras and lasers most other sequencers use. That allows it to piggyback on the continuous improvement in semiconductor technology. One believer is Life Technologies, a big sequencer manufacturer. It raised eyebrows by acquiring Ion Torrent for \$375 million in cash and stock upfront, plus another \$350 million. That produced a windfall for Dr Rothberg, who had put up much of the money as well as raising \$37 million from 17 investors.

The three-year-old Ion Torrent, based in Guilford, Conn., is the fifth company started by Dr Rothberg. This includes another sequencing company, 454 Life Sciences, which was sold to Roche for \$140 million in 2007. -NYTNS impact viable Dr Rothberg acknowledged the existing model was good for sequencing a virus or a handful of genes, and said future models would be more powerful.

Malfunctioning Gene

Malfunctioning Gene Associated With Lou Gehrig's Disease Leads to Nerve-Cell Death in Mice (Science Daily: 6.1.2011)

Lou Gehrig's disease, or amyotrophic lateral sclerosis (ALS), and frontotemporal lobar degeneration (FTLD) are characterized by protein clumps in brain and spinal-cord cells

that include an RNA-binding protein called TDP-43. This protein is the major building block of the lesions formed by these clumps.

In a study published in the *Journal of Clinical Investigation*, a team led by Virginia M.-Y. Lee, PhD, director of Penn's Center for Neurodegenerative Disease Research, describes the first direct evidence of how mutated TDP-43 can cause neurons to die. Although normally found in the nucleus where it regulates gene expression, TDP-43 was first discovered in 2006 to be the major disease protein in ALS and FTLD by the Penn team led by Lee and John Q. Trojanowski, MD, PhD, director of the Institute on Aging at Penn. This discovery has transformed research on ALS and FTLD by linking them to the same disease protein.

"The discovery of TDP-43 as the pathological link between mechanisms of nervous system degeneration in both ALS and FTLD opened up new opportunities for drug discovery as well as biomarker development for these disorders," says Lee. "An animal model of TDP-43-mediated disease similar to ALS and FTLD will accelerate these efforts."

In the case of TDP-43, neurons could die for two reasons: One, the clumps themselves are toxic to neurons or, two, when TDP-43 is bound up in clumps outside the nucleus, it depletes the cell of normally functioning TDP-43. Normally a cell regulates the exact amount of TDP-43 in itself -- too much is bad and too little is also bad. The loss of function of TDP-43 is important in regulating disease because it regulates gene expression.

To determine the effects of misplaced TDP-43 on the viability of neurons, the researchers made transgenic mice expressing human mutated TDP-43 in the cytoplasm and compared them to mice expressing normal human TDP-43 in the nucleus of nerve cells. Expression of either human TDP-43 led to neuron loss in vulnerable forebrain regions; degeneration of part of the spinal cord tract; and muscle spasms in the mice. These effects recapitulate key aspects of FTLD and a subtype of ALS known as primary lateral sclerosis.

The JCI study showed that a dramatic loss of function causes nerve-cell death because normal mouse TDP-43 is eliminated when human mutated TDP-43 genes are put into the mice. Since cells regulate the exact amount of TDP-43, over-expression of the human TDP-43 protein prevents the mouse TDP-43 from functioning normally. Lee and colleagues think this effect leads to neuron death rather than clumps of TDP-43 because these clumps were rare in the mouse cells observed in this study. Lee says that it is not yet clear why clumps were rare in this mouse model when they are so prevalent in human post-mortem brain tissue of ALS and FTLD patients.

Neurodegeneration in the mouse neurons expressing TDP-43 -- both the normal and mutated human versions -- was accompanied by a dramatic downregulation of the TDP-43 protein mice are born with. What's more, mice expressing the mutated human TDP-43 exhibited profound changes in gene expression in neurons of the brain's cortex.

The findings suggest that disturbing the normal TDP-43 in the cell nucleus results in loss of normal TDP-43 function and gene regulatory pathways, culminating in degeneration of affected neurons.

Next steps, say the researchers, will be to look for the specific genes that are regulated by TDP-43 and how mRNA splicing is involved so that the abnormal regulation of these genes can be corrected.

At the same time, notes Lee, "We soon will launch studies of novel strategies to prevent TDP-43-mediated nervous system degeneration using this mouse model of ALS and FTLN."

Heartbeat

Perception of Our Heartbeat Influences Our Body Image (Science Daily: 7.1.2011)

A new study, led by Dr Manos Tsakiris from Royal Holloway, University of London, suggests that the way we experience the internal state of our body may also influence how we perceive our body from the outside, as for example in the mirror.

The research appears in the Proceedings of the Royal Society B.

Psychologists measured how good people are at feeling their body from within by asking them to count their heartbeats over a few minutes. They then measured how good people are at perceiving their own body-image from the outside by using a procedure that tricks them into feeling that a fake, rubber hand is their own hand.

Looking at a rubber hand being touched at the same time as one's own unseen hand creates the illusion that the rubber hand is part of one's body. The less accurate people were in monitoring their heartbeat, the more they were influenced by the illusion. The study shows for first time that there may be a strong link between how we experience our body from within and how we perceive it from the outside.

Dr Manos Tsakiris from the Department of Psychology at Royal Holloway says: "We perceive our own bodies in many different ways. We can look at our bodies, feel touch on our bodies, and also feel our body from within, such as when we experience our hearts racing or butterflies in our stomachs. It seems that a stable perception of the body from the outside, what is known as "body image," is partly based on our ability to accurately perceive our body from within, such as our heartbeat."

The study, which was funded by the Economic and Social Research Council, UK, is important as it may shed new light into pathologies of body-perception; exploring how certain people feel about or perceive the internal states of their body may help us understand why they perceive their body-image in distorted ways such as those who suffer from anorexia or body dysmorphia.

Proteins

Proteins Need Chaperones: Newly Discovered Processes in Production of Proteins Described (Science Daily: 10.1.2011)

Young unmarried girls used to be accompanied by chaperones at social events. Their task was to prevent their charge from having undesirable romantic rendezvous with young boys. The term "molecular chaperones" is used in cellular biology to refer to a group of proteins which prevent undesirable contact between other proteins. Such contact can be particularly dangerous during protein production, a process carried out by the ribosome in the cell. The ribosome functions like a knitting spool: 20 different amino acids are threaded together like loops of thread in various sequences and amounts. The emerging amino acid chain disappears into a tunnel and does not come back out until it has reached a certain length.

A research group led by Freiburg biochemist Prof. Dr. Sabine Rospert studies how the chaperones at the end of the ribosomal tunnel influence the fate of newly synthesized proteins and how their functioning is coordinated in time and space. In 2005, the group discovered the chaperone ZRF1 at the end of the human ribosomal tunnel. ZRF1 exhibits structural characteristics which are otherwise typical only of proteins which influence the chromatin structure. Chromatin is a combination of DNA, histone, and other proteins in the nucleus of the cell. The DNA contains the information necessary for letting a ribosome know which amino acid chain it should produce. Gene segments of the DNA are translated into transcripts for this purpose, which then leave the nucleus in order to program the ribosomes for the synthesis of certain proteins.

Why does a chaperone sitting at the end of the ribosomal tunnel need to possess characteristics that can influence the chromatin structure in the nucleus? Thanks to the cooperation between Sabine Rospert's team in Freiburg and a group of researchers working under the biologist Prof. Dr. Luciano Di Croce at the Centre for Genomic Regulation in Barcelona, Spain, scientists are now a step closer to answering this question. Di Croce investigates protein complexes which influence the chromatin structure and thus also the production of transcripts. Reversible modifications to histone

proteins in the chromatin play a decisive role in these processes. The experiments conducted by the scientists have revealed that ZRF1 influences the modification of a histone protein, thus allowing the production of a specific group of transcripts for a limited period of time.

These results, published in the current issue of the journal Nature, constitute an important step in the quest to understand the connection between the function of ZRF1 in the ribosome and in the chromatin. The discovery that this molecular chaperone has a dual function, both in the process of transcription and in the translation of the transcripts into proteins at a different place and time, is important initial evidence for the assumption that there is a link between the regulation of the two processes.

Measles Viral Protein Movement Described (Science Daily: 10.1.2011)

Mayo Clinic researchers have shown that proteins on the surface of a cell twist a viral protein into position, allowing the virus to start infection and cause disease, all in a movement as graceful as a ballroom dance. The findings appear in the current online issue of Nature Structural & Molecular Biology.

A team led by Roberto Cattaneo, Ph.D., a Mayo molecular biologist, describes the crucial initial steps taken by attachment proteins of the measles virus and related respiratory viruses with their cellular partners, the receptors. To get there, the research team built "handles" at different locations on a viral attachment protein, allowing them to be grabbed by an artificial receptor to start the dance.

Visualize the measles virus. It is small and has an outer "envelope" with two proteins, one that interacts with a cellular receptor, its dance partner, and another that fuses the viral envelope with the cell membrane, starting infection.

Measles virus, while long targeted for eradication through vaccination, still affects 10 million people and kills some 197,000 each year around the world. A long-running question is how the cell entry process begins.

"It was known that the viral attachment proteins always come in pairs, and recently it became clear that two pairs form a quartet," Dr. Cattaneo says. "Pairs initially face each other, and we show here that the upper bodies separate when the dance begins. We suggest that they then engage a partner from the other pair of the quartet, while the legs are still dancing with those of the original partner."

As this dance continues, the cellular receptors weaken the layer of attachment proteins that protects a lower layer of fusion proteins. When enough quartets become twisted and

unstable, the top layer fails abruptly. This failure causes unfolding of the proteins in the lower layer, and, in turn, fusion with the cellular membrane. The viral genome, now inside the cell, tells it to stop dividing and mandates the building of new viruses.

Dr. Cattaneo has studied viruses for three decades, primarily as tools for new medical discoveries. Viruses, he says, can be transformed into vectors to treat disease. In 1999, he joined Mayo Clinic as a founding member of the Molecular Medicine Department. To date, two viral vectors developed at Mayo Clinic are in clinical trials to treat ovarian cancer, glioma and myeloma.

Others on the team are Chanakha Navaratnarajah, Ph.D.; Levi Rupp; Leah Kay; and Vincent Leonard Ph.D., all of Mayo Clinic; and Numan Oezguen, Ph.D., and Werner Braun, Ph.D., from the University of Texas Medical Branch, Galveston. The research was supported by the National Institutes of Health and the Mayo Clinic Cancer Center.

Viral Evasion Gene

Viral Evasion Gene Reveals New Targets for Eliminating Chronic Infections (Science Daily: 11.1.2011)

Walter and Eliza Hall Institute researchers have discovered how a key viral gene helps viruses evade early detection by the immune system. Their finding is providing new insights into how viruses are able to establish chronic infections, leading scientists to reevaluate their approaches to viral vaccine development

Researchers from the institute's Immunology division together with collaborators at the University of Cambridge (UK) have been studying how the immune system responds to viruses that cause persistent or chronic infections and why the immune system is unable to eliminate these infections.

Dr Gabrielle Belz, Dr Adele Mount and colleagues are particularly interested in immune system cells called dendritic cells and their interaction with viruses that cause chronic infections.

"Chronic infections are one of the greatest health challenges for the Western world, but currently we have very few ways of dealing with them," Dr Belz said. "They require ongoing medical care and support due to an inability to treat infection effectively.

"We are trying to understand how chronic infections sneak past the usually highly effective immune armoury and covertly establish disease. If we can stop these infections establishing then we can eliminate, or substantially reduce, that societal burden."

Dendritic cells, which are studied by Dr Belz, Dr Mount and colleagues, act as 'sentinels' of the immune system; they are critical for the early detection of invading bacteria and viruses and are one of the first cells to trigger the immune response. "Dendritic cells are called 'antigen presenting cells'; they digest infectious agents into small fragments and shuttle these fragments to the outside of the cell where they are displayed to virus-specific killer T cells, helping to launch a full-blown immune response," Dr Belz said.

The team has been investigating a virus called gamma herpesvirus-68, which establishes chronic infections in mice and provides a model of the workings of the human gamma herpesvirus Epstein-Barr Virus, commonly known to cause infectious mononucleosis, or 'kissing disease'. Their results, which have been published in the Journal of Immunology, show that a viral gene called K3 rapidly disables the antigen-processing machinery normally used by dendritic cells to alert the immune system to infections.

"This gene quickly helps the virus to hide from the immune system by subverting normal antigen presentation to T cells, which have the critical task of destroying virally-infected cells," Dr Belz said. "The virus carries out a top-secret operation. It shuts down the normal mechanisms that allow the immune system to recognise an infection and then boards the antigen-presenting cells which ferry the virus through the blood and tissues, allowing it to spread throughout the body and establish system infection."

Dr Belz said the study could change conventional views on the best way to generate an immune response to combat chronic infections.

"Our research shows that viral evasion of the immune system in chronic infections happens incredibly early," Dr Belz said. "Dendritic cells are compromised long before they have the chance to interact with T cells for the next phase of the immune response, so the T cells are never really activated properly. If we want to make an effective vaccine, we need to look at these early escape points used by the virus as the first target for trying to generate a more efficient immune response that will contain the virus and prevent it establishing a systemic infection."

This work was supported by the National Health and Medical Research Council, the Wellcome Trust, the Swiss National Science Foundation, the Sylvia & Charles Viertel Charitable Foundation and the Howard Hughes Medical Institute.

Artificial blood

Scientists inch closer to artificial blood mimic RBCs (The Indian Express: 12.1.2011)

SOFT HYDROGEL PARTICLES HAVE SIZE AND FLEXIBILITY OF RBCs, COULD LEAD TO UNLIMITED MAN-MADE BLOOD

IN A possible breakthrough in developing artificial blood, scientists have created jelly-like synthetic particles which they claim mimic some of the key properties of red blood cells.

Researchers at the University of North

Carolina at Chapel Hill, who made the discovery, believe this could also lead to more effective treatments for life-threatening medical conditions such as cancer.

Detailing their study in the journal *Proceedings of the National Academy of Sciences*, the team reported that they used a technology known as PRINT (Particle Replication in Non-wetting Templates) to produce very soft hydrogel particles that mimic the size, shape and flexibility of red blood cells, allowing the particles to circulate in the body for extended periods of time.

The scientists are yet to test the particles' ability to perform functions such as transporting oxygen or carrying anti-cancer drugs. But early experiments indicate they have exciting medical potential.

One possible application is unlimited supplies of man-made blood.

Over their 120-day lifespan, real cells gradually become stiffer and eventually are filtered out of circulation when they can no longer deform enough to pass through pores in the spleen.

To date, attempts to create effective red blood cell mimics have been limited because the particles tend to be quickly filtered out of circulation due to their inflexibility. Beyond moving closer to producing fully synthetic blood, the findings could affect approaches to treating cancer. Cancer cells are softer than healthy cells, enabling them to lodge in different places in the body, leading to the disease's spread.

Particles loaded with cancer-fighting medicines that can remain in circulation longer may open the door to more aggressive treatment approaches.

"Creating particles for extended circu

lation in the bloodstream has been a significant challenge in the development of drug delivery systems from the beginning," said Joseph DeSimone, co-author of the study.

"Although we will have to consider particle deformability along with other parameters when we study the behaviour of particles in the human body, we believe this study represents a real game changer for the future of a new medicine."

Professor Chad Mirkin, from Northwestern University in Chicago and one of US President Barack Obama's science advisers, said the ability to mimic the natural processes of a body for medicinal purposes has been a long-standing but elusive goal for researchers.

Weight-loss surgery

Weight-loss surgery benefits women more The Tribune: 12.1.2011)

A new study, researchers found that women who underwent gastric band surgery to lose weight reported significant improvements in urinary functions and quality of life after the operation. However, men undergoing the procedure did not enjoy the same significant urinary function improvements as the women. They also reported that erectile function was slightly worse after surgery, unlike studies following non-surgical weight loss where sexual function actually improved. The study surveyed 176 patients — 142 women and 34 men — who had undergone laparoscopic gastric banding surgery (LGB) at a single center in Newcastle, Australia. The women had an average age of just under 48 years and the men averaged just under 53. The women averaged 118kg before surgery and the men averaged 146kg.

Biomedical research

Couch Potatoes Beware: Too Much Time Spent Watching TV Is Harmful to Heart Health (Science Daily: 12.1,2011)

Spending too much leisure time in front of a TV or computer screen appears to dramatically increase the risk for heart disease and premature death from any cause, perhaps regardless of how much exercise one gets, according to a new study published in the January 18, 2011, issue of the Journal of the American College of Cardiology.

Data show that compared to people who spend less than two hours each day on screen-based entertainment like watching TV, using the computer or playing video games, those who devote more than four hours to these activities are more than twice as likely to have a major cardiac event that involves hospitalization, death or both.

The study -- the first to examine the association between screen time and non-fatal as well as fatal cardiovascular events -- also suggests metabolic factors and inflammation may partly explain the link between prolonged sitting and the risks to heart health.

"People who spend excessive amounts of time in front of a screen -- primarily watching TV -- are more likely to die of any cause and suffer heart-related problems," said Emmanuel Stamatakis, PhD, MSc, Department of Epidemiology and Public Health, University College London, United Kingdom. "Our analysis suggests that two or more hours of screen time each day may place someone at greater risk for a cardiac event."

In fact, compared with those spending less than two hours a day on screen-based entertainment, there was a 48% increased risk of all-cause mortality in those spending four or more hours a day and an approximately 125% increase in risk of cardiovascular events in those spending two or more hours a day. These associations were independent of traditional risk factors such as smoking, hypertension, BMI, social class, as well as exercise.

The findings have prompted authors to advocate for public health guidelines that expressly address recreational sitting (defined as during non-work hours), especially as a majority of working age adults spend long periods being inactive while commuting or being slouched over a desk or computer.

"It is all a matter of habit. Many of us have learned to go back home, turn the TV set on and sit down for several hours -- it's convenient and easy to do. But doing so is bad for the heart and our health in general," said Dr. Stamatakis. "And according to what we know so far, these health risks may not be mitigated by exercise, a finding that underscores the urgent need for public health recommendations to include guidelines for limiting recreational sitting and other sedentary behaviors, in addition to improving physical activity."

Biological mediators also appear to play a role. Data indicate that one fourth of the association between screen time and cardiovascular events was explained collectively by C-reactive protein (CRP), body mass index, and high-density lipoprotein cholesterol suggesting that inflammation and deregulation of lipids may be one pathway through which prolonged sitting increases the risk for cardiovascular events. CRP, a well-established marker of low-grade inflammation, was approximately two times higher in people spending more than four hours of screen time per day compared to those spending less than two hours a day.

Dr. Stamatakis says the next step will be to try to uncover what prolonged sitting does to the human body in the short- and long-term, whether and how exercise can mitigate these consequences, and how to alter lifestyles to reduce sitting and increase movement and exercise.

The present study included 4,512 adults who were respondents of the 2003 Scottish Health Survey, a representative, household-based survey. A total of 325 all-cause deaths and 215 cardiac events occurred during an average of 4.3 years of follow up.

Measurement of "screen time" included self-reported TV/DVD watching, video gaming, as well as leisure-time computer use. Authors also included multiple measures to rule out the possibility that ill people spend more time in front of the screen as opposed to other way around. Authors excluded those who reported a previous cardiovascular event (before baseline) and those who died during the first two years of follow up just in case their underlying disease might have forced them to stay indoors and watch TV more often. Dr. Stamatakis and his team also adjusted analyses for indicators of poor health (e.g., diabetes, hypertension).

Revolutionize Surgery

New Laboratory Aims to Revolutionize Surgery With Real-Time Metabolic Profiling (Science Daily : 13.1.2011)

Metabolic profiling of tissue samples could transform the way surgeons make decisions in the operating theatre, say researchers at a new laboratory being launched. Scientists at Imperial College London, in partnership with clinicians at Imperial College Healthcare NHS Trust, have installed a high resolution solid state nuclear magnetic resonance (NMR) spectrometer in St Mary's Hospital. Researchers will use the machine to analyse intact tissue samples from patients taking part in studies, to investigate whether it can ultimately give surgeons detailed diagnostic information while their patients are under the knife.

The Surgical Metabonomics Laboratory will be led by the surgical innovator Professor Lord Ara Darzi and Professor Jeremy Nicholson, a leading researcher in biomolecular medicine and Head of the Department of Surgery and Cancer.

The science of metabonomics, which involves comprehensively measuring the metabolic changes in a person's body, has been pioneered by the Imperial team over the last 20 years. Techniques from analytical chemistry, such as NMR spectroscopy and mass spectrometry, can allow researchers to measure simultaneously all of the chemicals produced by the body's metabolism. With knowledge of which molecules correspond to which conditions in the body, this "metabolic fingerprint" can provide a wealth of information about the state of a person's health.

Metabonomics has previously been applied to samples of bodily fluids such as blood and urine to look for indicators of disease or of how a person might respond to a particular drug. Now the Imperial team have acquired an NMR machine -- the first to be installed in a hospital setting -- that will analyse solid tissue samples from patients undergoing surgery with Imperial College Healthcare.

The research projects are funded by Imperial's Comprehensive Biomedical Research Centre. Imperial's is one of five Comprehensive Biomedical Research Centres in the UK; it was awarded to Imperial College Healthcare NHS Trust by the National Institute for Health Research following a national competition. The new laboratory forms part of the Academic Health Science Centre, a unique partnership between the Trust and Imperial College London, which aims to improve the quality of life of patients and populations by taking new discoveries and translating them into new therapies as quickly as possible.

Professor Darzi, Chairman of the Institute of Global Health Innovation at Imperial College London and an Honorary Consultant Surgeon with Imperial College Healthcare NHS Trust, said: "People respond differently to the physical trauma of surgery, but currently the tools we have to measure how they respond are very limited. Blood tests are slow and they can only measure one chemical component at a time; the doctor simply looks at whether a particular measure has gone up or down. Using NMR, we can simultaneously measure all of the chemicals that the body is producing, and analyse those data to give the surgeon real-time information about the patient's condition which will help him make decisions."

Surgeons will be able to take tissue samples and have them loaded straight into the NMR machine without the need to prepare them. The research team think it will be possible to give the surgeon a readily interpretable readout from the analysis within 20 minutes, which would provide information such as whether the tissue is infected or how good its blood supply is. Surgeons might also use the technology to determine exactly which areas of tissue are cancerous.

One project that the team will undertake at the new laboratory is to develop an "intelligent knife." Surgeons commonly use a technique called electrocautery in operations to seal blood vessels by burning them with a hot iron. By sucking up the smoke produced in this procedure into a mass spectrometer, researchers believe they will be able to tell the surgeon whether the tissue they are burning is healthy, cancerous or infected.

Professor Nicholson, Head of the Department of Surgery and Cancer at Imperial College London, said: "This is a radical change of approach that doesn't just apply to surgery. We want to be able to provide a metabolic map of the entire patient journey. Before surgery, metabonomics could tell the doctor how risky surgery might be for that patient, or how best to prepare him for surgery. After the operation, metabonomics might help the doctor to monitor the patient's recovery and prescribe the most suitable drugs or diet. Ultimately we hope to apply this approach to every area of medicine.

"It's no small task. The analytical chemistry and mathematical modelling involved are challenging, and not everything we try will work. But we hope that within two to three years, we'll have robust evidence that metabolic profiling can be a really useful tool in surgery."

Dr James Kinross, a Clinical Lecturer in the Division of Surgery at Imperial College London, said: "People have been talking about personalised medicine for many years now, but so far there have been few meaningful steps towards delivering on that promise. Genome sequencing is currently quite slow and expensive, and it can only tell you so much. Metabonomics takes into account not only what genes somebody has, but also all of the environmental factors that influence their biology, such as their diet, what drugs they're taking, and what bacteria they have in their body.

"Because of the world class expertise we have here and the close links between surgeons and biomolecular scientists, Imperial is uniquely placed to be able to make major advances in this field. Almost no other institution is in a position to take on the challenges involved."

To help realise the vision of the new centre to enhance surgical safety and patient care, Imperial has partnered with two of the world's leading spectroscopic instrument manufacturers, Bruker BioSpin and the Waters Corporation, who will help to develop, optimise and implement NMR and mass spectrometric technologies for real time diagnostics and prognostic modelling.

"By combining bioinformatics and surgical expertise with advanced mass spectrometry technology, Imperial College London is setting a powerful vision for innovative new techniques in the operating room," said Rohit Khanna PhD, Vice President of Worldwide Marketing for Waters. "At Waters, our success is based upon the ability and imagination of scientists to apply advances in analytical technology to solve their most difficult challenges. Bringing metabolic profiling to the surgical suite is a great example of how a disruptive innovation can potentially improve patient care with a radical new approach. On behalf of all Waters employees, we congratulate Imperial on the launch of the Surgical Metabonomics Laboratory. We look forward to working together on tomorrow's innovations."

Combo Therapy

Combo Therapy for High BP More Effective, Research Finds (Med India: 14.1.2011)

Starting treatment of blood pressure with two medicines rather than one produces better and faster results and fewer side effects according a new research.

The research, led by Cambridge in collaboration with the Universities of Dundee, Glasgow and the British Hypertension Society, challenges popular medical practice for the treatment of high blood pressure.

Doctors usually start treatment with one medicine and then add others over a period of months, if needed, to control blood pressure but this study shows that it is best to start treatment with two medicines together at the same time.

The two medicines can be incorporated into a single pill, simplifying things for patients who will still only have to take one pill. But by including two medicines in the same pill, they are taking a much more effective medicine with fewer side effects.

"This study is important and the findings could change the way we approach the treatment of high blood pressure," Prof Bryan Williams, of the British Hypertension Society, said.

The 'ACCELERATE' study of 1250 patients with hypertension shows that patients who start treatment with a single tablet containing a combination of drugs will have a 25pc better response during the first six months of treatment than patients receiving conventional treatment.

Still more remarkably, the blood pressure in the conventional treatment arm never caught up with the new treatment arm, even when all the patients in the study were being treated with the same combination of drugs.

New Therapies

New Therapies for Prevention and Treatment of Alzheimer's Disease Identified (science Daily: 14.1.2011)

A Blanchette Rockefeller Neurosciences Institute (BRNI) study published in the Journal of Neuroscience reveals underlying causes for the degeneration of synapses in Alzheimer's Disease and identifies promising pharmaceutical solutions for the devastating condition that affects more than 5 million people in the United States. The BRNI study is the first to achieve fundamental molecular understanding of how synapses are lost in Alzheimer's Disease before the plaques and tangles develop. At the same time, it is the first study to demonstrate the comprehensive benefits of synaptogenic compounds in treating Alzheimer's Disease.

The BRNI study marks an important shift in our understanding of how Alzheimer's Disease is caused and should be treated. Previous autopsy-based studies have shown the critical role of synaptic loss in producing dementia (though, not the reason behind the degeneration), yet for decades scientists and pharmaceutical companies have focused on ways to target the amyloid plaques and neurofibrillary tangles thought to play a role in causing Alzheimer's Disease. By preventing the loss of synapses, BRNI's new therapeutics prevent the progressive symptoms of Alzheimer's Disease.

"Alzheimer's Disease is not primarily a disease of plaques and tangles as many had previously concluded, it is most importantly a disease of synapses," said Dr. Daniel Alkon, the scientific director of BRNI and co-author of the study, "This study found that treatments that target the loss of synapses in the Alzheimer's brain, can virtually eliminate all other elements of the disease -- elevation of the toxic protein, A Beta, the loss of

neurons, the appearance of plaques, and loss of cognitive function; the animals' brains were normalized."

The study utilized mice genetically engineered to express the symptoms and pathology of human Alzheimer's Disease in two different strains. BRNI used a difficult training regimen for the mice in order to reveal that significant cognitive deficits occurred five months before plaques were detected in their brains, providing evidence that plaques and tangles are not at the root of the disease.

Treatments of Bryostatin and similar compounds synthesized at BRNI that target the enzyme PKC ϵ , which controls the creation of synapses at the molecular level, were administered for twelve weeks during the study. While the compounds promoted the growth of new synapses and preservation of existing synapses, they also stopped the decrease of PKC ϵ and the increase of soluble β amyloid, meaning that the treatments could be used to prevent the familiar hallmarks of Alzheimer's Disease, the plaques and tangles. BRNI has received approval to move forward with Phase II clinical testing for Bryostatin to treat Alzheimer's Disease, which is set to begin within the next several months.

The synaptogenic BRNI drugs have also shown potential for the treatment of traumatic brain injury (TBI), as recently reported in the journal *Neurobiology of Disease*, and stroke described in the *Proceedings of the National Academy of Science* in 2008 and 2009.

The target of the synaptogenic compounds is the same molecule identified as a biomarker for early diagnosis of Alzheimer's Disease in clinical trials conducted by BRNI and published in *Neurobiology of Aging* in 2010. As a result of that study, researchers at the Institute are now working to develop a skin test for identifying Alzheimer's Disease in its early stages before significant progression.

Gene

Courtship behaviour is tied to genes (The Times of India: 14.1.2011)

Scientists have discovered that certain genes get activated in fruit flies when they interact with the opposite sex, a finding which they say is an important step towards understanding human mating behaviour.

Detailing their research in the journal *Genetics*, scientists from the Texas A&M University said that their findings showed that courtship behaviours may be far more influenced by genetics than previously thought. In addition, understanding why and how these genes become activated within social contexts may also lead to insight into disorders such as autism, they said.

“Be careful who you interact with,” said study co-author Ginger Carney from the Department of Biology at Texas A&M University. “The choice may affect your physiology, behaviour and health in unexpected ways

Silicon Microdevices (For Detecting Metastatic Breast Cancer)

Silicon Microdevices Show Promise for Detecting Metastatic Breast Cancer Cells Science Daily: 18.1.2011)

Research by engineers and cancer biologists at Virginia Tech indicate that using specific silicon microdevices might provide a new way to screen breast cancer cells' ability to metastasize.

The Virginia Tech researchers are: Masoud Agah, director of Virginia Tech's Microelectromechanical Systems Laboratory (MEMS) Laboratory in the Bradley Department of Electrical and Computer Engineering; Jeannine Strobl, a research professor in the Bradley Department of Electrical and Computer Engineering; Mehdi Nikkhah of mechanical engineering; and Raffaella DeVita of engineering science and mechanics and the director of the soft biological systems laboratory. Nikkhah was Virginia Tech's Outstanding Doctoral Student in the College of Engineering for 2009.

Their work appeared in two journal articles they authored in 2010 issues of Biomaterials.

Cell cytoskeleton refers to the cell's shape and its mechanical properties, Agah explained. "Any change in the cytoskeletal structure can affect the interaction of cells with their surrounding microenvironments. Biological events in normal cells such as embryonic development, tissue growth and repair, and immune responses, as well as cancer cell motility and invasiveness are dependent upon cytoskeletal reorganization," the electrical engineer added.

Understanding how the cell interacts with the contents of its surrounding environment inside the human body, including the introduction of a drug, is a fundamental biological question. The answers have implications in cancer diagnosis and therapy, as well as tissue engineering, Agah said.

In previous experimentation by others in the field, researchers have exposed cells to mechanical, chemical and three-dimensional topographical stimuli. They recorded the cells' various responses in terms of migration, growth, and ability to adhere. Also, in the past, researchers have created substrates of precise micro- and nano-topographical and

chemical patterns to mimic in vivo microenvironments for biological and medical applications.

What distinguishes the work of Agah, a National Science Foundation (NSF) CAREER Award recipient, and his colleagues, is they developed a specific three-dimensional silicon microstructure for their work. Due to its curved isotropic surfaces, they were able to characterize and compare the growth and adhesion behavior of normal fibroblast and metastatic human breast cancer cells, they reported in *Biomaterials*.

"In invasive breast carcinoma, tumor cells will fill a milk duct, and the basement membrane," they wrote. This action allows the carcinoma cells and the fibroblast cells of the breast tissue to be in close proximity, constituting "a critical pathobiological transition that leads to the progression of the disease," Strobl said.

Using their uniquely designed three-dimensional silicon microstructure, they were able to incorporate three key cellular components found in any breast tumor microenvironment. Additionally, they were able to determine the detailed interaction of the cells within this environment, including the normal breast cells, the metastatic breast cancer cells, and the fibroblast cells.

Their understanding of the behavior of the cells within the microstructures is what leads them to believe their research could "provide important diagnostic and prognostic markers unique to the tumor, which could ultimately be used to develop new tools for the detection and treatment of cancer."

Following their initial findings, Strobl, Nikkhah and Agah identified a unique application of the experimental anti-cancer drug SAHA in their studies with the silicon microstructure. SAHA, also known as Vorinostat, is the first drug of its type to receive Food and Drug Administration approval for clinical use in cancer treatment.

Unlike many of the conventional cytotoxic chemotherapy agents that target DNA to kill cancer cells, SAHA's unique properties include its ability to inhibit a family of enzymes referred to medically as "histone deacetylases." These enzymes are known to "increase levels of acetylation of many proteins, including beta-actin, alpha-, and beta-tubulin, and additional actin binding proteins comprising the cytoskeleton.

"The role of drugs such as SAHA in the control of cancer cell metastasis is only beginning to be understood," explained Strobl, "however our work shows that SAHA elicits a very characteristic cytoskeletal alteration specifically in metastatic breast cells that provides a handle for predicting which breast cells in a cell mixture might have the ability to metastasize."

Cell motility is "one hallmark of metastatic cancer cells involving the coordinated actions of actin and other cytoskeleton proteins," Agah explained. When metastatic disease develops, it is usually fatal.

They found SAHA caused cancer cells to stretch and attach to the microstructures through actin-rich cell extensions. By contrast, control cells conformed to the microstructures. This result allowed them to "conclude that isotropically etched silicon microstructures comprise microenvironments that discriminate metastatic mammary cancer cells in which cytoskeletal elements reorganized in response to the anti-cancer agent SAHA."

The Virginia Tech work in this area "is the first to address the use of microdevices to study this emerging class of anti-cancer agents," Agah said.

Surgery

Surgery Most Stressful Occupation; High Suicide Rate (Medical News Today: 18.1.2011)

Performing surgery is a very stressful occupation. Close to 8,000 doctors were surveyed and 501 reported thoughts of suicide during the previous year. However fears of admitting having an issue affecting their practices, doctors often self-prescribe medications or confide in colleagues for assistance off the record. Those that don't see help have easy access to medications and method of killing themselves due to their rank.

Eighty percent of state medical boards inquire about mental illness on initial licensure applications and 47 percent do so on renewal applications. However, many focus not on whether a mental health condition is present but whether it is an impairment.

The formers of this study which is published in January edition of Archives of Surgery , a JAMA publications state:

"Although suicide is strongly linked to depression, the lifetime risk of depression among physicians is similar to that of the general U.S. population. This observation suggests that other factors may contribute to the increased risk of suicide among physicians. Access to lethal medications and knowledge of how to use them has been suggested as one factor; however, the influence of professional characteristics and forms of distress other than depression (e.g., burnout) are largely unexplored."

With surgeons, your lives are in their hands literally. A small error can prove fatal. They are always under stress thanks to the ever increasing number of people suffering from various ailments. Burnout consists of three major factors: emotional exhaustion, depersonalization and low personal accomplishment.

Doctors aged 45 and older had 1.5 to three times the rate of suicidal ideation of the general population. Being married and having children lowers the likelihood of suicidal thoughts, and the risk was higher among those who had been divorced.

The anonymous survey from 2008 included questions regarding suicidal ideation the use of mental health resources, a depression screening tool and assessments of burnout and quality of life.

The authors continue:

"The perception of having made a major medical error in the previous three months was associated with a three-fold increased risk of suicidal ideation, with 16.2 percent of surgeons who reported a recent major error experiencing suicidal ideation compared with 5.4 percent of surgeons not reporting an error. Additional studies are needed to evaluate the unique factors that contribute to the higher rate of suicidal ideation among surgeons in conjunction with efforts to reduce surgeons' distress and eliminate barriers that lead to underuse of mental health resources."

People working in medical professions have the most stressful job with 96.8 percent saying caring for others is rewarding but traumatic on the same hand.

Engineers, Sales and Marketing professionals and Teachers also have demanding roles, and 37 percent of folk find it difficult to meet deadlines, while 31 percent stress about taking on other people's work. A disgruntled 28 per cent say they lack job satisfaction, and would prefer to work elsewhere.

Surgery

Shoulder function not fully restored after surgery: Study (World Newspaper: 18.1.2011)

A new study has revealed that shoulder motion after rotator cuff surgery remains significantly different when compared to the patient's opposite shoulder.

In the Henry Ford Hospital study that updated prior findings, researchers used X-rays providing a 3D view of motion of the arm bone in relation to the shoulder blade, to compare motion in the shoulders of 22 patients who had arthroscopic surgical repair of tendon tears and no symptoms in their other shoulders.

Researchers analysed the motion of both shoulders at three, 12 and 24 months after surgery, looking at changes in shoulder motion and shoulder strength.

"Although patient satisfaction is generally very high after surgical repair of a torn rotator cuff, the data suggest that long-term shoulder function-in particular, shoulder strength and dynamic joint stability-may not be fully restored in every patient," said Michael Bey of Henry Ford Hospital.

"We found that the motion pattern of the repaired shoulder is significantly different than the patient's opposite shoulder. These differences in shoulder motion seem to persist over time in some patients," said Bey.

"What further complicates our understanding of rotator cuff tears is that we have also shown that there are subtle, yet important differences in shoulder function between the dominant and non-dominant shoulder of healthy volunteers. These clinical studies are aiding in our understanding of both the origin and treatment of rotator cuff tears," he added.

The results were presented at the Orthopaedic Research Society's annual meeting in Long Beach.

Key Immune Cells

'Master switch' for key immune cells in inflammatory diseases found (New Kerala: 18.1.2011)

Imperial College London scientists have identified a protein that acts as a 'master switch' in certain white blood cells, and governing whether they support or stop inflammation.

The new study could pave way for new treatments for diseases such as rheumatoid arthritis that involve excessive inflammation.

Cells of the immune system called macrophages can either stimulate inflammation or suppress it by releasing chemical signals that alter the behaviour of other cells.

A protein called IRF5 acts as a molecular switch that controls whether macrophages promote or inhibit inflammation, according to the study.

The study has suggested that blocking the production of IRF5 in macrophages may help treat autoimmune diseases, such as rheumatoid arthritis, inflammatory bowel disease, lupus, and multiple sclerosis.

In addition, boosting IRF5 levels might help to treat people whose immune systems are compromised.

Previously, researchers from Imperial College London developed anti-TNF treatments, a class of drug that is extensively used for curing rheumatoid arthritis.

Irina Udalova from the Kennedy Institute of Rheumatology at Imperial College London, the senior researcher on the study, said, "Diseases can affect which genes are switched on and off in particular types of cells. Understanding how this switching is regulated is crucial for designing targeted strategies to suppress unwanted cell responses."

"Our results show that IRF5 is the master switch in a key set of immune cells, which determines the profile of genes that get turned on in those cells. This is really exciting because it means that if we can design molecules that interfere with IRF5 function, it could give us new anti-inflammatory treatments for a wide variety of conditions," said Udalova.

Stem cells

Docs claim stem cells helping girl shot at by stalker (The Times of India: 18.1.2011)

23-Yr-Old Tennis Player, Paralyzed Waist Down After The Attack, Can Move Her Lower Limbs Though No Proven Result Yet.

There is now hope for the 23-year-old girl who was paralyzed waist down after a spurned lover fired at her in Rohini last month.

Doctors treating her at a city hospital claim that with stem cell therapy (STC) this young lawn tennis player will soon limp back to life. They say injection of stem cells from the patient's body into the damaged tissues is yielding some results and the patient has shown some improvement as she is now able to slightly move her lower limbs.

The bullet, fired from close range, had damaged the spinal cord and fractured the vertebra. Doctors say she will have to attend regular physiotherapy sessions at least for six months before she can walk.

"There is some sensation in the right leg. With the help of physiotherapists, she is able to sit and do some basic exercises like moving the limbs. She is young and we hope she

will recover quickly,” said Dr Manoj Sharma, head of spine department at Jaipur Golden Hospital.

According to Sharma, when the patient was brought to the hospital, the CT scan showed that the bullet was lodged in the middle of the spinal cord. It went through her bone, cutting and damaging the tubular bundle of nervous tissue that extends from the brain.

“The lower limbs of the patient were completely paralyzed and she had no control over passing urine and stool. The first surgery was conducted to remove the bullet particles and dead tissues and artificially repair the cover of the spinal cord. But there was no improvement at all. So, we decided to go for stem cell therapy,” said the surgeon.

Sharma added that stem cells were taken from the bone marrow of the girl and were injected into the damaged part of the spinal cord so that the nerves can regenerate. “There is no treatment for spinal injury at present, except for stem cell therapy. So, we had to go for it. Stem cell therapy does not have any proven result at present but there have been several examples across the world in which the patient’s condition has improved by its application,” Sharma claimed.

The girl’s father said his daughter was a national lawn tennis player. “She was ranked 69th in 2006-07 and we were hopeful that she would make us proud by winning in the Commonwealth Games in future. The incident has shattered all our hopes. Now she is going for physiotherapy every day. There is some sensation in her legs but she still has no control over bowel movements and bladder. So far, we have spent more than Rs 2 lakh on her treatment. We hope she gets back to her normal self soon,” he said.

The girl was shot at by a stalker on December 15 at Sector 3, Rohini, in northwest Delhi.

'Defective' Gene MCC

'Defective' Gene Solves Colorectal Cancer Mystery (Med India: 19.1.2011)

Australian scientists have discovered a defective gene MCC that aid in solving the age old mystery of why some colorectal cancer patients respond well to radiotherapy while others don't respond to the therapy at all.

The defective gene was a "double-edged sword" - it seemed to trigger the development of a tumor, but also make these less resistant and easier to kill off with radiotherapy, said Dr Laurent Pangon.

"Our findings show that MCC appears to be involved at a kind of DNA damage checkpoint, when the cell recognizes that there is DNA damage and that it needs to do something to correct it," News.com.au quoted Pangon as saying.

"If you lose MCC therefore you lose the ability of the cell to repair DNA damage ... and cancer would probably develop," Pangon said.

Pangon and colleagues studied 200 colorectal cancer patients and found that those with the defective MCC gene had an improved response to radiotherapy, and some types of chemotherapy, as their tumours were much less resistant to treatment.

"That is because those therapies kill cancer cells through inducing DNA damage and if the DNA damage response of the tumour is already defective, the therapies work better," he said.

The study can point doctors to the anti-cancer treatment most likely to work.

'Chaperone' enzyme

'Chaperone' enzyme could help cells tolerate cancer-causing DNA damage (ew Kerala: 19.1.2011)

University of North Carolina researchers have found how a 'chaperone' enzyme has a major role in cells' ability to tolerate the DNA damage that leads to cancer and other diseases

The enzyme, known as Rad18, detects a protein called DNA polymerase eta (Pol eta) and accompanies it to the sites of sunlight-induced DNA damage, enabling accurate repair.

When Pol eta is not present, alternative error-prone polymerases take its place-a process that leads to DNA mutations often found in cancer cells.

In one known example, faulty DNA repair due to Pol eta deficiency is responsible for the genetic disease xeroderma pigmentosum-variant, which makes patients extremely susceptible to skin cancers caused by exposure to sunlight.

However, scientists did not know how the cells selected the correct DNA Polymerase for error-free repair of each type of DNA damage.

"We found that the mechanism that promotes the "chaperone" enzyme to recruit Pol eta to sites of DNA damage is managed by another signaling protein termed "Cdc7" which we know is essential to normal regulation of the cellular lifecycle," said lead author Cyrus Vaziri.

Thus cells employ Cdc7 to ensure accurate DNA repair during the stage of their lifecycle that is most vulnerable to cancer-causing mutations.

According to Vaziri, the dual role that Cdc7 plays in the cell lifecycle and DNA repair offers a promising target for potential cancer therapies.

"We know that cancer cells have high levels of Cdc7 activity and can evade some DNA-damaging therapies such as cis-Platinum through Rad18 and Pol eta activity. We may be able to target this pathway in platinum-resistant tumors to prevent DNA repair and enhance cancer cell killing by platinating agents," he said.

Platelet-rich plasma

Platelet-rich plasma a promising treatment for heart attacks (World Newspaper: 19.1.2011)

Platelet-rich plasma is a promising biologic treatment for myocardial infarction (heart attack), according to researchers at the Stanford University School of Medicine.

Platelet-rich plasma (PRP) has already been identified as a novel biologic treatment for wound healing and sports-related injuries. But it was only recently that scientists began studying PRP's potential in repairing damaged cardiovascular tissue.

Studies indicate PRP stimulates cell repair via growth factor release and by attracting reparative cells.

Lead author Allan Mishra and his colleagues studied the effects of RevaTen PRP (a proprietary formulation of concentrated platelets and white blood cells) on cardiac function after inducing cardiac ischemia (damage to myocardial tissue caused by blood restriction) in mice.

In this study of 28 mice, they induced ischemia by either permanently occluding the left anterior descending artery (Group A) or temporarily ligating it for 45 minutes (Group B).

The hearts were then injected with RevaTen PRP or saline control.

In both groups, mice that received PRP after ischemia had significantly better cardiac function as measured by left ventricular ejection fraction on MRI than those that had been injected with saline only.

In group A, the RevaTen-treated animals had 38 percent better ejection fraction compared to saline controls.

In group B, the RevaTen-treated animals had 28 percent improvement in ejection fraction compared to controls.

“Although this is an observational study using an animal model, PRP might someday be employed at the point of care to treat patients who have had a heart attack. This could preserve cardiac function and limit the progression to congestive heart failure,” said Mishra.

“Since myocardial infarction remains the leading cause of death in industrial nations, RevaTen PRP may become a powerful biologic tool in fighting heart disease and provide cost savings,” he added.

Surgery

Shoulder function not fully restored after surgery: study (The Tribune: 19.1.2011)

A new study has revealed that shoulder motion after rotator cuff surgery remains significantly different when compared to the patient's opposite shoulder. In the Henry Ford Hospital study that updated prior findings, researchers used X-rays providing a 3D view of motion of the arm bone in relation to the shoulder blade to compare motion in the shoulders of 22 patients who had arthroscopic surgical repair of tendon tears and no symptoms in their other shoulders. Researchers analysed the motion of both shoulders at three, 12 and 24 months after surgery, looking at changes in shoulder motion and shoulder strength. “Although patient satisfaction is generally very high after surgical repair of a torn rotator cuff, the data suggest that long-term shoulder function — in particular, shoulder strength and dynamic joint stability — may not be fully restored in every patient,” said Michael Bey of Henry Ford Hospital. — ANI

Cells lining (blood vessels)

Cancer-Fighting Role for Cells Discovered by MIT Scientists (Med India: 21.1.2011)

Cells lining the blood vessels secrete molecules that suppress tumor growth and keep cancer cells from invading other tissues, MIT scientists have discovered. This is a finding that could lead to a new way to treat cancer.

Elazer Edelman, professor in the MIT-Harvard Division of Health Sciences and Technology (HST), says that implanting such cells adjacent to a patient's tumor could shrink a tumor or prevent it from growing back or spreading further after surgery or chemotherapy. He has already tested such an implant in mice, and MIT has licensed the technology to Pervasis Therapeutics, Inc., which plans to test it in humans.

Edelman describes the work, which appears in the Jan. 19 issue of the journal *Science Translational Medicine*, as a "paradigm shift" that could fundamentally change how cancer is understood and treated. "This is a cancer therapy that could be used alone or with chemotherapy radiation or surgery, but without adding any devastating side effects," he says.

Cells that line the blood vessels, known as endothelial cells, were once thought to serve primarily as structural gates, regulating delivery of blood to and from tissues. However, they are now known to be much more active. In the 1980s, scientists discovered that endothelial cells control the constriction and dilation of blood vessels, and in the early 1990s, Edelman and his postdoctoral advisor, Morris Karnovsky, and others, discovered an even more important role for endothelial cells: They regulate blood clotting, tissue repair, inflammation and scarring, by releasing molecules such as cytokines (small proteins that carry messages between cells) and large sugar-protein complexes.

Mother's Stem Cells

Mother's Stem Cells Likely Key to Treating Genetic Disease Before Birth Science Daily :21.1.2011)

UCSF researchers have tackled a decade-long scientific conundrum, and their discovery is expected to lead to significant advances in using stem cells to treat genetic diseases before birth. Through a series of mouse model experiments, the research team determined that a mother's immune response prevents a fetus from accepting transplanted blood stem

cells, and yet this response can be overcome simply by transplanting cells harvested from the mother herself.

This research is really exciting because it offers us a straightforward, elegant solution that makes fetal stem cell transplantation a reachable goal," said senior author Tippi MacKenzie, MD, an assistant professor of pediatric surgery at UCSF and fetal surgeon at UCSF Benioff Children's Hospital. "We now, for the first time, have a viable strategy for treating congenital stem cell disorders before birth."

Scientists have long viewed in utero blood stem cell transplantation as a promising treatment strategy for many genetic diseases diagnosed as early as the first trimester of pregnancy, including sickle cell disease and certain immune disorders. Fetal stem cell transplantation involves taking healthy cells from the bone marrow of a donor and transplanting them into the fetus through ultrasound-guided injections. When successful, the implanted cells, or graft, replenish the patient's supply of healthy blood-forming cells.

In theory, the developing fetus with an immature immune system should be a prime target for successful transplantation, since the risk of graft rejection is low and the need for long-term immunosuppressive therapy may be avoided. However, most previous attempts to transplant blood stem cells into a human fetus have been unsuccessful, prompting some researchers to lose interest in this promising field, according to MacKenzie, who also is an investigator with the Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research.

Findings from the study will appear online Jan. 18, 2011, in the *Journal of Clinical Investigation*. They also will be published in the journal's February 2011 issue.

"The fact that fetal stem cell transplantation has not been very successful has been puzzling, especially given the widely accepted dogma that the immature fetal immune system can adapt to tolerate foreign substances," said co-senior author Qizhi Tang, PhD, an assistant professor of transplant surgery and director of the UCSF Transplantation Research Lab. "The surprising finding in our study is that the mother's immune system is to blame."

In the study's first phase, researchers examined the cellular content of fetal mouse blood and found a large proportion of maternal blood cells in the fetus. Their analyses indicated that up to 10 percent of the fetus' blood cells came from the mother -- a significantly larger percentage of maternal cells than what is found anywhere else in the fetus.

"We had previously known that a minute amount of cells travel from the mother into a developing fetus and that this is an important tolerance mechanism in all healthy pregnancies," MacKenzie said. "However, the unexpectedly large proportion of maternal blood cells in the fetus made us think that perhaps it was the maternal, rather than the fetal, immune response that poses the real barrier to effective stem cell transplantation."

To further investigate this hypothesis, the team transplanted fetal mice with blood stem cells from a second strain of mice that were not matched to the fetus or the mother. Following transplantation, the researchers observed an influx of T cells -- the major driving force behind an immune response -- from the mother into the fetus, which subsequently led to rejection of the transplanted graft.

However, if the researchers removed T cells only from the mother before carrying out the transplant, nearly 100 percent of the injected fetuses engrafted, or accepted the transplanted cells, indicating that maternal T cells play the critical role in triggering transplant rejection. Finally, the researchers transplanted fetal mice with blood stem cells matched to the mother, which, as expected, resulted in a very high success rate.

"As long as the transplanted stem cells are matched to the mother, it does not seem to matter if they are matched to the fetus," said first author Amar Nijagal, MD, a postdoctoral research fellow and surgery resident at UCSF. "Transplanting stem cells harvested from the mother makes sense because the mother and her developing fetus are prewired to tolerate each other."

As next steps, researchers will need to confirm that the findings are consistent in humans and also will investigate how exactly maternal T cells cause a graft rejection.

"Now that we know a fetus can become tolerant to a foreign stem cell source, we can really think big and consider looking at how other types of stem cells might be used to treat everything from neurological disorders to muscular disorders before birth," MacKenzie added.

Plasma therapy

Plasma therapy may work for patients with severe 2009 H1N1 infection(New Kerala: 21.1.2011)

Using plasma from patients who have recovered from an infection to treat those with the same infection is an old medical therapy to treat multiple diseases.

The same convalescent plasma therapy could also work on people with severe 2009 H1N1 influenza, according to a new Chinese study.

It found that the death rate among swine flu patients was reduced after they received plasma from recovered patients.

The study involved 93 patients with severe 2009 H1N1 infection in Hong Kong between September 2009 and June 2010.

Twenty patients received convalescent plasma from recovered patients and the other 73 acted as study 'controls'.

Mortality in the treatment group was 20 percent, compared to 55 percent in the non-treatment group.

The viral load in the treatment group also decreased at a higher rate than in the control group. None of the patients developed adverse events from the treatment.

"One of the benefits of convalescent plasma treatment in patients with severe influenza A infection is that it does not suffer from the problem of drug resistance," said study author Kowk-Yung Yuen, MD, of the University of Hong Kong in China.

"Additionally, it would remain effective until the virus has changed significantly enough to affect immunity. This form of treatment may be useful in future novel viral infections," he added.

Sticking plaster

Sticking plaster to fight cancer? (The Times of India:24.1.2011)

Light-Emitting Device Offers Skin Cancer Treatment At Home, Avoids Scarring

In what could be a relief to patients suffering from skin cancer, the disease can now be treated at home – thanks to a revolutionary light-emitting sticking plaster. The device, light-emitting Ambulight, is a form of photodynamic therapy (PDT), an established alternative to surgery for many forms of skin cancer that uses laser, or other light sources, combined with a light-sensitive drug to destroy cancer cells, the Daily Mail reported.

The PDT treatment avoids the scarring associated with surgical removal of the tumour and reduces the amount of time patients need to spend in hospital. The Ambulight consists of a disc-shaped pod about an inch in diameter that houses medical-grade red LED lights. The light source is attached to a controller the size of a mobile phone, the paper said.

Photosensitising cream is rubbed on to the skin, and the pod is attached to the skin with a plaster. The cream takes three hours to penetrate the skin, then the pod turns on. Three hours later the light switches off and the device can be disposed of. Patients can move freely during treatment.

The machine costs just £100 – about half the price of the average hospital outpatient appointment. PDT treatment is used to treat nonmelanoma-type skin cancers. The most

common types are basal cell carcinomas and squamous cell carcinomas. These cancers do not commonly spread, but they are still considered malignant.

For non-melanoma, the most common treatment in the past has involved applying a cream to the skin for several hours before the patient undergoes intensive light treatment. But with the new device, the patient can be in and out of hospital within minutes, enabling them to continue with their normal daily routine while undergoing PDT treatment.

Ambulight developer James Ferguson, professor of dermatology at Dundee University, hopes the treatment will eventually be offered at GP surgeries. "Trials have shown it to be up to 90% as effective as hospital treatment and it's a lot gentler," says Ferguson. PTI

New Cell Binding

Skin and Heart Problem Treatments May Be Possible With New Cell Binding Discovery (Med India:24.1.2011)

A new University of Manchester study has revealed the mechanism that binds skin cells tightly together.

According to researchers, it will lead to new treatments for painful and debilitating skin diseases and heart defects.

David Garrod, in the Faculty of Life Sciences, has found that the glue molecules bind only to similar glue molecules on other cells, making a very tough, resilient structure.

Further investigation on why the molecules bind so specifically could lead to the development of clinical applications.

Garrod said, "Our skin is made up of three different layers, the outermost of which is the epidermis. This layer is only about 1/10th of a millimetre thick yet it is tough enough to protect us from the outside environment and withstand the wear and tear of everyday life.

"One reason our epidermis can do this is because its cells are very strongly bound together by tiny structures called desmosomes, sometimes likened to rivets. We know that people who have defects in their desmosomes have problems with their epidermis and get extremely unpleasant skin diseases.

"Understanding how desmosomes function is essential for developing better treatments for these and other types of skin disease and for non-healing wounds.

Genetic Sequencing

Genetic Sequencing Alone Doesn't Offer a True Picture of Human Disease, Research Suggests(Science Daily:24.1.2011)

Despite what you might have heard, genetic sequencing alone is not enough to understand human disease. Researchers at Duke University Medical Center have shown that functional tests are absolutely necessary to understand the biological relevance of the results of sequencing studies as they relate to disease, using a suite of diseases known as the ciliopathies which can cause patients to have many different traits.

"Right now the paradigm is to sequence a number of patients and see what may be there in terms of variants," said Nicholas Katsanis, Ph.D. "The key finding of this study says that this approach is important, but not sufficient. If you really want to be able to penetrate, you must have a robust way to test the functional relevance of mutations you find in patients. For a person at risk of type 2 diabetes, schizophrenia or atherosclerosis, getting their genome sequenced is not enough -- you have to functionally interpret the data to get a sense of what might happen to the particular patient."

"This is the message to people doing medical genomics," said lead author Erica Davis, Ph.D., Assistant Professor in the Duke Department of Pediatrics, who works in the Duke Center for Human Disease Modeling. "We have to know the extent to which gene variants in question are detrimental -- how do they affect individual cells or organs and what is the result on human development or disease? Every patient has his or her own set of genetic variants, and most of these will not be found at sufficient frequency in the general population so that anyone could make a clear medical statement about their case."

Davis, working in the lab of Katsanis, and in collaboration with many ciliopathy labs worldwide, sequenced a gene, TTC21B, known to be a critical component of the primary cilium, an antenna-like projection critical to cell function.

While a few of the mutations could readily be shown to cause two main human disorders, a kidney disease and an asphyxiating thoracic condition, the significance of the majority of DNA variants could not be determined. Davis then tested these variants in a zebrafish model, in which many genes are similar to humans, and showed that TTC21B appears to contribute disease-related mutations to about 5 percent of human ciliopathy cases.

The study, which appears in Nature Genetics online on Jan. 23, shows how genetic variations both can cause ciliopathies and also interact with other disease-causing genes to yield very different sets of patient problems.

Katsanis, the Jean and George Brumley Jr., M.D., Professor of Pediatrics and Cell Biology, and Director of the Duke Center for Human Disease Modeling, is a world expert in ciliopathies such as Bardet-Biedl Syndrome, in which the primary cilium of cells is abnormal and leads to a host of problems. About one child in 1,000 live births will have a ciliopathy, an incidence that is in the range of Down's syndrome, said Katsanis.

"By sequencing genes to identify genetic variation, followed by functional studies with a good experimental model, we can get a much better idea of the architecture of complex, inherited disorders," Katsanis said. "Each individual with a disease is unique," Davis said. "If you can overlay gene sequencing with functional information, then you will be able to increase the fidelity of your findings and it will become more meaningful for patients and families."

It will take more laboratories doing more pointed studies like this one to get a fuller picture of the ciliopathies and other diseases, Davis said.

Katsanis noted that it will take true collaboration within many scientific disciplines as well as scientific finesse to get at the true roots of complex diseases.

"Brute force alone -- sequencing -- will not help," he said. "Technology is of finite resolution. You must have synthesis of physiology, cell biology, biochemistry and other fields to get true penetration into medically relevant information."

Numerous scientists from other institutions were involved, including those from Johns Hopkins University, University of Pennsylvania, University of Birmingham in the United Kingdom, Universite Louis Pasteur, St. James University Hospital in Leeds, University of Michigan, Baylor College of Medicine, the National Human Genome Research Institute and others.

Funding for the study came from the National Institutes of Health grant from the National Institute of Child Health and Development, other NIH grants, the National Research Service Award (NRSA), a fellowship from the National Institute of Diabetes, Digestive and Kidney disorders, the National Eye Institute the Macular Vision Research Foundation, the Foundation Fighting Blindness, the F.M. Kirby Foundation, the Rosanne Silbermann Foundation, the Polycystic Kidney Disease Foundation, the German Kidney Foundation, the German Research Foundation and a Medical Research Council research training fellowship. This work was also supported in part by the Intramural Research Program of the National Human Genome Research Institute and the Howard Hughes Medical Institute.

Novel peptide (Kills Cancer cells)

Novel peptide 'kills' cancer cells more effective than current therapies (World Newspaper: 24.1.2011)

Scientists have discovered a novel peptide that can act as a potent inducer of cancer cell death, which may have significant implications for therapeutic agents used to treat cancer.

Researchers from UMDNJ-Robert Wood Johnson Medical School suggested that the amphipathic tail-anchoring peptide, or ATAP, might provide more successful outcomes in cancer treatment than the BH3 peptide-based therapy currently used.

Recent advances in cancer research have focused on the use of peptides to initiate apoptosis, or the death of cancer cells. Bcl-2 homology domain-3 (BH3) peptides are potent therapeutic agents that are currently used in cancer treatment.

However, BH3-based therapy has some limitations, as cancer cells often acquire resistance to treatment by producing anti-apoptotic proteins that inhibit this type of treatment.

In studying alternate strategies to induce cancer cell death, the researchers discovered that ATAP was unaffected by anti-apoptotic proteins and could successfully induce the death of cancer cells that are resistant to BH3-mediated therapy.

"Our study indicates that ATAP has a potential advantage over BH3 peptides as a therapeutic agent for cancer because it evades anti-apoptotic proteins that cause cancer tumors to become resistant to therapy," said Jianjie Ma, lead author of the study.

Stem cells

Dividing stem cells found to play crucial role in spread of tumours (World newspaper: 24.1.2011)

Scientists have found that stem cells frequently play a crucial role in the spread of tumours and that if they can develop drugs to deactivate them, it would stop the cells from dividing to create new tumours.

Cancer Research UK (CRUK), Britain's biggest cancer charity, has set up a consortium of research groups, which are hoping to highlight new drugs within two years.

"Stem cells are responsible for renewing tissue in the body. But sometimes they are subverted by cancerous processes. You can give a cancer patient radiotherapy or cut out their tumour surgically—but you can still leave a few affected stem cells behind," the Observer quoted Dr Clive Stanway, chief officer of Cancer Research Technology, as saying.

"The person appears cured. Then the stem cells start dividing again and the tumour reappears."

The new campaign will be concerned only with adult stem cells.

Professor Fiona Watt, deputy director of the CRUK's Cambridge Research Institute, said, "Essentially, these drugs would tell these cells to stop growing and multiplying."

Drugs are being tested by CRUK researchers to find those that are best able to switch off cell division and the spread of cancer.

Rogue Gene

Blocking Rogue Gene Could Stop Spread of Cancer, New Research Suggests (Science Daily: 25.1.2011)

Scientists at the University of East Anglia (UEA) have discovered a rogue gene involved in the spread of cancer in the body. By blocking the gene, they believe, cancer could be stopped in its tracks.

Published in the journal *Oncogene*, the discovery is a breakthrough in our understanding of how cancer spreads. It is hoped the research will lead to new drugs that halt the critical late stage of the disease when cancer cells spread to other parts of the body.

The culprit gene -- known as WWP2 -- is an enzymic bonding agent found inside cancer cells. It attacks and breaks down a natural inhibitor in the body which normally prevents cancer cells spreading. The UEA team found that by blocking WWP2, levels of the natural inhibitor are boosted and the cancer cells remain dormant. If a drug was developed that deactivated WWP2, conventional therapies and surgery could be used on primary tumours, with no risk of the disease taking hold elsewhere.

Lead author Andrew Chantry, of UEA's School of Biological Sciences, said the discovery could lead to the development of a new generation of drugs within the next decade that

could be used to stop the aggressive spread of most forms of the disease, including breast, brain, colon and skin cancer.

"The late-stages of cancer involve a process known as metastasis -- a critical phase in the progression of the disease that cannot currently be treated or prevented," said Dr Chantry.

"The challenge now is to identify a potent drug that will get inside cancer cells and destroy the activity of the rogue gene. This is a difficult but not impossible task, made easier by the deeper understanding of the biological processes revealed in this study."

The research was funded by UK-based charity the Association of International Cancer Research (AICR), with additional support from the Big C Charity and the British Skin Foundation.

Dr Mark Matfield, scientific co-ordinator of AICR, said: "This is a very exciting new discovery and a perfect example of the way that basic research into cancer can open up ways to develop new ways to treat cancer."

The initial discovery was made while researchers were studying a group of natural cancer cell inhibitors called 'Smads'.

Dr Surinder Soond, who spearheaded the experimental work in the laboratory, said: "This is a very novel and exciting approach to treating cancer and the spread of tumours which holds great potential."

Blocking Rogue Gene

Blocking Rogue Gene Could May Stop Cancer: Study (The Indian Express: 25.1.2011)

BRITISH scientists have discovered a rogue gene which helps cancer spread around the body and say blocking it with the right kind of drugs could stop many types of the disease in their tracks.

Researchers from the University of East Anglia said their findings could lead within a decade to the development of new medicines to halt a critical late stage of the disease known as metastasis, when cancer cells spread to other parts of the body.

The culprit gene, called WWP2, is an enzymic bonding agent found inside cancer cells, the researchers explained in their study, published in the journal *Oncogene* Monday. It attacks and breaks down a naturally-occurring protein in the body which normally prevents cancer cells from spreading.

In tests in the laboratory, the UEA team found that by blocking WWP2, levels of the natural inhibitor protein were boosted and the cancer cells remained dormant.

Surinder Soond, who worked on the study, said it was a novel and exciting approach to treating cancer and the spread of tumours which holds great potential.

"The challenge now is to identify a potent drug that will get inside cancer cells and destroy the activity of the rogue gene," said Andrew Chantry of UEA's school of biological sciences, who led the research.

He said this was a difficult but not impossible task and one that would be made easier by the better understanding of the biological processes gained in this early research.

Chantry said in a telephone interview the findings mean drugs could be developed in the next 10 years that could be used to halt the aggressive spread of many forms of cancer, including breast cancer, brain, colon and skin cancer.

Blocking Rogue Gene

Blocking Rogue Gene Could May Stop Spread of Cancer: Study(The Asian Age : 25.1.2011)

British scientists have discovered a "rogue gene" which helps cancer spread around the body and say blocking it with the right kind of drugs could stop many types of the disease in their tracks.

Researchers from the University of East Anglia said their findings could lead within a decade to the development of new medicines to halt a critical late stage of the disease known as metastasis, when cancer cells spread to other parts of the body.

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Surinder Soond, who worked on the study, said it was a "novel and exciting approach to treating cancer and the spread of tumours which holds great potential." "The challenge now is to identify a potent drug that will get inside cancer cells and destroy the activity of the rogue gene," said Andrew Chantry of UEA's school of biological sciences, who led the research.

He said this was "a difficult but not impossible task" and one that would be made easier by the better understanding of the biological processes gained in this early research. -- Reuters

Synthetic Antibodies

Research Into Synthetic Antibodies Offers Hope for New Diagnostics (Science Daily: 25.1.2011)

Antibodies are watchdogs of human health, continuously prowling the body and registering minute changes associated with infection or disease with astonishing acuity. They also serve as biochemical memory banks, faithfully recording information about pathogens they encounter and efficiently storing this data for later use.

Stephen Albert Johnston, Neal Woodbury and their colleagues at the Biodesign Institute at Arizona State University have been exploring mechanisms of antibody activity, particularly the ability of these sentries to bind -- with high affinity and specificity -- to their protein targets. A more thorough understanding of the antibody universe may lead to a new generation of rapid, low-cost diagnostic tools and speed the delivery of new vaccines and therapeutics.

Borrowing a script from nature, the group has been working to construct synthetic antibodies or synbodies, through a simple method developed in Johnston's Center for Innovations in Medicine. They have also examined the broad portrait of antibody activity revealed in a sample of blood, harnessing this information for the presymptomatic diagnosis of disease. These immunosignatures, as Johnston has named them, provide a dynamic report card on human health.

In a pair of new papers, the group demonstrated a simple means of improving the binding affinity of synbodies, which are composed of 20 unit chains of amino acids, strung together in random order. They also used random peptide sequences spotted onto glass microarray slides to mine information concerning the active regions or epitopes of naturally occurring antibodies. These two projects recently appeared in the journals PLoS ONE and Molecular and Cellular Proteomics, respectively.

While antibodies have been in use for biomedical research for a long time, conventional techniques for producing them have been time consuming and expensive. Normally, antibodies used for research are produced in animals, which respond to a given injected protein by producing a protein-specific antibody, which may then be extracted.

In earlier work, Johnston's group showed that high-affinity antibody mimics can be produced synthetically by simple means. Their technique turns the traditional production approach on its head. Rather than beginning with a given protein and trying to generate a corresponding antibody, the new method involves building a synthetic antibody first, later determining the protein it effectively binds with, by screening it against a library of potential protein mates.

The first step in this process is to generate random strings of 20 amino acids. Roughly 10,000 such random peptides are then spotted onto a glass microarray slide. The protein one is seeking an antibody to is screened against this random sequence array and peptides with high binding affinity are identified. Two such peptides can be linked together to form a synbody, whose binding affinity is the product of each separate peptide. In this way, two weakly binding peptides join forces to form a high affinity unit, useful for investigations into the proteome, the vast domain of proteins essential to virtually all biological processes.

In the PloS ONE study, lead author Matthew Greving and his colleagues describe a strategy for further refinement of binding affinity in random sequence peptides. "The problem," Johnston explains, is that the microarray contains about 10,000 peptides, but that is less than a quadrillionth of the possible peptides by sequence. So we're sampling a very small part of the sequence space. " A consequence of this is that the probability of generating a 20 amino acid sequence, that binds with optimal affinity, is pretty low.

To improve sequence affinity, a lead sequence is first selected. In the study, one such sequence was the 17 amino acid peptide TNF-1, a key regulator of immune cells. The lead sequence is then used as a template from which to generate additional peptide sequences in which a single amino acid at each subsequent position along the peptide chain is replaced with a different amino acid.

Using this method, 96 variant peptides are constructed on a microarray plate. These enhanced variants are screened against a desired protein for binding affinity and a map is produced displaying this affinity from low to high. The most successful variants can then be assembled into a new high affinity peptide, whose binding strength is the sum of the components.

This simple, algorithmic process can rapidly optimize random sequence peptides, improving their binding affinity by 100 to 1000 times. The method can also be used to improve the specificity of peptides, enabling the construction of binding agents able to attach to a given protein while excluding unwanted binding targets.

The MCP study asked whether a similar random peptide microarray could assist in the process of epitope mapping, in which the active binding regions of antibodies are identified. Epitope mapping is one method for determining if a given antibody is suitable for a particular application, and a faster, more cost-effective method would be of significant biomedical value.

For these experiments, antibodies of known epitope were screened against random sequence peptides on a microarray. High affinity peptides were identified and bioinformatics techniques were used to see if the random peptides could help identify the antibody epitopes.

Two techniques were applied; one in which high affinity random sequence peptides were compared side by side with the antibody epitopes they bound with and similarities statistically analyzed. The other method searched the peptides for signature "motifs" -- consisting of at least 7 amino acids (or two shorter motifs in combination). Lead author Rebecca Halperin and colleagues were able to show that statistically useful information on epitopes could indeed be gleaned from such bioinformatic probing, bringing the prospect of high throughput, inexpensive exploration of natural antibodies a step closer.

Johnston stresses the importance of this research. "The paper asks if there are mechanisms to transfer from random sequence space to real sequence space based on antibody binding. No one has explored this as deeply as Rebecca has." Further refinement should allow diagnosis of the precise protein sequence causing a given illness, based purely on analysis of immune response

Protein Blamed

Protein Blamed For Deadlier Stroke Injury In Diabetic And High Blood Sugar Patients (Medical News Today: 25.1.2011)

The reason why intracerebral hemorrhage, a common cause of stroke, has worse consequences in diabetics than in non-diabetic patients, appears to be because high blood sugar increases the ability of a protein called plasma kallikrein to stop blood from clotting near injured vessels, say US scientists who hope the discovery will lead to new treatments that control such bleeding.

You can read about the study, led by the Joslin Diabetes Center, Boston, Massachusetts, in a paper published online on 23 January in the journal Nature Medicine.

Strokes are a leading cause of death and disability in adults; according to the American Heart Association, they killed over 137,000 people in 2006.

Strokes occur when blood flow to a part of the brain is blocked, often killing off brain tissue.

There are two main types of stroke: ischemic and hemorrhagic, the first caused by a blockage in a blood vessel supplying blood to the brain, and the second, the subject of this study, caused by intracerebral hemorrhage, when blood vessels rupture and blood escapes into the surrounding tissue, causing a hematoma.

When intracerebral hemorrhage occurs in patients with diabetes or who are discovered to have hyperglycemia (high blood glucose), the hematoma expansion is usually greater, and the outcomes are often much worse, lead Joslin Investigator Dr Edward Feener and colleagues wrote in their background information.

Feener's team had done some work with plasma kallikrein in diabetic eye complications and decided to investigate its effect in stroke.

Although we have known about the protein for decades, this is the first study to show that it increases brain bleeding through a previously unknown mechanism: it stops platelets forming near damaged blood vessels, and this is boosted by high blood glucose.

"We show that PK [plasma kallikrein] inhibits collagen-induced platelet aggregation by binding collagen, a response enhanced by elevated glucose concentrations," Feener and colleagues wrote.

They started the study with a test where they injected a small amount of blood into the brains of rats with diabetes and rats without diabetes (the controls). The blood they used came from the rats themselves ("autologous blood").

The results were dramatic: the "hematoma expansion" (the spread of blood outside blood vessels) covered a much greater area of brain in the diabetic rats than in the non-diabetic controls.

They did the test again, but this time pre-treated the diabetic rats with a molecule that inhibits the effect of plasma kallikrein: the hematoma expansion in the diabetic rats was on a par with that of the non-diabetic rats.

And when they injected the rats with pure plasma kallikrein, the non-diabetic rats showed little effect, but the diabetic rats then experienced rapid increases in major bleeding.

Diabetes Natural Treatment - complete control with healthy life no side effects, permanent results - Cowurine.com/ConsultUs

Stem Cell Therapy india - Autism, cerebral palsy, MR, Diabetes Paraplegia, +91 9011 111222, low cost - www.chaitanyastemcell.com

Latest Diabetes News - Join DiabetesForum.com for free to discuss the latest Diabetes News. - www.diabetesforum.com/

The researchers then did further tests that showed by bringing blood glucose levels to normal in the diabetic rats, they could inhibit the effect of the plasma kallikrein, and by rapidly increasing the blood glucose in non-diabetic rats, they could produce the hemorrhage results seen in the brains of the diabetic rats.

They concluded this means it was the level of sugar in the blood at the time of the hemorrhage, rather than the presence of diabetes per se, that caused the increased bleeding.

Feener, who is also an associate professor of medicine at Harvard Medical School, told the press that given the high rate of strokes and the damage they cause, these findings are exciting because:

"... they suggest the possibility that rapid control of blood sugar levels may provide an opportunity to reduce intracerebral hemorrhage, which is a clinical situation that has very limited treatment options."

"This work could have broad implications since about half of patients with acute hemorrhagic stroke have hyperglycemia, whether or not they have pre-existing diabetes," he added.

Another avenue this study opens up is to develop drugs that target plasma kallikrein to protect people with diabetes or others at high risk of stroke. These treatments could also benefit people at high risk of certain types of ischemic stroke that start as blocked blood vessels but then burst and become hemorrhages.

Deep brain stimulation

Deep brain stimulation may control hard-to-treat BP (New Kerala: 25.1.2011)

A new case study has found that deep brain stimulation may help control hard-to-treat blood pressure.

Researchers in Frenchay Hospital in Bristol, UK, studied a man who received a deep brain stimulator to treat his pain from central pain syndrome that developed after a stroke.

Deep brain stimulation uses a surgical implant similar to a cardiac pacemaker to send electrical pulses to the brain.

The 55-year-old man was diagnosed with high blood pressure at the time of the stroke, and his blood pressure remained high even though he was taking four drugs to control it.

While the electrical stimulation did not permanently alleviate his pain, researchers were surprised to see that stimulation decreased his blood pressure enough that he could stop taking all of the blood pressure drugs.

Nikunj K. Patel, author of the study, noted that the decrease in blood pressure was a response to the deep brain stimulation, and not a result of changes to his other conditions.

The man's blood pressure gradually decreased after the deep brain stimulator was implanted in the periaqueductal-periventricular grey region of the brain, which is involved in regulating pain.

His blood pressure was controlled for the nearly 3 years of follow-up; at one point he went back on an anti-hypertension drug for a slight increase in blood pressure, but that drug was withdrawn when the blood pressure went down again.

At one point researchers tested turning off the stimulator. This led to an increase of an average of 18/5 mmHg in blood pressure. When the stimulator was turned back on, blood pressure dropped by an average of 32/12 mmHg. Repeating the tests produced the same results.

The study was published in the January 25, 2011, print issue of *Neurology*, the medical journal of the American Academy of Neurology.

Hormonal and molecular responses

How hormonal and molecular responses to exercise differ by age (New Kerala: 27.1.2011)

A new study has revealed that differences in muscle responses to exercise in older versus younger men also reflect differences on the hormonal, molecular, and gene-expression level.

These differences include genetic up-regulation of a key enzyme related to muscle breakdown in older men.

The results help in understanding the 'molecular control points' for aging-related muscle atrophy-and may lead to new approaches to mitigating the adverse effects of muscle wasting in older adults, said senior author Chad M. Kersick of the University of Oklahoma, Norman.

The researchers compared responses to resistance exercise (weightlifting) in a group of older and younger men, with an average age between 21 and 68 years.

Before and after the men performed a series of exercises (squat, leg press, and leg extension exercises), blood samples were obtained to measure key hormones involved in muscle responses to exercise.

Samples of muscle tissue (biopsies) were also obtained to measure gene expression of two specific enzymes -atrogin-1 and MuRF-1-involved with the process of skeletal muscle breakdown.

Recent studies have suggested that these enzymes reflect age-related differences in muscle metabolism and muscle response to exercise.

The researchers found that younger men had higher levels of the hormones cortisol and insulin-like growth factor-1 (IGF-1), before and after exercise.

In addition, 24 hours after exercise, the level of IGF-1 had increased in older men. Recent studies have suggested that IGF-1 may reduce degradation of skeletal muscle protein.

Before exercise, the older men had higher expression of the MuRF-1 gene, which has been linked to age-related muscle atrophy (wasting).

There was no age-related difference in expression of atrogin-1.

The changes in MuRF-1 and atrogin-1 after exercise did not differ significantly between the younger and older men. However, men with higher expression of MuRF-1 had lower levels of IGF-1.

Muscle mass and strength decrease with aging, due to reductions in the levels of anabolic hormones and growth factors. Muscle growth response to exercise (hypertrophy) is also decreased with aging.

The new results help to clarify some of the differences between younger and older muscle. The increased expression of MuRF-1 in older men could be a precursor to muscle atrophy, or may possibly represent an adaptive change to help maintain muscle mass.

The study is published in the current issue of The Journal of Strength and Conditioning Research.

Healthy cell

Researchers use cell profiling to detect cancer New Kerala: 27.1.2011)

Researchers are finding ways to tell a healthy cell from an abnormal one to identify and pre-empt cancer.

Though in its early stages, the research represents a new way of identifying cell abnormalities -- whether cancer cells are aggressive and likely to spread throughout the body (metastasize), the journal Bulletin of Mathematical Biology reports.

Huseyin Coskun, visiting assistant professor of Maths at Ohio State University and project leader, sees his technique as a tool for also pathologists, who typically look at photographs of biopsied cells to identify cancer and judge how advanced they may be.

"A pathologist can diagnose cancer, but as far as predicting the future, they don't have many tools at their disposal -- particularly if a cancer is in its early stages," Coskun said, according to an Ohio university statement.

"That's why I believe that one of the most important applications of this research is profiling cancer cells... If it looks like a cancer cell, and a particularly aggressive one, we would like to quantify how likely it is that the cancer cells will invade the body."

In a very basic sense, diagnosing a "sick" cell such as a cancer cell by its appearance, motion, and behaviour is analogous to diagnosing a sick human, he said.

Stem Cells

Stem Cells Show Promise in Repairing a Child's Heart(Science Daily 28.1.2011)

Visionaries in the field of cardiac therapeutics have long looked to the future when a damaged heart could be rebuilt or repaired by using one's own heart cells. A study published in the February issue of Circulation, a scientific journal of the American Heart Association, shows that heart stem cells from children with congenital heart disease were able to rebuild the damaged heart in the laboratory.

Sunjay Kaushal, MD, PhD, surgeon in the Division of Cardiovascular Thoracic Surgery at Children's Memorial Hospital and assistant professor of surgery at Northwestern University Feinberg School of Medicine, who headed the study, believes these results show great promise for the growing number of children with congenital heart problems. With this potential therapy option these children may avoid the need for a heart transplant.

"Due to the advances in surgical and medical therapies, many children born with cardiomyopathy or other congenital heart defects are living longer but may eventually succumb to heart failure," said Kaushal. "This project has generated important pre-clinical laboratory data showing that we may be able to use the patient's own heart stem cells to rebuild their hearts, allowing these children to potentially live longer and have more productive lives."

Cells were obtained from patients ranging in age from a few days after birth to 13 years who were undergoing routine congenital cardiac surgery. Findings show that the number of heart stem cells was greatest in neonates and then rapidly decreased with age, and that the highest numbers of these stem cells are located in the upper right chamber of the heart, or the right atrium. The study also showed that the cardiac stem cells are functional and have the potential for use in repairing the damaged heart. Up until now, heart stem cell studies have addressed the adult diseased heart, but this is the first and largest systematic study to focus on children.

"Heart disease in children is different than heart disease in adults," said Kaushal. "Whereas adults might suffer heart failure from coronary artery disease or atherosclerosis, heart failure in children primarily occurs because they acquire cardiomyopathy or have a congenital condition in which the heart chambers are small or in the wrong position causing the heart to pump inefficiently. The potential of cardiac stem cell therapy for children is truly exciting," said Kaushal. Pending FDA approval, Kaushal hopes to begin clinical trials with children in the fall.

Nitrous oxide anesthesia

Nitrous oxide anesthesia 'ups heart attack risk'(New Kerala: 31.1.2011)

A new study has warned that patients receiving nitrous oxide as part of general anesthesia for surgery may be at increased long-term risk of myocardial infarction (heart attack).

Based on follow-up from a previous randomized trial, the study finds no increased risk of death among patients receiving nitrous oxide, according to Dr. Kate Leslie of Royal Melbourne Hospital and colleagues.

Experts emphasize the need for more research to clarify the true cardiovascular risks, if any, of using nitrous oxide for anesthesia.

In the ENIGMA trial, 2,050 patients undergoing noncardiac surgery were randomly assigned to receive anesthesia with or without nitrous oxide. In that study, an unexpectedly high number of myocardial infarctions occurred among patients receiving nitrous oxide-30 patients, compared to ten patients not receiving nitrous oxide. There were also more deaths in the nitrous oxide group: nine versus three patients.

To see if there were any lasting harmful effects of nitrous oxide, Dr. Leslie and colleagues analyzed long-term outcome data on the ENIGMA patients. At a median follow-up of 31/2 years, 19 percent of patients had died and 4.5 percent had a myocardial infarction.

The results showed a persistently higher rate of myocardial infarctions among patients who received nitrous oxide. The odds of myocardial infarction were nearly 60 percent higher than in patients not receiving nitrous oxide, after adjustment for other risk factors such as age, history of heart disease, and length of surgery.

Despite the increased myocardial infarction rate, patients receiving nitrous oxide had no significant increase in the risk of death. There was no significant difference in stroke: about two percent in both groups.

Among the many unanswered questions is how nitrous oxide anesthesia would lead to an increased myocardial infarction risk. One possibility is increased levels of the amino acid homocysteine, which have been linked to an increased risk of heart attack. In the ENIGMA study, 46 percent of patients with myocardial infarction had elevated homocysteine levels, compared to 11 percent of those without myocardial infarction.

However, no previous study has shown a link between nitrous oxide administration and long-term cardiovascular risk. Other mechanisms besides increased homocysteine levels are possible as well. As a group, the patients enrolled in the ENIGMA study had a low risk of myocardial infarction. Only 11 percent had a history of heart disease.

Although the new findings raise concerns, they are far from providing definitive evidence that nitrous oxide increases myocardial infarction risk.

"The exact relationship between nitrous oxide administration and serious long-term adverse outcomes requires investigation in an appropriately designed large randomized controlled trial," Dr. Leslie and co-authors conclude.

The study appears in the February issue of *Anesthesia and Analgesia*, official journal of the International Anesthesia Research Society (IARS).

Transcranial magnetic brain

Transcranial magnetic brain stimulation key to treating brain disorders (New Kerala: 31.1.2011)

A new study has found that the activity of certain brain nerve cells can be deliberately influenced by using magnetic stimulation.

The study could mean use of cerebral stimulation to treat functional disorders of the brain.

Transcranial magnetic stimulation (TMS) is based on the fact that the cortex, the rind of the brain located directly underneath the skull bone, can be stimulated by means of a magnetic field.

One single magnetic pulse serves to test the activability of nerve cells in an area of the cortex, in order to assess changes in diseases or after consumption of medications or also following a prior artificial stimulation of the brain.

Medical experts from Bochum under the leadership of Prof. Dr. Klaus Funke (Department of Neurophysiology) have now shown for the first time that an artificial cortex stimulation specifically changes the activity of certain inhibitory nerve cells as a function of the stimulus protocol used.

Funke's group was also able to show that rats also learned more quickly if they were treated with the activating stimulus protocol (iTBS) before each training.

Repetitive TMS is already being used in clinical trials with limited success for therapy of functional disorders of the brain, above all in severe depressions.

"It is doubtless too early to derive new forms of treatment of functional disorders of the brain from the results of our study, but the knowledge obtained provides an important contribution for a possibly more specific application of TMS in future", Funke said.

The researchers have published their studies in the Journal of Neuroscience and in the European Journal of Neuroscience

Proteins

Proteins Need Chaperones: Newly Discovered Processes in Production of Proteins Described (Science Daily: 10.1.2011)

Young unmarried girls used to be accompanied by chaperones at social events. Their task was to prevent their charge from having undesirable romantic rendezvous with young boys. The term "molecular chaperones" is used in cellular biology to refer to a group of proteins which prevent undesirable contact between other proteins. Such contact can be particularly dangerous during protein production, a process carried out by the ribosome in the cell. The ribosome functions like a knitting spool: 20 different amino acids are threaded together like loops of thread in various sequences and amounts. The emerging amino acid chain disappears into a tunnel and does not come back out until it has reached a certain length.

A research group led by Freiburg biochemist Prof. Dr. Sabine Rospert studies how the chaperones at the end of the ribosomal tunnel influence the fate of newly synthesized proteins and how their functioning is coordinated in time and space. In 2005, the group discovered the chaperone ZRF1 at the end of the human ribosomal tunnel. ZRF1 exhibits structural characteristics which are otherwise typical only of proteins which influence the chromatin structure. Chromatin is a combination of DNA, histone, and other proteins in the nucleus of the cell. The DNA contains the information necessary for letting a ribosome know which amino acid chain it should produce. Gene segments of the DNA are translated into transcripts for this purpose, which then leave the nucleus in order to program the ribosomes for the synthesis of certain proteins.

Why does a chaperone sitting at the end of the ribosomal tunnel need to possess characteristics that can influence the chromatin structure in the nucleus? Thanks to the cooperation between Sabine Rospert's team in Freiburg and a group of researchers working under the biologist Prof. Dr. Luciano Di Croce at the Centre for Genomic Regulation in Barcelona, Spain, scientists are now a step closer to answering this question. Di Croce investigates protein complexes which influence the chromatin structure and thus also the production of transcripts. Reversible modifications to histone proteins in the chromatin play a decisive role in these processes. The experiments conducted by the scientists have revealed that ZRF1 influences the modification of a histone protein, thus allowing the production of a specific group of transcripts for a limited period of time.

These results, published in the current issue of the journal Nature, constitute an important step in the quest to understand the connection between the function of ZRF1 in the ribosome and in the chromatin. The discovery that this molecular chaperone has a dual function, both in the process of transcription and in the translation of the transcripts into proteins at a different place and time, is important initial evidence for the assumption that there is a link between the regulation of the two processes.

Measles Viral Protein Movement Described (Science Daily: 10.1.2011)

Mayo Clinic researchers have shown that proteins on the surface of a cell twist a viral protein into position, allowing the virus to start infection and cause disease, all in a movement as graceful as a ballroom dance. The findings appear in the current online issue of Nature Structural & Molecular Biology.

A team led by Roberto Cattaneo, Ph.D., a Mayo molecular biologist, describes the crucial initial steps taken by attachment proteins of the measles virus and related respiratory viruses with their cellular partners, the receptors. To get there, the research team built "handles" at different locations on a viral attachment protein, allowing them to be grabbed by an artificial receptor to start the dance.

Visualize the measles virus. It is small and has an outer "envelope" with two proteins, one that interacts with a cellular receptor, its dance partner, and another that fuses the viral envelope with the cell membrane, starting infection.

Measles virus, while long targeted for eradication through vaccination, still affects 10 million people and kills some 197,000 each year around the world. A long-running question is how the cell entry process begins.

"It was known that the viral attachment proteins always come in pairs, and recently it became clear that two pairs form a quartet," Dr. Cattaneo says. "Pairs initially face each other, and we show here that the upper bodies separate when the dance begins. We suggest that they then engage a partner from the other pair of the quartet, while the legs are still dancing with those of the original partner."

As this dance continues, the cellular receptors weaken the layer of attachment proteins that protects a lower layer of fusion proteins. When enough quartets become twisted and unstable, the top layer fails abruptly. This failure causes unfolding of the proteins in the lower layer, and, in turn, fusion with the cellular membrane. The viral genome, now inside the cell, tells it to stop dividing and mandates the building of new viruses.

Dr. Cattaneo has studied viruses for three decades, primarily as tools for new medical discoveries. Viruses, he says, can be transformed into vectors to treat disease. In 1999, he joined Mayo Clinic as a founding member of the Molecular Medicine Department. To date, two viral vectors developed at Mayo Clinic are in clinical trials to treat ovarian cancer, glioma and myeloma.

Others on the team are Chanakha Navaratnarajah, Ph.D.; Levi Rupp; Leah Kay; and Vincent Leonard Ph.D., all of Mayo Clinic; and Numan Oezguen, Ph.D., and Werner

Braun, Ph.D., from the University of Texas Medical Branch, Galveston. The research was supported by the National Institutes of Health and the Mayo Clinic Cancer Center.

Cancer

Cancer

Wealthy people more likely to get certain cancers (The Tribune: 22-12-2010)

People living in wealthy suburbs are more likely to get certain types of cancer than those living in poorer zones, according to a report by the Australian Institute of Health and Welfare. The report revealed that richer people were more likely to get breast, prostate and skin cancer, and poorer people were more likely to suffer bowel, cervical and lung cancers, reports the Sydney Morning Herald. There was a large difference in lung cancer incidence, with about 35 per 100,000 people being diagnosed in high socio-economic areas compared to about 50 in 100,000 in low socio-economic districts.

For breast cancer, the rate was 106 per 100,000 people in low socio-economic areas compared to about 122 per 100,000 in high socio-economic areas. For skin cancer, the rate was 42 per 100,000 people in low socio-economic areas and 52 per 100,000 in high socio-economic areas.

With prostate cancer, it was 160 per 100,000 in low socio-economic areas compared to 185 per 100,000 in high socio-economic areas, and for cervical cancer, it was 8 per 100,000 in low socio-economic areas and 6 per 100,000 in high socio-economic areas.

Cancer

Cancer Treatment Norms for Indian Patients released (The Indian Express: 5.1.2011)

THE Indian Council of Medical Research (ICMR) has released the first-ever guidelines for cancer treatment in the country. The guidelines provide treatment protocol specific to the Indian population.

American and European guidelines are being currently followed in India and the council has assessed the different treatment requirements of Indian patients.

The project was started in 2007 and the guidelines have been compiled after consultation with 132 oncologists and scientists from across the country, for 20 cancer sites in the body.

In the first batch, treatment protocols for cancers of stomach, cervix and buccal mucosa (the inner lining of the mouth cavity) have been released.

"Clinicians have often pointed out that Indian patients respond differently than cancer patients from developed countries to the same treatment. The purpose of this project was to review the principles of cancer management guidelines and to assess if any differences in patients' response to treatment exist under Indian circumstances, and suggest the best evidencebased available strategies for treatment," Dr VM Katoch, Director General of ICMR, states in the preface to the report.

Dr Kishore Chaudhry, Scientist, "F" of ICMR, and one of the co-authors of the study, says the guidelines will help bring some rationality to cancer treatment.

"American and European guidelines were being followed in India so far. This is the first step to assess whether Indian cancer patients have different requirements, and to lay down concrete guidelines for the same."

Sub-committees of renowned experts reviewed both international and Indian literature to identify if there was any difference in the Indian context.

"We reviewed all available existing literature on treatment modalities, and tried to tell doctors what works and what does not for Indian patients," explains Dr Chaudhry.

After presenting an analysis of the findings of available research, thereportlaysdownan algorithmic approach for management of cancer.

Itstartswithdetailsoftheinvestigations required for diagnosis,andthenmovesontocytological, pathological, surgical, and radiodiagnostic pre-treatment evaluations to rule out co-infections.

It lays down techniques for assessing the stage at which the cancer is presented. Details of the chemical, surgical andradiationaltreatmentprotocol for every stage are presented, along with a detailed risk evaluation at every step.

For chemotherapy, specific drugs, along with requirements of dosage and technique, have been laid down.

Periodical evaluations to assess the condition of the patient after every cycle of chemotherapy have been specified.

Cancer

Cancer in a Single Catastrophe: Chromosome Crisis Common in Cancer Causation(Science Daily: 11.1.2011)

Remarkable new research overthrows the conventional view that cancer always develops in a steady, stepwise progression. It shows that in some cancers, the genome can be shattered into hundreds of fragments in a single cellular catastrophe, wreaking mutation on a massive scale.

The scars of this chromosomal crisis are seen in cases from across all the common cancer types, accounting for at least one in forty of all cancers. The phenomenon is particularly common in bone cancers, where the distinctively ravaged genome is seen in up to one in four cases.

The team looked at structural changes in the genomes of cancer samples using advanced DNA sequencing technologies. In some cases, they found dramatic structural changes affecting highly localised regions of one or a handful of chromosomes that could not be explained using standard models of DNA damage.

"The results astounded us," says Dr Peter Campbell, from the Cancer Genome Project at the Wellcome Trust Sanger Institute and senior author on the paper. "It seems that in a single cell in a single event, one or more chromosomes basically explode -- literally into hundreds of fragments.

"In some instances -- the cancer cases -- our DNA repair machinery tries to stick the chromosomes back together but gets it disastrously wrong. Out of the hundreds of mutations that result, several promote the development of cancer."

Cancer is typically viewed as a gradual evolution, taking years to accumulate the multiple mutations required to drive the cancer's aggressive growth. Many cancers go through phases of abnormal tissue growth before eventually developing into malignant tumours.

The new results add an important new insight, a new process that must be included in our consideration of cancer genome biology. In some cancers, a chromosomal crisis can generate multiple cancer-causing mutations in a single event.

"We suspect catastrophes such as this might happen occasionally in the cells of our body," says Dr Andy Futreal, Head of Cancer Genetics and Genomics at the Wellcome Trust Sanger Institute and an author on the paper. "The cells have to make a decision -- to repair or to give up the ghost.

"Most often, the cell gives up, but sometimes the repair machinery sticks bits of genome back together as best it can. This produces a fractured genome riddled with mutations which may well have taken a considerable leap along the road to cancer."

The new genome explosions caused 239 rearrangements on a single chromosome in one case of colorectal cancer.

The damage was particularly common in bone cancers, where it affected five of twenty samples. In one of these samples the team found three cancer genes that they believe were mutated in a single event: all three are genes that normally suppress cancer development and when deleted or mutated can lead to increased cancer development.

"The evidence suggests that a single cellular crisis shatters a chromosome or chromosomes," says Professor Mike Stratton, Director of the Wellcome Trust Sanger Institute and an author on the paper, "and that the DNA repair machinery pastes them back together in a highly erroneous order.

"It is remarkable that, not only can a cell survive this crisis, it can emerge with a genomic landscape that confers a selective advantage on the clone, promoting evolution towards cancer."

The team propose two possible causes of the damage they see. First, they suggest it might occur during cell division, when chromosomes are packed into a condensed form. Ionizing radiation can cause breaks like those seen. The second proposition is that attrition of telomeres -- the specialized genome sequences at the tips of chromosomes -- causes genome instability at cell division.

Cancer

Targeted Radiation Not Very Effective against Prostate Cancer (MedIndia: 12.1.2011)

Effective prostate cancer treatment continues to be elusive. A new analysis shows that interstitial brachytherapy, targeted radiation of the tumor, is not necessarily a better option.

Prostate cancer is potentially curable as long as the tumour is still confined to the prostate gland. Several options are available for the treatment of such a localized tumour: besides complete surgical removal of the prostate (prostatectomy) or radiation with an external radiation source (external beam radiotherapy), low-dose-rate (LDR) permanent interstitial brachytherapy offers another therapy option. In this treatment, small radioactive particles are permanently implanted in the prostate via specific needles; these particles enable a local and targeted radiation of the tumour. As prostate tumours either stop growing or grow very slowly in many patients, the fourth option to be considered is a specific form of watchful waiting called active surveillance.

The Institute for Quality and Efficiency in Health Care (IQWiG) sought to explore whether newer studies challenged the findings of research already completed in 2007, but couldn't come to any firm conclusion.

In the research now available, prepared as a rapid report, IQWiG was able to include 20 additional studies, which for the first time also included results of a randomized controlled trial (RCT). However, overall IQWiG still rates the evidence base as insufficient. On the one hand, this is due to the fact that many studies showed deficiencies, so that the results cannot be reliably interpreted. On the other, the studies in part included too few participants and did not last long enough to demonstrate differences between therapies. As the course of early-stage prostate cancer is favourable in most patients (particularly in older ones), differences between therapies in respect of disease progression and survival may only become noticeable after several years.

Cancer

UK GPs to Be Empowered To Send Patients For Cancer Screening (Med India: 13.1.2011)

In an attempt to cut down delays in cancer diagnosis, general practitioners (GPs) in the UK are to be empowered to directly send their patients to cancer tests instead of referring them to a specialist.

At the moment, patients are guaranteed to see a cancer specialist within two weeks if they get an urgent referral from their GP.

But in the new scheme of things, the GPs themselves can order chest X-rays, ultrasounds and MRI brain scans.

The idea is to enable GPs to have better direct access to testing for those patients who are not classed as urgent but could benefit from further investigation.

To achieve this, the government is freeing up money to improve access to a range of tests. Over the next four years more than £450m is being earmarked for the additional facilities required.

The move forms the central plank of the government's cancer strategy aimed at saving an extra 5,000 lives a year and raise survival rates up to European averages.

The UK still has some of the worst cancer survival rates in Europe, largely because cancer is more often spotted too late for anything to be done about it.

International league tables show the UK is well below average on breast and bowel cancer. In the UK, 79 per cent of women diagnosed with breast cancer are still alive after five years – compared with more than 90 per cent in the United States.

Cancer

New Interventions for Cancer, Obesity (Med India: 14.1.2011)

A recent research have opened doors to important implications in the treatment and intervention of cancer and obesity.

Dr. Jan-Ake Gustafsson at the University of Houston (UH) reported the most recent results pertaining to the function of a nuclear receptor called estrogen receptor beta, or Erbeta.

The group found that this regulatory molecule prevents epithelial-to-mesenchymal transition, or EMT, in the prostate gland.

EMT is believed to have an essential role in prostate tumor development. ERbeta also has a growth-suppressive effect in colon cancer cells.

The findings suggest that this molecule is potentially an interesting pharmaceutical target in many diseases, including cancer.

Another research by Gustafsson and his team shows that two specific nuclear receptors - LXRalpha and LXRbeta - act in such a way as to indicate they have a crucial role in regulating energy homeostasis, which is important to maintain the stability of normal biological states during adjustments to environmental changes.

Gustafsson believes that these molecules should be considered as targets in pharmaceutical intervention against obesity.

Cancer Pain

Cancer Pain Common among Survivors (Medical News Today: 17.1.2011)

Surviving cancer may also mean surviving pain, according to a study by the University of Michigan Health System showing 20 percent of cancer survivors at least two years post diagnosis have current cancer-related chronic pain.

The study, published online ahead of print in the American Cancer Society's journal *Cancer*, gives new insight on issues in cancer survivorship among the growing number of U.S. cancer survivors.

More than 40 percent of patients surveyed had experienced pain since their diagnosis, and the pain experience was worse for blacks and women.

The Lance Armstrong Foundation, an organization that examines experiences of the cancer community, sponsored the U-M survey study of nearly 200 patients.

Other findings:

- The most significant source of pain was cancer surgery (53.8 percent) for whites and cancer treatment (46.2 percent) for blacks.
- Women had increased pain, more pain flares, more disability due to pain, and were more depressed than men because of pain.
- Blacks with pain reported higher pain severity, expressed more concern about harmful pain treatment side effects, and had greater pain-related disability.

According to the National Cancer Institute, more than 60 percent of people diagnosed with cancer will be alive in five years. As society ages, study authors say, pain complaints and cancer issues will grow as significant health concerns and health policy issues.

"All in all, the high prevalence of cancer and pain and now chronic cancer pain among these survivors, especially blacks and women, shows there's more work to be done in improving the quality of care and research," says lead study author and pain medicine specialist Carmen R. Green, M.D., professor of anesthesiology, obstetrics and gynecology and health management and policy at the University of Michigan.

Patient and physician knowledge and attitudes may lead to poor pain management, authors say. For instance, worries about side effects such as addiction or fears that pain is a sign that the cancer had gotten worse may lead patients and their doctors to minimize pain complaints.

"When necessary and appropriate there are a variety of therapies available to address pain and improve their well-being," Green says.

Green co-authored the study with U-M colleagues Tamera Hart-Johnson, M.S., and Deena R. Loeffler, M.A.

Study details: Adults, ages 18-90, who experienced breast, prostate, colorectal, or lung cancer, or multiple myeloma at least two years prior were part of the study data. Participants were recruited from the Michigan State Cancer Cancer Registry. Participants were defined as survivors from the moment of diagnosis, in accordance with the NCI and the Lance Armstrong Foundation.

Cancer

Govt to launch drive for early cancer detection, free chemo (The Times of India: 18.1.2011)

Health Min To Equip District Hospitals; Upgrade Cancer Centres

India is going all out against cancer — the non-communicable disease (NCD) that affects 10 lakh new Indians every year and kills four lakh.

The Union health ministry is launching a national programme, which will not only help diagnose cancer cases early among the general population but also provide chemotherapy free of cost. At present, the two biggest problems with cancer control are that the majority of the cases are diagnosed in the last stage while those who are diagnosed can't afford the high costs of treatment in form of chemotherapy and radiotherapy.

The ministry will first roll out the programme across 100 districts in 21 states. District hospitals will be strengthened to diagnose and treat patients with chemotherapy. Radiotherapy, however, will be done only in the 27 existing regional cancer centres, all of which are being upgraded. Besides, 38 additional cancer centres are being created.

Speaking to TOI, Union health minister Ghulam Nabi Azad said the ministry has decided to give Rs 1 crore to each district hospital just to provide free chemotherapy to 100 patients per district.

This means that the ministry will give Rs 100 crores (estimated cost of chemotherapy per patient per year being Rs 1 lakh) to the 100 shortlisted district hospitals only to provide free chemotherapy.

“We have been warned by WHO that India is the next hub for cancer. That's why we have decided to arm even the public health centres (PHCs) with capability and skill to both diagnose and treat cancer. We have set aside Rs 750 crores just for the cancer programme.

The 38 new cancer centres will be linked to district hospitals. Auxiliary Nurse Midwives (ANM) are being trained to identify warning signs of cancer while doctors in PHCs and CHCs are being trained to diagnose cancer cases early,” Azad said.

Deputy director general of NCD programme in the ministry Dr Damodar Bachani said, “Our budget per district for cancer control is around Rs 6 crore. This will include creating manpower, buying equipment and setting up the required infrastructure. We will be releasing the money to 30 districts first by March 2011.

“Through the programme, we will carry out opportunistic screening checking for symptoms in the general population aged 30 years and above.”

NCD clinics are being set up in district hospitals which will screen women in the age group 30-69 years for early detection of cervical and breast cancer. District hospitals would also be assisted to purchase equipment like colposcope and mammography. The district hospitals will also provide day-care chemotherapy facility for patients. Each facility will have four beds, one medical oncologist and two nurses.

Around 7,000 CHCs are being selected which will each have an NCD clinic.

At least 26 people in each district hospital, including five doctors, nurses and support staff, will be trained to identify warning signals of cancer and teach women how to self-examine for breast cancer.

Radiation Therapy

Radiation Therapy Effective Against AIDS-related Head and Neck Cancer (Med India: 21.1.2011)

In a recent study it has been highlighted that HIV-positive head and neck cancer patients respond well to radiation therapy treatments and experience similar toxicity rates as non-HIV-positive patients.

Patients with HIV have a significantly higher risk of developing some types of cancers; however, since the use of highly active antiretroviral therapy (HAART) began in the mid-1990s, the instances of AIDS-related cancer have greatly decreased. This has alternately caused a higher incidence of these patients developing non-AIDS-related cancers, including those originating from the head and neck.

Radiation therapy constitutes a current standard treatment for head and neck cancer, but there has been very little investigation into how radiation therapy affects HIV-positive

patients. Traditionally, aggressive treatment such as radiation therapy has been used sparingly in this population due to concerns regarding acute and late complications. This newly presented research sought to determine the feasibility of radiation therapy and the likelihood of cure for HIV-positive patients with head and neck cancer.

The three-year estimates of overall survival and local-regional control were 78 percent and 92 percent, respectively. Grade 3+ toxicity was reported by 58 percent of patients, but this did not appear worse than the standard rate seen in HIV-negative patients.

The researchers did note that 75 percent of patients studied were receiving HAART therapy at the time of treatment. Also, all patients underwent dental prophylaxis and gastrostomy tube placement before beginning therapy, which may have played a role in the toxicity levels remaining comparable to HIV-negative patients. Dental prophylaxis, gastrostomy tubes, and monitoring of CD4 counts are recommended in these patients to minimize treatment complications.

Cancer

Platinum and Blue Light Combine to Combat Cancer (Science Daily: 27-12-2010)

Research led by the University of Warwick, along with researchers from Ninewells Hospital Dundee, and the University of Edinburgh, have found a new light-activated platinum-based compound that is up to 80 times more powerful than other platinum-based anti-cancer drugs and which can use "light activation" to kill cancer cells in a much more targeted way than similar treatments.

The University of Warwick team had already found a platinum-based compound that they could activate with ultra-violet light but that narrow wave length of light would have limited its use. Their latest breakthrough has discovered a new platinum based compound known as trans,trans,trans-[Pt(N3)2(OH)2(py)2] that can be activated by normal visible blue, or even green, light. It is also stable and easy to work with, and it is water soluble so it can simply dissolve and be flushed out of the body after use.

The University of Warwick researchers passed the new compound to colleagues at Ninewells Hospital Dundee, who tested it on esophageal cancer cells cultivated within lab equipment. Those tests show that once activated by blue light the compound was highly effective requiring a concentration of just 8.4 micro moles per litre to kill 50% of the cancer cells. The researchers are also beginning to examine the compound's effectiveness against ovarian and liver cancer cells. Early results there are also excellent but that testing work is not yet complete.

Professor Peter Sadler, from the Department of Chemistry from University of Warwick, who led the research project, said: "This compound could have a significant impact on

the effectiveness of future cancer treatments. Light activation provides this compound's massive toxic power and also allows treatment to be targeted much more accurately against cancer cells."

"The special thing about our complex is that it is not only activated by ultra-violet light, but also by low doses of blue or green light. Light activation generates a powerful cytotoxic compound that has proven to be significantly more effective than treatments such as cisplatin."

We believe that photoactivated platinum complexes will make it possible to treat cancers that have previously not reacted to chemotherapy with platinum complexes," says Sadler. "Tumors that have developed resistance to conventional platinum drugs could respond to these complexes and with less side-effects."

Breast Cancer

Breast Cancer

KEM hospital plans to start breast cancer ward looks for private donors (World Newspaper: 27-12-2010)

With a rising number of breast cancer patients in the city, the Brihanmumbai Municipal Corporation (BMC) has decided to start a breast cancer ward at KEM hospital.

Dr Sanjay Oak, dean of the hospital, said, “We plan to start the ward as soon as possible. Considering the number of breast cancer cases in Mumbai, we thought it appropriate to have a ward dedicated to the disease.” The hospital is looking for private donors to fund the project.

To begin with, the BMC will introduce mammography tests in three hospitals: KEM, Nair and Sion. According to sources, these tests will begin from January 16. “We have procured a mammography machine. The ward will help take some load off the Tata Memorial Centre for cancer patients,” said a senior doctor from KEM hospital.

The doctor added: “With the mammography machine at KEM Hospital, women above 40 can be screened. The tests usually cost Rs1,200 to Rs1,400. But we will charge less than Rs600. It will be free for those who cannot afford it.”

The breast cancer programme will be headed by Dr Shilpa Rao (head of surgery department), Dr Nalini Shah (head of endocrine department), Dr Farah Jijina (chemotherapist), Dr Hemant Deshmukh (radiologist) and Dr Rajendra Badwe from the Tata Memorial Centre.

Based on the latest data available with the Indian Council for Medical Research, breast cancer is the commonest cancer among urban women in India. As per the National Cancer Registry, 1 lakh women are diagnosed with breast cancer in India every year.

In Mumbai, 27 out of 1 lakh women suffer from breast cancer. Sixty per cent of those diagnosed are at an advanced stage with less than 15% chance of survival. If patients are diagnosed in time, their survival chances are more than 90%. An estimated 50,000 lives can be saved across the country if breast cancer is detected earlier.

Breast oncology

Group for breast oncology formed in Pune(World Newspaper: 5.1.2011)

A group for breast and gynaec oncology was formed at Ruby Hall Clinic on Sunday.

The idea to form the group was an initiative of Ruby Hall Clinic's chief medical oncologist, Dr Minish Jain. The inaugural ceremony was graced by actress Mrinal Kulkarni. Over 200 specialists from all over the state were present.

Tata Memorial Hospital's Dr Sharmila Pimple, additional professor of preventive oncology, spoke on the guidelines for the management of breast and gynaecological cancers. She suggested some simple tips to examine a lump in the breast.

Another specialist from Tata Memorial Hospital, Mumbai, said this is perhaps the first-of-its-kind group in the country where gynaecologists and oncologists along with radiologists and support groups have come together to fight the disease.

About 60% women suffer from breast and cervical cancers globally.

The group will conduct three symposiums every year and a meeting every month where cases will be discussed and documented. Three hundred members from all over the state have registered to join the group.

Preoperative Breast MRI

Preoperative Breast MRI Suggests High Cancer Yield And Positive Predictive Value In Newly Diagnosed Patients, Study Finds (Medical News Paper: 5.1.2011)

The study was performed at the University of Washington and Seattle Cancer Care Alliance in Seattle, WA. The review initiated with 592 patients who were recently diagnosed with breast cancer and underwent staging with preoperative breast MRI. The analysis set was comprised of 570 patients, whose biopsy rates, positive predictive values (PPVs) of biopsy, and overall cancer yields were calculated and compared using the chi-square test across patient age, breast density, index tumor type, receptor status and lymph node status.

"Our data add to the growing body of literature that documents breast MRI's ability to detect otherwise occult additional disease in patients who have been newly diagnosed with breast cancer," said Robert Gutierrez, MD, lead author of the study.

"We found that use of preoperative breast MRI in newly diagnosed cancer patients resulted in an added cancer yield of 12%. This is much higher than the added cancer yield of .08 to 6.7% seen with high risk screening breast MRI, a more widely accepted indication for breast MRI," said Gutierrez.

"A major strength of our study is our sample size of 570 patients, which is larger than most prior investigations. Additionally, unlike the majority of preoperative breast MRI studies, our patient population is more representative of a broad diagnostic population, which is a result of the practice pattern at our site of routinely performing preoperative breast MRI in newly diagnosed breast cancer patients," he said.

Breast cancer

New way to screen breast cancer cells' ability to metastasize(New Kerala: 10.1.2011)

Using specific silicon microdevices might provide a new way to screen breast cancer cells' ability to metastasize, says a new research.

Cell cytoskeleton refers to the cell's shape and its mechanical properties, Virginia Tech researcher Masoud Agah explained.

"Any change in the cytoskeletal structure can affect the interaction of cells with their surrounding microenvironments. Biological events in normal cells such as embryonic development, tissue growth and repair, and immune responses, as well as cancer cell motility and invasiveness are dependent upon cytoskeletal reorganization," the electrical engineer added.

Understanding how the cell interacts with the contents of its surrounding environment inside the human body, including the introduction of a drug, is a fundamental biological question.

The answers have implications in cancer diagnosis and therapy, as well as tissue engineering, Agah said.

In previous experimentation by others in the field, researchers have exposed cells to mechanical, chemical and three-dimensional topographical stimuli.

They recorded the cells' various responses in terms of migration, growth, and ability to adhere. Also, in the past, researchers have created substrates of precise micro- and nano-topographical and chemical patterns to mimic in vivo microenvironments for biological and medical applications.

What distinguishes the work of Agah and his colleagues, is they developed a specific three-dimensional silicon microstructure for their work.

Due to its curved isotropic surfaces, they were able to characterize and compare the growth and adhesion behavior of normal fibroblast and metastatic human breast cancer cells, they reported in Biomaterials.

"In invasive breast carcinoma, tumor cells will fill a milk duct, and the basement membrane," they said.

This action allows the carcinoma cells and the fibroblast cells of the breast tissue to be in close proximity, constituting "a critical pathobiological transition that leads to the progression of the disease," Strobl said.

Using their uniquely designed three-dimensional silicon microstructure, they were able to incorporate three key cellular components found in any breast tumor microenvironment.

Additionally, they were able to determine the detailed interaction of the cells within this environment, including the normal breast cells, the metastatic breast cancer cells, and the fibroblast cells.

Their understanding of the behavior of the cells within the microstructures is what leads them to believe their research could "provide important diagnostic and prognostic markers unique to the tumor, which could ultimately be used to develop new tools for the detection and treatment of cancer."

Breast cancer

Breast cancer campaign 'diverting attention' (New Kerala: 10.1.2011)

The high-profile awareness campaign about breast cancer is diverting attention from other types of cancer, says a leading cancer specialist.

The breast cancer lobby's 'pink steamroller' has diverted public awareness and funding from ovarian cancer and is contributing to the disease's low survival rates, Orla McNally at the Royal Women's Hospital says.

McNally says that recent figures in the medical journal The Lancet have shown Victorian women with ovarian cancer were less likely to survive than those in other Australian states and countries.

"We have a massive breast cancer charity lobby in this country, which acts as a bit of a 'pink steamroller' to the other cancer sites, and that is something that impacts on our ability to increase awareness about ovarian cancer and to get more women the treatment that they need for this disease," the Age quoted McNally, as saying.

While acknowledging ovarian cancer was more difficult to detect than breast cancer and has no screening test, she said the "vast difference" in public profile and charitable support given to the two diseases played a part in survival rates.

Forty-three per cent of Victorian women with ovarian cancer are alive after five years compared with a national average of 49 per cent, and 54 per cent in Canada and Britain.

Survival rates for Australian women with breast cancer are among the best in the world, with 91 per cent alive after five years.

"You can't dress up ovarian cancer. Your tits are in your face so it [breast cancer] is a very out-there topic. The majority of women with the disease go on to survive and talk about it and lobby for it. The majority of women with ovarian cancer die within five years, and usually for the last two of those years they're too unwell to be out there lobbying for it," said McNally.

Breast Cancer

How Progesterone Increases Breast Cancer Risk (Science Daily: 19.1.2011)

Researchers have identified how the hormones progesterone and estrogen interact to increase cell growth in normal mammary cells and mammary cancers, a novel finding that may explain why postmenopausal women receiving hormone replacement therapy with estrogen plus progestin are at increased risk of breast cancer.

The discovery that both estrogen and progesterone must be present for the increased production of the protein amphiregulin, which binds to mammary cells and promotes cell growth, could lead to new treatment methods for the disease, said Sandra Haslam, director of Michigan State University's Breast Cancer and the Environment Research Center and lead researcher on the project.

The study, funded by the Department of Defense's Breast Cancer Research Program and published in *Hormones and Cancer*, looked at why progesterone combined with estrogen may contribute to increased breast cancer risk. In the study, researchers used both the native hormone, progesterone, and a synthetic compound, progestin -- obtaining the same results.

The finding might help explain earlier results from the groundbreaking Women's Health Initiative showing the risk of breast cancer is significantly greater for postmenopausal women who received hormone replacement therapy with combined estrogen plus progestin compared to women receiving estrogen alone.

"Also, breast cancers that develop in women receiving estrogen plus progestin are more invasive and deadlier," Haslam said. "What is the progestin doing to increase the risk of tumor growth?"

Along with co-investigator Anastasia Kariagina, a colleague in the College of Human Medicine and Department of Physiology, Haslam identified the protein amphiregulin and its receptor as one potential culprit.

"Amphiregulin -- acting through its receptor, epidermal growth factor receptor -- along with progesterone leads to the activation of intracellular pathways that regulate cell growth," Haslam said. "When activated, this promotes normal cell growth and the growth of tumors."

The study was performed in rats because breast cancers in rats contain receptors for estrogen and progesterone -- similar to the human breast -- and tumor growth is hormone-dependent, as are the majority of human breast cancers. The research team also confirmed the same phenomenon in human breast cancer cell cultures.

In addition, the research team found that Iressa, a cancer drug that blocks the epidermal growth factor receptor, effectively stopped the proliferation caused by amphiregulin. While those studies were done only in cell cultures and not on tumors growing in animals, the results are promising, Haslam said.

"The results indicate that the interactions between estrogen, progesterone and epidermal growth factor receptor pathways may be considered relevant targets for the treatment of hormone-dependent breast cancers," she said. "This may be especially important in premenopausal breast cancer because women produce their own estrogen and progesterone."

"A combined approach of inhibiting both the hormones and the epidermal growth factor receptor may be beneficial for some women in treating hormone-dependent breast cancer."

Breast cancer

Avoidable breast cancer risk factors identified (New Kerala:20.1.2011)

A new study by scientists at the German Cancer Research Center has identified avoidable breast cancer risk factors.

The research team, led by Karen Steindorf and Jenny Chang-Claude, has been searching for risk factors that can be influenced by changes in lifestyle and behavior.

They focused on aspects such as taking hormones for relief of menopausal symptoms (hormone replacement therapy), physical activity, overweight and alcohol consumption. All these lifestyle factors have been identified in prior studies as possible risk factors for the development of breast cancer.

Of the modifiable lifestyle factors, it is primarily hormone replacement therapy and a lack of physical activity that increase a woman's risk of developing breast cancer.

Alcohol consumption and overweight were found to have less influence on breast cancer risk.

The study compared 6,386 healthy women with 3,074 breast cancer patients who had been diagnosed after the onset of menopause.

On the basis of this data, the researchers then calculated the percentage of cancer cases attributed to a particular risk factor or a particular combination of risk factors.

They determined that about 37 percent of all postmenopausal breast cancers are caused by non-modifiable factors, such as family history, age, or the age of first and last menstrual period.

They also determined that modifying certain lifestyle habits could prevent nearly 30 percent of breast cancers.

"That means that two factors which each woman has in her own hands are responsible for a similar number of postmenopausal breast cancer cases as the non-modifiable factors," said Steindorf.

The researchers have recommended women to take more exercise and to refrain from hormone replacement therapy unless it is absolutely necessary.

Breast Cancer

Breast Cancer Patients With Diabetes Need Better Care (Medical News Today: 21.1.2011)

Breast cancer patients are nearly 50 percent more likely to die of any cause if they also have diabetes, according to a comprehensive review of research conducted by Johns Hopkins physicians.

The findings, published in the January issue of the Journal of Clinical Oncology, suggest future research could focus on whether high levels of insulin in patients with type 2 diabetes could play a role in promoting tumor growth.

The researchers who conducted the review also found that diabetics tend to be diagnosed with later-stage breast cancers and to receive altered, potentially less effective treatment regimens.

"When patients are faced with a diagnosis of breast cancer, which they see as an imminent threat to their lives, diabetes care often goes on the back burner," says study leader Kimberly S. Peairs, M.D., an assistant professor of medicine at the Johns Hopkins University School of Medicine. "This research suggests we may need to proactively treat the diabetes as well as the cancer," she adds, noting that diabetes is a systemic disease that has many different effects on the body.

Peairs and her team conducted a systematic review and meta-analysis of previously published research on breast cancer and diabetes, ultimately looking in depth at eight studies. In six of seven studies of breast cancer patients, preexisting diabetes was associated with significantly higher long-term, all-cause mortality.

Diabetes and cancer are major causes of illness and death worldwide. In 2007, in the United States alone, roughly 24 million people had diabetes (about 8 percent of the population) and 2.5 million were survivors of breast cancer. Diabetics are known to have a higher risk of breast cancer, Peairs says.

Peairs says her research suggests that diabetics diagnosed with breast cancer may get less effective treatment because practitioners may be concerned about these patients suffering more side effects from chemotherapy or radiation treatments as a result of the metabolic condition. Patients also may be more likely to be hospitalized, get infections, and/or become anemic complicating their care. Peairs says the higher death rate may also be linked to the fact that they come to breast cancer treatment less healthy than their counterparts without diabetes, which is associated with obesity, high cholesterol and high blood pressure.

Women with diabetes may also be at greater risk of chemotherapy-related toxicity, which may explain and even justify some of the less aggressive treatment, she says.

Peairs says more research should reveal whether increased insulin production in type 2 (adult onset) diabetics contributes to worse outcomes among diabetic breast cancer patients. Small studies suggest that some diabetes drugs may be associated with worse outcomes for cancer patients while other medications may actually improve survival.

She noted that the popular drug metformin, which makes diabetes patients more insulin-sensitive thereby lowering the amount of unused insulin in the body, may be associated with better survival outcomes.

The research was supported by grants from the National Institutes of Health, the National Institute of Diabetes and Digestive and Kidney Diseases, and the American.

Breast Cancer

Common Myths about Breast Cancer Medical News Today: 27.1.2011)

By debunking some common myths about breast cancer, two oncologists from the US hope to give women some simple key messages to help them understand and manage their risk of breast cancer.

Drs Mahmoud Charif and Neetu Radhakrishnan, both medical oncologists at the University of Cincinnati (UC) Health in Ohio, and assistant professors at the university's College of Medicine, published their list of myths and tips for reducing breast cancer risk in a press release on 20 January.

Myth No 1: It's All Down to Genes So No Point in Trying to Manage Risk

Charif says this is a myth because most women who develop breast cancer have neither a family history of the disease nor a genetic mutation linked to breast cancer (for instance mutations in the tumor suppressor genes BRCA1 and BRCA2 have been linked to hereditary breast cancer).

He says breast cancer risk is affected by a combination of lifestyle choices and environmental exposure and that:

"Statistics tell us that one in eight women will develop breast cancer during her lifetime - and that risk goes up significantly with age and genetic predisposition."

He said the good news is there are lots of things women can do to reduce their risk, including avoiding alcohol, eating a healthy diet high in fruits, vegetables, and whole grains, taking regular exercise and keeping to a healthy weight.

Myth No 2: Certain Foods Like Red Meat Increase Breast Cancer Risk

Charif says no scientific studies have linked red meat or any other specific foods to increased risk of breast cancer but they have shown a link between alcohol consumption, even in moderation, and breast cancer.

He tells his patients to avoid alcohol completely.

"Consuming one drink per day increases the average woman's breast risk by approximately 10 per cent," says Charif.

"Alcohol intake also has been linked to several other cancers, including oral, throat, esophagus and liver," he adds.

Radhakrishnan's advice is to eat a "healthful, balanced diet", and if you change your diet radically, even by starting to take supplements or multivitamins, talk to your doctor.

"When it comes to soy specifically, since no study has shown harm, it is probably safe for a healthy woman to consume soy in amounts common to Asian diets," he says.

Myth No 3: A Lump or Pain in the Breast Is a Sign of Breast Cancer

This is a myth because there can be several other reasons why a woman may have a pain or lump in her breast.

Breast tissue is changing all the time because of varying hormone levels, especially during menstruation or breastfeeding.

Lumps can be benign growths of tissue, but if you feel one you should have it checked by a medical professional immediately, say Charif and Radhakrishnan.

Myth No 4: Hormone Replacement Therapy (HRT) Does No Harm

Charif and Radhakrishnan say this is a myth because studies show that combination HRT (using estrogen and progesterone), which many women took for relief of menopause symptoms in the 1990s, does in fact increase the risk of breast cancer.

Prostate Cancer - Read What Dr.Latar I Did To Survive Prostate Cancer - www.nutrition2000info.com

Thyroid Carcinoma - Thyroid Cancer Facts Information, Resources, Hope - www.endocrineweb.com

CancerTreatment - Complete Control with Healthy Life No Side Effects, Permanent Results. - Cowurine.com/ConsultUs

Charif says women with menopausal symptoms should avoid combination HRT altogether if possible.

HRT that uses only one hormone, estrogen, is thought slightly to increase breast cancer risk if used for no more than five years.

He explains that breast cancer risk is linked with lifetime exposure to the female hormone estrogen, and that's why women who have had children or breastfed for an extended period are believed to be at slightly lower risk of breast cancer because these activities reduce ovulation and thereby lessen lifetime exposure to estrogen.

Radhakrishnan agrees and adds that:

"Early menstruation and late menopause are also associated with an increased risk for breast cancer for the same reason."

Myth No 5: Only Masses of Exercise Reduces Breast Cancer Risk

This is a myth because even moderate amounts of exercise, such as brisk walking three or four times a week, can make a difference to a woman's risk of developing breast cancer, as well as improving her cardiovascular health, say Charif and Radhakrishnan.

They say the important thing is to "keep moving".

Studies shows that regular exercise can help reduce women's risk of breast cancer by between 20 and 50 per cent, they stress.

Breast Implants

Breast Implants Linked To Anaplastic Large Cell Lymphoma (Cancer) Risk (Medical News Today:27.1.2011)

Women who have saline and silicone gas-filled breast implants have a higher risk of developing ALCL (anaplastic large cell lymphoma), an aggressive type of non-Hodgkin lymphoma that is generally of the T-cell type. The cancer may appear in the liver, lungs, soft tissues, bones, skin, and/or lymph nodes. In cases of breast implant recipients, the cancer risk is in the scar capsule next to the implant.

The Food and Drug Administration (FDA) is urging doctors to report all cases of ALCL in female patients with breast implants.

The FDA says it is liaising with implant manufacturers so that their product labels are updated with this information.

William Maisel, M.D., M.P.H., chief scientist and deputy director for science in FDA's Center for Devices and Radiological Health, said:

"We need more data and are asking that health care professionals tell us about any confirmed cases they identify. We are working with the American Society of Plastic Surgeons and other experts in the field to establish a breast implant patient registry, which should help us better understand the development of ALCL in women with breast implants."

The National Cancer Institute informs that approximately 1 in every 500,000 American females is diagnosed with ALCL annually. Approximately 3 in every 1,000 million females without breast implants develop ALCL in breast tissue.

So far, 60 cases of ALCL in women with breast implants have been reported globally. The FDA warns that this figure is tenuous at the moment and there is a risk there may

have been duplication. Between 5 million to 10 million women worldwide have received breast implants.

In a communiqué, the FDA writes:

"The FDA notification is based on a review of scientific literature published between January 1997 and May 2010 and information from other international regulators, scientists, and breast implant manufacturers. The literature review identified 34 unique cases of ALCL in women with both saline and silicone breast implants."

The FDA has mostly reviewed cases that concerned women who went to their doctors complaining of implant-related symptoms, including lumps, swellings, pain, or asymmetry which developed after the surgical area had healed. Symptoms were caused by peri-implant seroma (fluid accumulation), capsular contracture (breast area around the implant hardens), or masses around the implant. ALCL diagnoses resulted from examination of the fluid and capsule around the implant.

The FDA asks patients and doctors to watch their breast implants closely and: Doctors should report all confirmed ACLC cases in females with breast implants to Medwatch, or call 800-332-1088

If a patient has late onset, persistent peri-implant seroma, doctors should consider the possibility of ALCL. Fresh seroma fluid should be sent for testing to rule out ALCL. Patients should not alter their routine medical care and follow up. Even though those with breast implants have a higher risk, their chances of developing ALCL is still extremely small. Females should check their breast implants and tell their doctors if they notice any changes. Those considering having implants should discuss the benefits and risks with their physicians.

Breast Cancer

New Test Better Predicts Breast Cancer Outcomes (Science Daily:28.1.2011)

Researchers from McGill University's Rosalind and Morris Goodman Cancer Research Centre (GCRC), the Research Institute of the McGill University Health Centre (RI MUHC), the Dana-Farber Cancer Institute and Harvard Medical School have discovered a gene signature that can accurately predict which breast cancer patients are at risk of relapse, thereby sparing those who are not from the burdens associated with unnecessary treatment.

For years, clinicians have been faced with the problem that breast cancer cannot be treated with a one-size-fits-all approach. Some cancers respond to specific treatments while others do not. Close to 50 per cent of breast cancer patients belong to a group -- defined as "estrogen receptor positive/lymph node negative (ER+/LR-)"- that is at low risk of relapse. The majority of patients in this group may not require any treatment beyond the surgical removal of their tumour, while a small minority should receive additional treatment.

"The added information provided by our test would enable oncologists to identify those at very low risk of relapse, for whom the risk-benefit ratio might be in favour of withholding chemotherapy, and to identify patients in this low-risk group who would benefit from more aggressive treatments," explains Dr. Alain Nepveu, GCRC and RI MUHC researcher and co-author of the study. "Since many treatments are associated with short- and long-term complications including premature menopause, cardiotoxicity and the development of secondary cancers, risks must be balanced against the potential benefit for each patient to avoid unnecessary suffering, needless expense and added burdens on the health-care system."

While more research is required before the test would be ready for market and incorporated into existing diagnostic procedures, Nepveu suggests it has the potential to be commercialized within five years.

Aside from Nepveu, authors include Laurent Sansregret (GCRC and McGill's Dept. of Biochemistry; currently at Cancer Research UK London Research Institute); Charles Vadnais (GCRC and McGill's Dept. of Biochemistry); Julie Livingstone (GCRC and McGill Centre for Bioinformatics); Nicholas Kwiatkowski (Department of Cancer Biology, Dana-Farber Cancer Institute and Dept. of Biological Chemistry and Molecular Pharmacology, Harvard Medical School); Arif Awan (GCRC and McGill's Dept. of Biochemistry); Chantal Cadieux (GCRC and McGill's Dept. of Biochemistry); Lam Leduy (GCRC) and Michael T. Hallett (GCRC and McGill Centre for Bioinformatics).

Breast Cancer

Protein Related to Aging Holds Breast Cancer Clues (Science Daily: 28.1.2011)

The most common type of breast cancer in older women -- estrogen and progesterone receptor (ER/PR) positive breast cancer -- has been linked to a protein that fends off aging-related cellular damage.

A new study led by Vanderbilt-Ingram Cancer Center researcher David Gius, M.D., Ph.D., now shows how a deficiency in this aging-associated protein may set the stage for these tumors to develop.

The findings, published in *Molecular Cell*, provide information that could assist in the screening, prevention and treatment of these common age-related cancers.

While the young are certainly not spared cancer's wrath, cancer is primarily a disease of aging, with the majority of cases occurring in people over 50.

However, the biological processes that underlie this association are not clear.

"The connection between aging and cancer is one of the most established phenomena in cancer research," said Gius, associate professor of Cancer Biology, Pediatrics and Radiation Oncology. "The problem to address this clinically significant question is that this field lacks in vivo models to study this."

In the late-1990s, proteins called "sirtuins" were linked to extended lifespan observed in several species maintained on a calorically restricted diet. These nutrient-sensing sirtuin proteins seemed to defend against aging-related cellular damage.

Sirtuins are present in all living organisms, with humans having seven different sirtuin proteins.

"When (the sirtuins) were discovered, it seemed obvious to conclude that there might be a mechanistic connection between the genes that determine length of survival and cancer," Gius said.

Previously, while at the National Cancer Institute, Gius and colleagues created mice lacking some of these sirtuins. They reported last January in *Cancer Cell* that when they knocked out Sirt3 -- a sirtuin localized in the mitochondria, the cellular "power plants" -- the mice developed ER/PR positive breast tumors, the most common type of breast cancer in postmenopausal women.

These tumors also exhibited increased levels of damaging free radicals and "reactive oxygen species" (ROS) -- including superoxide, the primary metabolite of oxygen in the mitochondria -- which provided an important clue as to how Sirt3 deficiency might permit these tumors to develop.

"The mechanism, at least in part, for why these mice develop receptor positive breast cancer is altered mitochondrial ROS, including superoxide," Gius said.

But how deficiency in a longevity gene led to increased ROS was not clear.

Since superoxide is generally removed from the cell with the help of a detoxifying enzyme called manganese superoxide dismutase (MnSOD), Gius hypothesized that the Sirt3 deficiency may abnormally regulate MnSOD.

In the current study, the researchers show that Sirt3 knockout mice have decreased MnSOD activity despite having normal levels of the protein.

Gius and colleagues determined that the MnSOD in Sirt3 knockout mice was abnormally modified (with a chemical "acetyl" group) at a specific amino acid (lysine 122).

This aberrant modification of MnSOD reduced the enzyme's ability to detoxify superoxide and appeared to explain the increase in ROS in Sirt3 knockout mouse tumors.

"These results suggest that aberrant regulation of MnSOD plays a role in receptor positive breast cancer," said Gius.

Gius and colleagues also developed an antibody that can assess the acetylation status of MnSOD, which he says can potentially be used "to screen breast tissue samples to determine what women are at risk for (receptor positive) cancer or for recurrence because of this dysregulation of MnSOD."

Additionally, agents that target the acetylation of this amino acid on MnSOD may be useful as chemopreventive therapies in women at risk of these cancers and of recurrence, he noted.

The research was supported by grants from the National Cancer Institute and the Department of Defense.

Cervical Cancer

Cervical Cancer

Dr's 6-point advice to win cancer fight (The Times of India: 25.1.2011)

Dr Siddhartha Mukherjee, author of the bestselling 'The Emperor of Maladies: A Biography of Cancer', has a six-point formula to help India control and combat the cancer epidemic.

"Put in place a strong tobacco control programme, initiate sexual health education to prevent sexually transmitted cancers like cervical and oral, encourage vaccination, conduct mammography and screening of vulnerable women for breast cancer and those above the age of 50, start screening for and vaccination against Hepatitis B that causes liver cancer and create centralized systems modelled on comprehensive cancer centres in the US that allow researchers to share data and engage in high quality clinical work," says Mukherjee.

It's simple and achievable advice. But as he says, "The will of the highest authorities is crucial."

Currently an assistant professor of medicine at Columbia University, Mukherjee studied in St Columba's School before becoming a Rhodes scholar. With degrees from Stanford University, Oxford and Harvard Medical School, he feels sad when somebody refers to effective and affordable cancer prevention and care as synonymous with the first world.

'Cervical cancer can be prevented'

There are perfectly achievable goals in cancer treatment for all countries including India. Cervical cancer is initiated by a virus and is a preventable disease by vaccination and changes in sexual practice. Minimizing tobacco use will cut down lung cancer cases while routine mammography can diagnose and treat breast cancer early. None of these prevention mechanisms are complicated. The will of larger authorities is crucial," Mukherjee says.

But why is India suddenly reporting such a massive spurt in cancer cases — 10 lakh new patients every year and four lakh deaths?

"Ageing of course. Also, early and accurate diagnosis is helping attribute the exact cause of death which didn't happen before. Environmental carcinogens too are playing a major role. Increase in tobacco smoking is another major determinant," says Mukherjee.

Calling cancer the next big frontier of medicine, Mukherjee explains cancer is not one disease but many diseases that share a common biological principle — a cell that has lost control and is dividing abnormally. “Ultimately it’s a gene that lives inside us unlike a virus. The challenge is how to kill the cancer cells while sparing the normal cells before the former invades the organs and destroys their function.”

Admitting a kind of nihilism that has risen around cancer in India upsets him, Mukherjee adds, “The oncologists here are exceptional. Visiting AIIMS is a moving experience. The kind of work being done in a place that does not have much resources is unbelievable. The volume of patients is enormous despite which doctors show so much compassion. Surgeons operating in less than ideal circumstances and yet being able to deliver is very impressive. So there is no lack of committed medical staff. What is required are some alterations in policy.”

CANCER CHRONICLER: Siddhartha Mukherjee, who went to school in Delhi, is author of the bestselling ‘The Emperor Of Maladies’

Kidney Cancer

Kidney Cancer

Kidney Cancer: Same Gene Mutation in One Third Of Common Cases (Medical News Today: 21.1.2011)

One third of the most common forms of kidney cancer (clear cell renal cell carcinoma, ccRCC) involves a mutation of the same gene, called PBRM1, an international team of researchers wrote in a leading journal this week.

Researchers from the Wellcome Trust Sanger Institute in the UK, the National Cancer Centre of Singapore, and Van Andel Research Institute (VARI) of Grand Rapids, Michigan, US, found that PBRM1 was mutated in 88 of 257 ccRCC cases they analysed, making it the most common mutation to be found in renal cancer in 20 years.

You can read about their findings in an online paper published on 19 January in Nature.

The discovery offers new insights into the intricate biology of renal cancer, revealing that the mutation in PBRM1, together with other already known mutations, appears to inactivate a protein that plays a role in remodelling the structure of genetic material.

For instance, it stops a protein that allows other proteins to access DNA in order to repair damage, control cell growth and switch other genes on and off.

The team has recently identified three mutated genes linked with renal cancer and discovered they are all involved in altering part of the chromatin "scaffold" that holds DNA together in our cells. Changes to chromatin can alter gene behaviour.

In this latest study they also found that PBRM1 is part of a protein complex called SWI-SNF, which regulates the structure of chromatin.

In the study report they explain how they:

" ... sequenced the protein coding exome in a series of primary ccRCC and report the identification of the SWI/SNF chromatin remodelling complex gene PBRM1."

This and the previous discoveries underline the importance of genome regulation in renal cancer, the researchers told the press.

As well as the PBRM1 mutation, the team also found some of the ccRCC cases had mutations in the ARID1A gene, which another recently published study revealed to be implicated in clear cell ovarian cancer. They said more research was needed to understand how this gene behaves in renal cancer.

According to figures from the National Cancer Institute, renal cancer is one of the ten most common cancers in men and women in the US, where last year nearly 60,000 people found out they had the disease and more than 13,000 died of it.

The most common type of renal cancer is renal cell carcinoma or RCC, accounting for 90 per cent of cases, and within this type ccRCC is the most common subtype, accounting for 80 per cent of RCC cases.

If diagnosed early, survival rates for ccRCC can reach 95 per cent, but this drops off as tumors develop, complicated by the fact that sometimes symptoms don't show until a long time after tumors have started growing in the kidney.

Lung Cancer

Lung Cancer

Lung Cancer Screening Can Be Effective In High Risk Population (Medical News Today: 30.12.2010)

Lung cancer screening using computed tomography (CT) scans can be effective in high risk populations if it follows a strict clinical protocol supported by a multidisciplinary care team, said University of Cincinnati researchers this week.

The researchers, led by Dr Sandra Starnes, director of thoracic surgery at the University of Cincinnati (UC) College of Medicine and a surgeon with UC Health, came to this conclusion after conducting a clinical trial in a high-risk local population with rates of histoplasmosis three times higher than the national average.

Histoplasmosis is a fungal infection that enters the body through the lungs and increases the likelihood of lung nodules.

A paper on the study is about to appear online ahead of print in the Journal of Thoracic and Cardiovascular Surgery.

Lung cancer is the leading cause of cancer-related death in the US, where the National Cancer Institute estimates that in 2010, more than 220,000 people will have discovered they have the disease.

Research suggests that smoking tobacco, exposure to second hand tobacco smoke, and heavy alcohol consumption, increase people's risk of developing lung cancer, as does exposure to radon, air pollution, asbestos, chromium, nickel, tar and soot.

While there are currently no nationally recognized medical tools for lung cancer screening, recently reported national and localized trials have shown a measure of success with computed tomography (CT) scans in high risk populations of heavy, long-term smokers.

For example, last month's preliminary results of the National Cancer Institute's ongoing randomized National Lung Cancer Screening Trial of 53,000 current and former heavy smokers aged between 55 and 74, showed that screening heavy smokers with low-dose CT scans, as opposed to traditional X-rays, led to 20 per cent fewer deaths.

Starnes and colleagues decided to conduct a trial in a high risk population closer to home.

Cincinnati is a large city in the Ohio River Valley, where there is a high prevalence of histoplasmosis.

The challenge of screening for lung cancer in such a population is that on a CT scan, the histoplasmosis nodules can look like the irregular shapes produced by lung cancer, leading to a high rate of unnecessary biopsies.

However, Starnes said that:

"By using three-dimensional CT imaging, we are able to look more closely at the anatomical structure of these nodules and identify concerning lesions".

For their study, Starnes and colleagues recruited 132 heavy smoking volunteers aged 50 and over who had smoked at least 20 packs of cigarettes a year.

The volunteers filled in questionnaires about their medical history and smoking habits, and then every year for five years they each had a low-dose CT scan to screen for signs of lung cancer.

The results showed that despite having a 60 per cent histoplasmosis nodule rate, it was possible to avoid unnecessary biopsies and still not miss any lung cancer diagnoses, if the protocol was followed strictly.

Plus, said Starnes:

"No one was diagnosed at a stage where the lung tumor could not be surgically removed."

She warned that if screening does become standard practice, to be effective it must follow a defined, rigorous protocol, and be supported by a multidisciplinary team.

Otherwise, people will end up having unnecessary tests and biopsies for benign disease, she added, stressing that the collective knowledge of an experienced, multidisciplinary team is critical.

The team at the University of Cincinnati includes among other disciplines, pulmonologists, pathologists, gastroenterologists, respiratory therapists, radiologists, medical oncologists, radiation oncologists, oncology nurses and fellowship-trained surgeons.

Lung Cancer

Skin rash linked to better outcomes for patients with lung cancer (New Kerala: 21-12-2010)

London, Dec 20 : A study has indicated that development of a skin rash after treatment with cetuximab is associated with better outcomes for patients with non-small-cell lung cancer (NSCLC).

Patients who developed an acne-like rash within the first three weeks of treatment with chemotherapy plus cetuximab lived significantly longer, experienced better progression free survival (PFS), and had a higher response rate.

These findings have suggested that an early skin rash could be a means of identifying patients most likely to respond to cetuximab treatment and who would gain the greatest survival benefit.

In this study, Ulrich Gatzemeier from Hospital Grosshansdorf in Germany and colleagues did a subgroup analysis of patients from the First-Line Erbitux in Lung Cancer (FLEX) study to assess whether the development of an acne-like rash in the first 3 weeks of treatment (first-cycle rash) correlated with clinical outcome.

The findings have shown that the presence of a rash was associated with better overall survival and a higher response rate.

The significant overall survival benefit was noted in all NSCLC histological subgroups assessed including adenocarcinoma and squamous-cell carcinoma.

"The results of our study suggest the existence of a mechanism linking the anticancer activity of cetuximab in patients with advanced NSCLC and the early incidence of acne-like rash...an alternative explanation is that cetuximab induces rash in an unrecognised subpopulation of patients with good prognosis,"

Lung Cancer

TB patients 'more prone to lung cancer'(KeralaNews: 3.1.2011)

A new study has provided compelling evidence of increased lung cancer risk among people with tuberculosis

Scientists at China Medical University and Hospital in Taiwan randomly selected 1 million patients covered under the country's National Health Insurance program.

All patients aged 20 years and older with a new diagnosis of tuberculosis between 1998 and 2000 were identified as the exposed cohort and all people without tuberculosis history were the non-exposed cohort.

Patients with any cancer diagnosis were excluded to ensure that all participants were cancer-free at the start of both cohorts.

Overall, 716,872 adults were eligible for the analysis - 4,480 in the tuberculosis cohort and 712,392 in the non-tuberculosis cohort.

Both groups were followed from 2001 through 2007. Results showed that patients with tuberculosis were 10.9 times more likely than non-tuberculosis patients to develop lung cancer.

Mortality was also much higher in the patients with tuberculosis than in the non-tuberculosis patients.

Prostate Cancer

Prostate Cancer

Age Plays Too Big a Role in Prostate Cancer Treatment Decisions (Science daily: 22-12-2010)

The scientists found that men above age 75 with high-risk prostate cancer often are under-treated through hormone therapy or watchful waiting alone in lieu of more aggressive treatments such as surgery and radiation therapies. Instead, say the researchers, old age should not be viewed as a barrier to treatments that could lead to potential cures.

"There is a disconnect between risk and treatment decisions among older men," said senior investigator Matthew R. Cooperberg, MD, MPH. "Patient age is strongly influencing treatment decisions, so we sought to understand whether age plays a role in risk of the disease and survival. We found that under-treatment of older-men with high-risk disease might in part explain higher rates of cancer mortality in this group. There is also pervasive over-treatment of low-risk disease in this age group. Overall, treatment needs to be selected more based on disease risk and less based on chronologic age."

The study is published by the Journal of Clinical Oncology.

Prostate cancer is the most common form of cancer in men and the second most common cause of cancer death after lung cancer. This year, an estimated 217,730 men will be diagnosed with the disease, and 32,050 men will die from it, reports the American Cancer Society. Moreover, prostate cancer is the most common malignancy among older men: 64 percent of new cases in the United States this year were diagnosed in men older than 65, and 23 percent in men above 75.

Yet most studies delving into optimal treatment options focus on men younger than 75. The new UCSF study is among the first to explore the relationship between age, disease risk and survival among prostate cancer patients.

The researchers studied men in the Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) database, a longitudinal, observational disease registry of men with prostate cancer who were recruited from urology practices throughout the United States. At the time of the study, the database contained information on 13,805 patients.

The scientists found that older patients are more likely to have high-risk prostate cancer at the point of diagnosis, and less likely to receive potentially curative local therapy. Yet when older, high-risk men received more aggressive treatment, they had a 46 percent

lower death rate compared with patients treated more conservatively with hormonal therapy or watchful waiting.

The finding, the researchers say, suggests that underuse of aggressive therapy may in part explain the higher death rates of older men with the disease.

"Age does not independently predict prostate cancer survival," said Peter R. Carroll, MD, MPH, chair of the UCSF Department of Urology and co-leader of the prostate program at the UCSF Helen Diller Family Comprehensive Cancer Center. He is a co-author of the paper. "Our findings support making treatment decisions on the basis of disease risk and life expectancy rather than on chronologic age."

The researchers note that the U.S. Preventive Services Task Force specifically recommends against screening men age 75 or older, but that position is based on studies on younger men, and furthermore does not account for health status or other diseases that the patients may have which would affect life expectancy.

"Older men with high-risk disease frequently die of prostate cancer and under-treatment might be a factor in their deaths," said Cooperberg, a prostate cancer specialist in the UCSF Department of Urology and the Helen Diller cancer center. "The notion of age as a primary determinant should be reconsidered. Patients with aggressive local disease should be offered a chance of aggressive therapy that might cure them regardless of their age."

Traditionally, Cooperberg said, physicians have feared the risks of surgery on their older patients. But for older patients with localized, high-risk disease -- and a life expectancy of more than 10 years -- the researchers recommend that surgical treatment and radiation be considered.

"Surgery and radiation risks do go up with age, but it may be that we are focusing too much on risk than on benefit," said Cooperberg. "We need a better balance between risk and benefit."

Depression

Depression

Link Between Depression and Inflammatory Response Found in Mice: New Treatments for Mood Disorders? (Science Daily: 21-12-2010)

Vanderbilt University researchers may have found a clue to the blues that can come with the flu -- depression may be triggered by the same mechanisms that enable the immune system to respond to infection.

In a study in the December issue of Neuropsychopharmacology, Chong-Bin Zhu, M.D., Ph.D., Randy Blakely, Ph.D., William Hewlett, M.D., Ph.D., and colleagues activated the immune system in mice to produce "despair-like" behavior that has similarities to depression in humans.

"Many people exhibit signs of lethargy and depressed mood during flu-like illnesses," said Blakely, director of the Vanderbilt Center for Molecular Neuroscience. "Generally these have been treated as just a consequence of being physically ill, but we think there is likely to be something more brain-centric at work here."

Blakely and his colleagues previously reported that inflammatory cytokines can enhance the activity of the serotonin transporter (SERT), which regulates the supply of the neurotransmitter serotonin in the synapse, or gap between nerve cells.

Elevations in SERT activity remove serotonin from brain synapses at an enhanced rate and, based on studies in animal models and man, would be predicted to increase the risk for mood and anxiety disorders. Indeed, a class of antidepressant drugs called selective serotonin reuptake inhibitors (SSRIs) -- Prozac, Zoloft, etc. -- work by blocking the ability of SERT to eliminate serotonin.

In the current study in mice, the researchers triggered pro-inflammatory cytokine production. Within 30 to 60 minutes, SERT was activated in the brain and the animals displayed despair-like behavior.

Remarkably, this behavior was not observed when cytokine production was triggered in mice lacking the SERT gene. Similarly, a drug that blocks inflammatory molecule signaling also prevented stimulation of SERT and the despair behavior. "It's as if these inflammatory molecules are an 'anti-Prozac,'" Blakely said.

In their paper, the researchers cautioned that "we do not presume that changes in SERT activity alone are sufficient to induce the full spectrum of depression traits, nor that our animal model can reproduce all the elements of a complex neuropsychiatric disorder."

"Nonetheless, we were able to identify a mechanism that may be engaged, even without inflammation, to impact risk for depressive illness," Blakely said.

More study is needed. Identifying genetic variations in the SERT activation pathway, for example, might suggest additional sources of genetic risk for depression. "Our work suggests that novel therapies targeting inflammation-linked pathways may be of use in the treatment of mood disorders," he said.

Zhu is research associate professor of Pharmacology, Blakely is the Alan D. Bass Professor of Pharmacology and professor of Psychiatry, and Hewlett is associate professor of Psychiatry and Pharmacology.

Other contributors were Vanderbilt research assistant Kathryn Lindler, and Lynnette Daws, Ph.D., and Anthony Owens, both at the University of Texas Health Science Center at San Antonio.

The study was supported by the National Alliance for Research on Schizophrenia and Depression (NARSAD), and by a Conte Center grant from the National Institute of Mental Health.

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Depression

Depression epidemic cutting potential years of life among Oz blokes: Study (The Tribune: 22-12-2010)

Melbourne: It's depression that cuts more years off the lives of Aussie men than liver disease and colon cancer, reveals a new study conducted by The Australian Institute of Health and Welfare. Barbara Hocking of the SANE Australia said depression was a silent epidemic among many men who still believed discussing the difficult topic was a sign of weakness.

"There's a general understanding that women experience it (depression); there's much less awareness that men do," News.com.au quoted her as saying. "Part of that . . . is that men are much less likely to seek help for depression; there needs to be a lot more work in changing blokey attitudes. "The important thing to understand with this silent epidemic is that getting treatment does help and the risk people run by not seeking help is enormous," added Hocking.

Depression

Binge drinking ups future depression risk in teens(World Newspaper: 3.1.2010)

Researchers have warned that binge-drinking teenagers are more likely to have mood disorders such as anxiety and depression in adulthood.

Researchers at the Loyola University health system have found that exposing adolescent rats to binge amounts of alcohol permanently altered the system that produces hormones in response to stress.

This disruption in stress hormones "might lead to behavioral and/or mood disorders in adulthood," researchers reported.

Senior author Toni Pak said while results from animal studies don't directly translate to people, the findings do suggest a mechanism by which teenage binge drinking could cause mental health problems in adulthood.

"Exposing young people to alcohol could permanently disrupt normal connections in the brain that need to be made to ensure healthy adult brain function," said Pak.

The Loyola study examined the long-term effects of alcohol on the production of the stress hormone corticosterone in rats.

In the study, researchers exposed adolescent rats to an 8-day binge drinking pattern: three days of alcohol bingeing, two days off, then three more days of bingeing.

On binge days, rats were injected with enough alcohol to raise their blood alcohol concentration to between 0.15% and 0.2%. A control group of rats received injections of saline.

One month later, when the rats were young adults, they were exposed to one of three regimens: saline injections, a one-time alcohol injection or a binge-pattern of alcohol exposure.

These findings have suggested that alcohol exposure during puberty permanently alters the system by which the brain triggers the body to produce stress hormones.

The findings were revealed at the annual meeting of the Society for Neuroscience in San Diego.

Depression

When winter makes you feel depressed, your diet can help (The Tribune: 5.1.2011)

Of the most common emotional disorders, depression can strike anytime, any person whether young or old. Varying in intensity, it can manifest from slight sadness to extreme conditions of dejection and helplessness. There are identifiable reasons which can lead to depression, but in many cases it is also attributed to certain unexplained factors. Though every system of medicine manages depression in its own way, ayurveda strongly believes that our diet has a definite role in its treatment.

Researches indicate that food and mood have some interconnection, and the pattern of our diet affects our body both physiologically and psychologically. Nutrients in the form of vitamins, minerals, proteins, carbohydrates and a reasonable amount of fat support the growth, restoration and overall well-being of the body. Similarly, the junk food or a poor dietary support can just do the opposite.

It is a well-acknowledged fact that free radicals or damaging molecules are produced in our body as part of multiple physiological functions. These free radicals have a great role in the genesis of many diseases, but it is the brain which is particularly predisposed to the higher risk. Ayurvedic texts refer to these damaging molecules as “ama” and say that though it is difficult to stop the production of free radicals, a good and balanced diet and recommended lifestyle can definitely minimise their bad effects.

Dietary antioxidants or “rasayanas” can battle against these free radicals and many of the foods that are rich in beta-carotene and vitamins C and E variants can help to counter depression. Beta-carotene is found in carrot, spinach, mustard greens, pumpkin and cabbage. Whereas vitamin C is abundantly present in foods like broccoli, tomato, amla, lemon, orange, grapefruit and kiwi, its E counterpart is found in whole grains, vegetable oils and nuts like almond, walnut and apricot.

The mood-boosting chemical serotonin is known to increase with the intake of natural carbohydrates. Limiting sugary diet and opting for healthy carbohydrates like wholegrain cereals, vegetables, legumes and fruits additionally provide a good amount of fibre. Similarly, the dietary protein available in milk, low-fat cheese, curd, poultry products and fish helps energise the brain in depressive patients.

Researchers have found that winter depression has a link with less access to vitamin D, which is available in abundance in sunshine. Alcohol also interferes with the proper absorption of nutrients from food and adversely affects the mood and motivation of a patient of depression. Drinks and foods containing caffeine, if taken, can uplift the mood to an extent but cause sleep disturbances to many people in late hours. Obese persons are more prone to depression. Obesity in itself is the outcome of faulty diet, wrong lifestyle and unbalanced metabolism.

Ayurveda considers that herbs have identical properties to those of food items and many of the psychotropic herbs can be taken as supplements to counter depression. Ashwagandha, jatamansi, shankhpushpi, brahmi, rose petals, cardamom and asparagus are some of the simple and yet very effective herbs which can strengthen the brain and leave a soothing effect on the irritated nerves to give a feeling of well-being to a depressive patient.

Theories and researches apart, many patients of mild depression can try certain home remedies and feel better. Though these remedies are only a supplement to the proper medical treatment, their importance cannot be undermined. For example, taking 20-30 rose petals and boiling these in a glass of water can make a unique drink to handle the low mood problem. A brew prepared after boiling tulsi leaves and cardamom together is also a very effective home remedy for depression.

Extreme digestive symptoms like hunger pangs or complete loss of appetite are quite common in depression and these can be well managed by increasing the intake of fruits. Taking fruits like apples and bananas immediately recharge the nerves with energy. Even soothing natural aromas are known to cheer up the sagging spirits. Relaxation techniques like doing regular exercises and yoga and meditation as lifestyle modification measures are well known for being helpful in such situations.

Mums' depression

Mums' depression adversely affects quality of life in kids with epilepsy(New Kerala: 6.1.2011)

A new study has found that maternal depression adversely affects quality of life in children with epilepsy.

Canadian researchers examined the prevalence of maternal depression and its impact on children newly diagnosed with epilepsy.

They found that prevalence of depression in mothers ranged from 30pc-38pc within the first 24 months following a child's epilepsy diagnosis.

The mother's depressive symptoms negatively impacted the child's health-related quality of life, but the effects were moderated by the amount of family resources and mediated by how well the family functions and the extent of family demands.

Prior studies have shown that families of a child with epilepsy experience significantly more stress, anxiety, and restrictions in family life. Mothers, in particular, are at greatest risk for psychological distress or depression in response to their child's epilepsy, as they are often the primary caregivers for their children.

To determine the prevalence of maternal depression, researchers surveyed 339 mothers whose children were part of the Health-related Quality of Life of Children with Epilepsy Study (HERQULES).

The Center for Epidemiological Studies Depression Scale was used to assess the maternal risk of clinical depression; at baseline, 38pc of mothers were at risk, 30pc at 6 months, 32pc at 12 months, and 30pc at 24 months.

In further analysis of the same 339 mother-child pairs from the HERQULES cohort, the researchers assessed the mothers' depressive symptoms, the children's health-related quality of life and severity of epilepsy.

Results showed that children of mothers with elevated levels of depressive symptoms have poorer health-related quality of life than children of mothers with low levels of depression.

The study appeared online in *Epilepsia*, a journal published by Wiley-Blackwell on behalf of the International League Against Epilepsy.

Depression

Depression in Women Rampant; Feel Doctors Over-Prescribe Drugs (Medical News Today: 13.1.2011)

Sixty three percent of women with mental health issues feel that doctors too readily prescribe drugs to treat low level mental health problems. What are classified as "low level" mental health concerns, depression, stress and low self-esteem impact women's lives significantly and thus society in general. Problems are triggered by relationship breakdown, changing school, bereavement or debt effects 63% of all women, and in particular are impacting work attendance and personal relationships.

Platform 51, the operating name of YWCA England & Wales, played a large part in the 24-page research document. Penny Newman, Platform 51's chief executive states:

"Policy-makers need to act now to address this unseen crisis in women's mental health and provide a range of effective interventions. We must put an end to the dependency culture that has built up around prescription drugs, giving women more choice and control over the support they receive. Too often women's opinions about what matters to them are not heard."

Many women often turn to including promiscuity, drug taking and crime to relieve these low feelings of anxiety, self esteem and societal acceptance. Some of the women studied claimed to have slept with three or more persons in a week's time seeking love, attention and acceptance.

Mental health problems can be triggered by emotional or physical abuse, bullying, changing school, getting into debt, relationship breakdown, bereavement, redundancy, leaving home or getting pregnant. For many it is a combination of these which can cause the onset of mental health problems; the cumulative effect makes it harder to cope with each new challenge.

Other impacts of women's mental health on self and society were uncovered. Forty four percent of women with mental health problems took time off work, with 25% of these taking at least one week off per year outside of granted vacation time.

Almost a third of women reported losing friends and drinking regularly with the intent to get drunk. One in five build up excessive debt and 35% of women 18 to 24 attempted self-harm.

Millions of women with mental health problems are not getting the right kind of help. It is reported that nearly 30% how sufferers had never even sought professional help.

Newman continues:

"Millions of girls and women are not getting the support they need. Women are often the linchpins of their families and their communities, and if three in five of them aren't functioning at their best they lose out, their family and friends lose out and so does wider society. Working with girls and women every day for over 150 years we have seen time and time again how often mental health can hold women back."

Depression

5 cr suffer from depressive disorders' (The Tribune: 17.1.2011)

An estimated 25 to 40 per cent patients visiting the medical out-patient departments, especially those of medicine and gynaecology, have underlying or lone psychiatric disorders even as the majority remains ignorant about their state .

In Delhi alone, five crore people are believed to be suffering from depressive disorders, with 20 to 40 per cent harbouring suicidal thoughts and 10 per cent even making the attempt, point out experts on the first day of the 63rd Annual National Congress of the Indian Psychiatric Society (ANCIPS), which was kicked off here today by minister of women and child development Krishna Tirath.

Further, 12-15 per cent of women would have at least one episode of depression once during the lifetime while eight to ten per cent of men may have it, which may last from a few weeks to years, reveal studies from across the country, including Delhi, Mumbai, Punjab and Chandigarh.

"The prevalence of depression-associated diseases is five per cent of the country's population at any given point of time and the reason also accounts for 10 per cent of the population's disability-adjusted life years,"said president of ANCIPS Dr Neelam Bohra told The Tribune.

According to the World Health Organisation's Global Burden of Diseases report, unipolar depressive disorders would surpass cardiovascular ailments by 2020 and acquire the top position among all the ailments. However, most people do not know that they are depressed and fail to go to a psychiatrist and continue to suffer for years until the disease becomes chronic, said Dr Sunil Mittal, the organising secretary of ANCIPS.

The stigma attached to the condition is another crucial aspect, with a majority of those undergoing depression delaying the visit to the doctor.

"Anybody suffering from psychiatric disorders would always prefer to go to the family doctor or the general practitioner rather than a psychiatrist. However, if reported timely, the recovery to normal health is within three-six weeks," stressed Dr Mittal.

Contrary to the myth, depression is a whole body disease-manifesting through a range of somatic, cognitive and psychological symptoms. While the physical symptoms, explain experts, include mild to severe headache, insomnia, increase in hunger etc, the psychological symptoms are sadness, anxiety, irritability gloominess, agitation, social withdrawal etc. This may be accompanied by cognitive changes like lack of concentration, slow reaction, memory decline, suicidal thoughts, added Dr Mittal.

Anybody who appears to be low for more than two weeks or with recurrent phases of depression should see a psychiatrist, said chairperson, psychiatry dept, Sir Ganga Ram Hospital, Dr J M Wadhawan.

Depression

Depression Risk Higher With Trans Fats, Lower With Olive Oil Consumption (Medical News Today: 28.1.2011)

Consumption of trans fats, present in fast foods and mass-produced foods like pastries, may raise risk of depression, whereas a diet rich in mono- and polyunsaturated fats and olive oil appears to have a slight protective effect, said Spanish researchers this week.

You can read about their study, where they followed over 12,000 volunteers for an average of six years, online in the 26 January issue of PLoS One.

First author Dr Almudena Sánchez-Villegas, Associate Professor of Preventive Medicine at the University of Las Palmas de Gran Canaria, and colleagues, said the findings held even after accounting for overall diet and lifestyle.

The study participants are members of the SUN (Seguimiento Universidad de Navarra) Project, a multi-purpose Spanish cohort comprising graduates of the University of Navarra and other institutions, plus registered professionals from other parts of Spain.

The project is ongoing and started recruiting in 1999. All the data is collected by questionnaires sent out every two years. The average age of the participants at the start of the study was 37.5 years.

For this study, Sánchez-Villegas and colleagues were interested in data collected at enrolment via a 136-item validated food frequency questionnaire from which they could estimate the consumption of fatty acids (saturated fatty acids, poly-unsaturated fatty acids, mono-unsaturated fatty acids, and trans-unsaturated fatty acids), plus culinary fats such as olive oil, seed oils, butter and margarine.

From the questionnaires on medical information, the researchers counted cases of depression reported at enrolment and over the follow up. For a case to be counted as depression, the respondent had to have reported being newly clinically diagnosed by a doctor or prescribed antidepressant drugs.

Although none of the volunteers reported suffering from depression at the start of the project, by the end, 657 new cases were reported.

The researchers found when they compared participants who did and those who did not have a high consumption of trans fats in their diet, the ones who did had a 48% higher risk of developing depression.

They also found a dose-response relationship, that is the more trans fats consumed, the higher the risk.

On the effect of polyunsaturated fats (a rich source is fish and vegetable oils) and olive oil, Dr Miguel Angel Martínez-González, Professor of Preventive Medicine at the University of Navarra, who directs the SUN Project, said:

"In fact, we discovered that this type of healthier fats, together with olive oil, are associated with a lower risk of suffering depression."

The researchers concluded that they found a "detrimental relationship" between trans fat intake and depression, and "weak inverse associations" for mono- and polyunsaturated fats and olive oil.

Diabetic Diet & Meals - Free Diabetic Recipes > Breakfast, Lunch - Snack - Dinner - Dessert. - www.diabetesinfocenter.org

Magnetic Seizure Therapy - MST, magnetic alternative to ECT MagPro MST device for depression - www.magventure.com

Treatment for Depression - Effective therapy. No side-effects Best of Homeopathy at Dr. Batra's - www.drBatra.com/Insomnia+depression

As numerous studies have already shown that trans fats and saturated fats are tied to risk of cardiovascular diseases, they added that:

"These findings suggest that cardiovascular disease and depression may share some common nutritional determinants related to subtypes of fat intake."

The findings also appear to strengthen the argument that the higher rates of depression in northern Europe as opposed to the southern countries where a Mediterranean diet prevails, are food-related.

Except that more recently, experts have noted that rates of depression are rising, to the point that estimates suggest about 150 million suffer from the disease worldwide.

Sánchez Villegas told the press we have to consider the possibility that this could be due to:

"... radical changes in the sources of fats consumed in Western diets, where we have substituted certain types of beneficial fats -- polyunsaturated and monounsaturated in nuts, vegetable oils and fish -- for the saturated and trans-fats found in meats, butter and other products such as mass-produced pastries and fast food."

Martínez-González pointed out that despite the fact the population they studied had a low average intake of trans fats (where it comprised only 0.4% of the total energy ingested by the participants) "we observed an increase in the risk of suffering depression of nearly 50%."

The effect of these findings for other countries with a higher intake of trans fats, such as the US where the percentage of energy derived from trans fats is about 2.5%, is likely to be even more important, he added.

Disease

Alzheimer's

Alzheimer's: Tau Disrupts Neural Communication Prior to Neurodegeneration (Science daily: 24-12-2010)

A new study is unraveling the earliest events associated with neurodegenerative diseases characterized by abnormal accumulation of tau protein. The research, published in the December 22 issue of the journal *Neuron*, reveals how tau disrupts neuronal communication at synapses and may help to guide development of therapeutic strategies that precede irreversible neuronal degeneration.

Tau normally contributes to the supportive framework of proteins in the cell. It is well established that abnormal tau sometimes clumps into neuron-damaging filamentous deposits and that aggregates of tau with multiple phosphate groups attached are a defining feature of neurodegenerative disorders called "tauopathies," which include Alzheimer's disease and other dementias.

"Research has shown that healthy neurons have more tau in the axon and less in the cell body and dendrites, and that this gradient is reversed in neurodegenerative disorders like Alzheimer's," explains study author, Dr. Karen H. Ashe from the University of Minnesota. "Although studies have shown that accumulation of tau in dendrites induced neurodegeneration, they do not address how tau diminished brain function at preclinical disease stages preceding neurodegeneration."

Dr. Ashe, co-author Dr. Dezhi Liao, and their colleagues investigated how tau induces early memory deficits and disrupts neuronal communication, prior to obvious neuron damage. The researchers found that early accumulation of hyperphosphorylated tau in dendrites and dendritic spines disrupted communication coming in from other neurons. Dendritic spines are sites where there is a synapse between two neurons. The phosphorylation state of tau played a critical role in mediating tau mislocalization and subsequent impairment of synaptic communication.

"These findings capture what is likely the earliest synaptic dysfunction that precedes synapse loss in tauopathies and provide an important mechanistic link between tau phosphorylation and the mislocalization of tau to dendritic spines," concludes Dr. Liao. "Understanding the key interactions that occur prior to neuronal loss will become increasingly important as preventative strategies shift the timing of interventions to pre-

degenerative phases of disease," adds Dr. Ashe. "The aberrant mislocalization of tau proteins in dendritic spines might be a novel target in these strategies

Alzheimer's

Walking Slows Progression of Alzheimer's, Study Suggests(Science daily: 3.1.2010)

Walking may slow cognitive decline in adults with mild cognitive impairment (MCI) and Alzheimer's disease, as well as in healthy adults, according to a study presented November 29 at the annual meeting of the Radiological Society of North America (RSNA).

"We found that walking five miles per week protects the brain structure over 10 years in people with Alzheimer's and MCI, especially in areas of the brain's key memory and learning centers," said Cyrus Raji, Ph.D., from the Department of Radiology at the University of Pittsburgh in Pennsylvania. "We also found that these people had a slower decline in memory loss over five years."

Alzheimer's disease is an irreversible, progressive brain disease that slowly destroys memory and cognitive skills. According to the National Institute on Aging, between 2.4 million and 5.1 million Americans have Alzheimer's disease. Based on current population trends, that number is expected to increase significantly over the next decade.

In cases of MCI, a person has cognitive or memory problems exceeding typical age-related memory loss, but not yet as severe as those found in Alzheimer's disease. About half of the people with MCI progress to Alzheimer's disease.

"Because a cure for Alzheimer's is not yet a reality, we hope to find ways of alleviating disease progression or symptoms in people who are already cognitively impaired," Dr. Raji said.

For the ongoing 20-year study, Dr. Raji and colleagues analyzed the relationship between physical activity and brain structure in 426 people, including 299 healthy adults (mean age 78), and 127 cognitively impaired adults (mean age 81), including 83 adults with MCI and 44 adults with Alzheimer's dementia.

Patients were recruited from the Cardiovascular Health Study. The researchers monitored how far each of the patients walked in a week. After 10 years, all patients underwent 3-D MRI exams to identify changes in brain volume.

"Volume is a vital sign for the brain," Dr. Raji said. "When it decreases, that means brain cells are dying. But when it remains higher, brain health is being maintained."

In addition, patients were given the mini-mental state exam (MMSE) to track cognitive decline over five years. Physical activity levels were correlated with MRI and MMSE results. The analysis adjusted for age, gender, body fat composition, head size, education and other factors.

The findings showed across the board that greater amounts of physical activity were associated with greater brain volume. Cognitively impaired people needed to walk at least 58 city blocks, or approximately five miles, per week to maintain brain volume and slow cognitive decline. The healthy adults needed to walk at least 72 city blocks, or six miles, per week to maintain brain volume and significantly reduce their risk for cognitive decline.

Over five years, MMSE scores decreased by an average of five points in cognitively impaired patients who did not engage in a sufficient level of physical activity, compared with a decrease of only one point in patients who met the physical activity requirement.

"Alzheimer's is a devastating illness, and unfortunately, walking is not a cure," Dr. Raji said. "But walking can improve your brain's resistance to the disease and reduce memory loss over time."

Alzheimer

Alzheimer's Plaques Lead to Loss of Nitric Oxide in Brain (Science Daily: 18.1.2011)

A researcher at the University of Pittsburgh School of Medicine, in collaboration with scientists from the National Institutes of Health (NIH), has discovered that the deadly plaques of Alzheimer's disease interact with certain cellular proteins to inhibit normal signals that maintain blood flow to the brain. Their findings, which could lead to new approaches to treat the dementia, were recently published in Public Library of Science One.

Levels of nitric oxide (NO) -- a signaling molecule that helps regulate blood flow, immune and neurological processes -- are known to be low in the brains of people who have Alzheimer's disease, but the reason for that hasn't been clear, said study co-author Jeffrey S. Isenberg, M.D., M.P.H., associate professor, Division of Pulmonary, Allergy, and Critical Care Medicine, Pitt School of Medicine.

"Our research sheds light on how that loss of NO might happen, and reveals biochemical pathways that drug discoverers might be able to exploit to find new medicines for

Alzheimer's," he said. "There is evidence that suggests enhancing NO levels can protect neurons from degenerating and dying."

The researchers, led by first author Thomas Miller, Ph.D., and senior author David D. Roberts, Ph.D., both of the Laboratory of Pathology in NIH's National Cancer Institute (NCI), found in mouse and human cell experiments that amyloid-beta, the main component of the plaques that accumulate on brain cells in Alzheimer's, binds to a cell surface receptor called CD36, which causes decreased activity of the enzyme soluble guanylate cyclase to reduce NO signaling. But that inhibitory effect required the presence of and interaction with CD47, another cell surface protein, indicating that additional steps in the pathway remain to be identified.

"It's possible that an agent that could block either CD36 or CD47 could slow the progress of neuronal degeneration in Alzheimer's by protecting the production of NO in the brain," Dr. Isenberg said. "Importantly, we have already identified therapeutic agents that can interrupt the inhibitory signal induced by these interactions to maximize NO production, signaling and sensitivity.

He and his colleagues currently are studying such blockers in a variety of disease models.

Co-authors of the paper include Hubert B. Shih and Yichen Wang, both of NCI. The research was funded by NCI and the Howard Hughes Medical Institute.

Anaemia

Anaemia

Anaemia — causes and treatment (The Times of india: 13.1.2011)

Consuming more salty, bitter or sour food, getting less sleep at night, sleeping more during the day, excessive thinking, sadness and anger lead to anaemia, says Dr K Sudha Asokan

Anaemia in ayurveda is known as Pandu roga. Causes of Pandu roga are related to dietary habits and daily regimen. Consuming more salty, bitter and sour food, getting less sleep at night, sleeping more during the day, suppression of natural urges, excessive thinking, sadness, anger and even excessive exercise lead to Pandu roga.

Signs and symptoms

Fatigue and lassitude Breathlessness on exertion Dizziness Dimness of vision Headache Pallor of skin and mucous membrane Anorexia and dyspepsia Tingling and pins and needle sensation in the fingers and toes Oedema Palpitation, tachycardia, cardiac dilatation, systolic murmurs

Causes

Deficiency of Iron Deficiency of B12 or Folate due to Disease of gastrointestinal tract Anaemia in pregnancy Deficiency of Thyroxine Thalassemia Rheumatoid arthritis Liver disease

Treatment

Samtarpaniya chikitsa or Snehan chikitsa A) Internal: medicated ghee i.e. Panchgavya ghritam, Draksha ghritam, Dadimadya ghritam, pathya ghritam — dose 10 gram (two times a day). All ghritam nourish the body with Pitta shamanam. B) External: Abhayanga helps to reduce the stiffness and fatigue of the body Shodhana mild virechana is the best treatment for elimination of pitta from the body. Medicines (Shamana chikitsa): oral medicines which normalize the vitiated pitta

Other treatment

It would be better to first consult your physician

Diet

Depends upon the appetite. The patient can take food frequently but in small quantities
Vegetables: fenugreek, lettuce, spinach, soyabean, sesame seeds, radish, tomato, onion, carrot, etc. Dry fruits: raisin and almond Fruits: Banana, black grapes, plum, strawberry, pomegranate, apple, sugarcane juice Take milk twice a day.

Arthritis

Knee pain

Now, reduce knee pain with 'visco supplementation' (World Newspaper: 21-12-2010)

The shoes that we wear have a substantial impact on the load on the knee joints, particularly when we walk, according to a recent study published online in the journal Arthritis Care and Research. It concluded that the regular flip-flops and sneakers with flexible soles are easier on the knees than clogs or even special walking shoes.

According to Dr HM Prasanna, chief orthopaedic surgeon and managing director, Pristine Hospital, "Over usage of high heels in an Indian scenario leads to osteoarthritis. Indian women tend to gain more weight around the waist area, thus putting pressure on the knees. This can lead to osteoarthritis over a period of time."

'Visco supplementation' is the latest therapy that osteoarthritis patients are opting for to treat knee pain. It provides pain relief for six months with a single injection and is now being given to people with knee osteoarthritis who fail to respond to traditional therapies, such as oral anti-inflammatory or analgesic medications or exercise.

According to Dr Chandramouli, specialist in orthopaedics, Apollo Hospitals, Bangalore, "Visco supplementation is a kind of jelly or lubricant, injected to mimic the joint fluid called synovial fluid. This injection decreases the intensity of pain and at the same time the mobility of the joint is increased. It is very useful in the initial stages of osteoarthritis."

The knee joint is affected the most in osteoarthritis and hence visco supplementations are used. The awareness of visco supplementation is minimal.

"Over the last five years, usage of visco supplementation has increased ten-fold. One injection works well for six to eight months, after which it has to be repeated," said Dr Prasanna.

And who is eligible for visco supplementation? Anyone with stage two or three of osteoarthritis can opt for this injection as the best option.

"For anyone with stage one osteoarthritis oral medication and physiotherapy is enough and for stage four patients, knee replacement surgery is required," said Dr Prasanna.

Joint pain (Arthritis)

Joint pain cases on the rise after viral outbreak (The Times of India: 27-12-2010)

After chikungunya, it is reactive arthritis — a secondary inflammation of the joints triggered by viral infection — that is giving people a tough time. City doctors say that a majority of those who contracted chikungunya earlier this year are now complaining of severe joint pain which is aggravated by cold.

One of the main symptoms of chikungunya is joint pain, but in most cases the pain subsides within a month's time. The recent complaints of severe joint pain, doctors say, might be due to secondary inflammation caused by viral infection. "We are getting patients of reactive arthritis — when people complain of excruciating pain in their joints," said Dr Yash Gulati, senior orthopedist, Apollo Hospital.

Doctors say that chikungunya or any other viral infection can often result in joint pain as the synovial membrane gets affected. This results in secondary inflammation of the joints. "If we get the fluid from the knee tested it might not show any viral infection. The virus doesn't directly affect the joint. It's our body's auto-immune reaction that attacks the synovial membrane," said Dr PK Dave, head of the department, orthopedics, Rockland Hospital.

In fact, doctors say the pain is much more than that experienced in arthritis. Though no concrete evidence is available to prove that it is arthritis, doctors say that such patients show classical symptoms of arthritis. "Until recently, we had never seen so many cases of chikungunya in Delhi and as a result we never saw many such patients. To term this as viral arthritis is debatable. But the pain is definitely much more," said Dr Harsh Vardhan Hedge, senior consultant, orthopedist, Fortis Healthcare.

Reactive arthritis patients test negative for rheumatoid arthritis or osteoarthritis.

Arthritis

Lifetime risk of adult rheumatoid arthritis determined (New Kerala: 7.1.2011)

Scientists have determined the lifetime risk of developing rheumatoid arthritis and six other autoimmune rheumatic diseases for both men and women.

We estimated the lifetime risk for rheumatic disease for both sexes, something that had not been done before - separately or collectively," said first author and biostatistician at Mayo Clinic, Cynthia Crowson.

"Prevalence and incidence rates existed, but prevalence figures underestimate individual risk and incidence rates express only a yearly estimate," she added.

The researchers were looking for an accurate basis to offer an easy-to-understand average risk over a person's lifetime, knowing that risk changes at almost every age.

They used data from the Rochester Epidemiology Project, a long-term epidemiology resource based on patients in Olmsted County, Minn.

The cohort of 1,179, consisting of patients diagnosed between 1955 and 2007, allowed the team to extrapolate the nationwide estimates.

The adult lifetime risk in the US of having some kind of inflammatory autoimmune disease is 8.4 percent for women and 5.1 percent for men.

Based on year 2000 population figures, that means one woman in 12 and one man in 20 will develop one of the conditions in their lifetime.

The authors considered that a substantial risk and said their findings should encourage more research on the value of early diagnosis and intervention for people with increased genetic risk of arthritis.

They hope the new figures would help in counselling patients and in fundraising efforts to find improved treatments.

Arthritis

‘Master switch’ that triggers arthritis identified (The Tribune: 19.1.2011)

Scientists at Imperial College, London, have discovered a protein that triggers rheumatoid arthritis. They have found a protein called IRF5 that acts as a switch, telling immune system cells, called macrophages, to promote or stop inflammation, reports The Daily Express. Rheumatoid arthritis is an incurable immune system disease where joints are swollen by inflammation. The body uses inflammation as a defence against infection and tissue damage, but too much is harmful. Blocking the production of IRF5 could help in a range of diseases, including RA, lupus and even MS. "This is really exciting," said senior researcher Irina Udalova. —

Asthma

Asthma

Nasal Congestion Can Mean Severe Asthma (Medical News Today: 22-12-2010)

Nasal congestion can be a sign of severe asthma, which means that healthcare professionals should be extra vigilant when it comes to nasal complaints. Furthermore, more severe asthma appears to be more common than previously thought, reveals a study from the Sahlgrenska Academy's Krefting Research Centre.

Published in the online scientific journal Respiratory Research, the population study included 30,000 randomly selected participants from the west of Sweden and asked questions about different aspects of health.

"This is the first time that the prevalence of severe asthma has been estimated in a population study, documenting that approximately 2% of the population in the West Sweden is showing signs of severe asthma," says Jan Lötvall, one of the authors of the study and professor at the Sahlgrenska Academy's Krefting Research Centre. "This argues that more severe forms of asthma are far more common than previously believed, and that healthcare professionals should pay extra attention to patients with such symptoms.

"We also found that more pronounced nasal symptoms, such as chronic rhinosinusitis, in other words nasal congestion and a runny nose for a long period of time, can be linked to more severe asthma."

Jan Lötvall suggests that patients who report nasal complaints, perhaps together with minor symptoms from the lower respiratory tract, such as wheezing, shortness of breath during physical effort, and night-time awakenings because of breathing problems should be investigated for asthma.

"These findings suggest that some parts of the immune system that are activated in connection with chronic nasal problems might be linked to severe asthma, and this insight could lead to new forms of treatment in the long run," says Lötvall. "Effective treatment for troublesome nasal and sinus complaints could, in theory, reduce the risk of severe asthma, though this is something that needs further research."

These results increase our understanding of the factors that play a role in severe asthma, and could help clinical researchers to understand which mechanisms lead to more severe asthma. At the same time, Lötvall believes that healthcare professionals should be aware

of the possibility of severe asthma in patients showing signs of nasal problems, such as congestion, polyps and a poor sense of smell.

Asthma

Nasal congestion 'can be a sign of severe asthma'(New Kerala: 21-12-2010)

A new study has suggested that nasal congestion can be a sign of severe asthma

This means that healthcare professionals should be extra vigilant when it comes to nasal complaints.

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Asthma

Detecting Asthma Radiologists Develop Asthma Imaging Method (Science Daily:4.1.2011)

Radiologists developed a new method for viewing the lungs of asthma sufferers. The method uses a polarized helium-3 gas--making it visible during an MRI. The patient inhales the helium-3 and undergoes an MRI, where doctors can see how far the atoms in the gas can travel in the lungs. This gives an image of what airways are blocked and what parts of the lungs ventilate. The black areas of the image indicate portions of the lung where air does not reach--areas where the helium-3 atoms could not travel.

Asthma makes breathing difficult for more than 22 million Americans. There's no cure, but new research is looking at asthma patients in a whole new way.

A little exercise is all it takes to remind Quinn Taylor of the asthma he has lived with since childhood. "I can feel a little bit of tightness in my chest just from kicking around the soccer ball," Taylor said.

Today, Taylor is volunteering to test a new imaging technique that helps radiologists see inside his lungs like never before.

"We get a better feel for what's going on within the lungs, something that is not really possible with other techniques at this point," said Eduard de Lange, M.D., a radiologist at the University of Virginia in Charlottesville, Va.

The new method combines MRI scans with a harmless gas called helium-3. It's not the helium found in balloons, but a special gas that is visible inside the lungs when inhaled during an MRI scan.

"We can see what parts of the lungs are blocked, [which] airways are blocked and which parts of the lungs ventilate," Dr. de Lange said.

The images show in the healthy lung how helium-3 atoms move and completely fill the lungs. In asthma patients, areas of the lungs are blocked so the atoms may not fill the lung at all.

Doctors hope the technique will help develop new ways to prevent, treat and cure asthma. Thanks to volunteers like Taylor, others may soon breathe easier.

ASTHMA OR ALLERGIES? Asthma is a chronic disease affecting the airways that carry air in and out of the lungs. The inside walls of the airways become inflamed and thus narrower so less air can flow through the lung tissues. This in turn causes wheezing, coughing, tightness in the chest, and trouble breathing. Asthma is linked to allergies, although not everyone with asthma has allergies. People with allergies tend to react more strongly to the presence of allergens such as animal dander, dust mites, pollen or mold, as well as cigarette smoke and air pollution.

HOW MRI WORKS: Magnetic resonance imaging uses radio frequency waves and a strong magnetic field instead of X-rays to provide clear and detailed pictures of internal organs and tissues. These radio waves are directed at protons in hydrogen atoms -- one of the most abundant atoms in the human body, because of the body's high water content. The waves "excite" the protons, and when they "relax," they emit strong radio signals. A computer can turn those signals into a high-contrast image showing differences in the water content and distribution in various bodily tissues.

Bacteria

Sneeze (Germs)

How far does your sneeze go? Study to tell (Times of India: 11.1.2011)

SiEver wondered how far your sneeze goes? Or if you can stop germs from spreading by cupping your mouth with your hand when you cough?

With a giant mirror and highspeedcamera,scientistsin Singapore aretrying tofindouthow airborne transmission of flu viruses takes place, or if it happens at all. Theequipment allowsthem toobserve real-time a person'ssprayof minute liquid droplets when coughing, sneezing, laughing and talking, and they hope the results can be used to make better guidelines for infection control.

“It's really to inform infection control teams, because there is controversy now about which pathogens, eg flu, are airborne and if so, how significant this route is compared to others, such as direct contact,” said team leader Julian Tang, a virologist and consultant with Singapore's NationalUniversity Hospital. Whileit islikely a flusufferer can infectothers by coughing or sneezing, little is known about the distances a cough or sneeze travels and the volume of air —and viruses— packedintoit.

In their \$833,000 study, Tang and colleagues designed a large concave mirror, akin to those used in astronomical telescopes. Along with a camera that can capture up to 250,000 frames per second, the experts can observe the aerosol,or spray, producedby a cough or sneeze across the mirror. Using volunteers, Tang and his colleagues will study the velocity and distance of exhaled airflows, or plumes, produced by coughs and sneezes, and even laughing, crying, singing, whistling, talking, snoring and breathing.

Sinusitis (Diseases)

Sinusitis a major source of trouble in winter (The Tribune: 12.1.2011)

With severe winter hitting this part of the country, many people feel greatly uneasy. For some individuals, their sensitivity to cold weather makes them prone to all kinds of respiratory illnesses. These infections can be recurrent and can affect them all throughout

the season. Frequent cold, cough and runny and congested nose are quite common. One of the most common fallouts of frequent cold is sinusitis (inflammation of the sinuses).

For individuals who are sensitive to cold weather and have recurrent upper respiratory infections, sinusitis can become a major source of disruption in their lives. Homoeopathic medicines are very helpful to such individuals. Not only do they treat the condition, they also help in eradicating the body's sensitivity to cold weather.

Sinusitis is the inflammation of the sinuses, which are hollow cavities in our skull. Their main purpose is to make our skull lighter and provide resonance to our voice. The sinuses are connected to the back part of the nose through small openings called ostiums. These sinuses have a similar lining as that of our inside of the nose. Inflammation in the sinuses occurs when these small openings, which are at the back of our nose, get clogged due to swelling and discharges in the nose.

Clogging leads to the collection of discharges in the sinuses, which otherwise would have made their way out through ostiums. The collection of discharges in the sinuses gets infected by bacteria. This is what leads to inflammation in the sinuses. Frequent cold during the winters can cause congestion and swelling in the nasal passages, thereby making oneself quite prone to sinusitis.

Sinusitis can either be acute or chronic. Acute sinusitis tends to resolve within a couple of days and usually does not require much medication. Chronic sinusitis is more protracted and can last months and years. When an attack of sinusitis goes on for a period of more than six weeks, it is called chronic sinusitis. Individuals with sensitivity to cold weather are more prone to develop chronic sinusitis.

Symptoms of sinusitis depend on the severity of the infection. Feeling of congestion in the nose, face and head is the commonest of all the symptoms. This may be accompanied by severe pain in the face (especially above and below the eyes) and head (temples and deep pain behind the eyes). Thick yellowish green discharges from the nose are quite common. Morning headaches on rising are very typical of sinusitis. Fever is usually present in an infected case of sinusitis.

Homoeopathy can work wonders for people who are sensitive to cold weather. There are medicines which can be very effective in treating cough, cold and other respiratory illnesses that occur in winters. They also help in strengthening our immune system, thereby preventing recurrences. Homoeopathic medicines Silicea, Aconite, Kali Bichrome and Pulsatilla lead the table in treating the recurrence of sinusitis and cold. Silicea helps both ways. It is very effective in eradicating one's sensitivity towards cold weather as well as treating acute and chronic sinusitis. Aconite is an SOS medicine. It is very useful in symptoms that come after an exposure to cold air.

Fungal infections

Kit to detect fungal infections developed in Mumbai (World Newspaper: 12.1.2011)

In a development that can save the lives of many patients who suffer from deadly fungal infections, the microbiology department of Tata Memorial hospital has developed and standardised a test for their early and rapid diagnosis.

“We have developed a Real-Time PCR test that can detect fungus DNA, identify it and also quantify it. We have tested it on a large number of patients and the results have been very good,” said Dr Rohini Kelkar, head of microbiology department, Tata Memorial hospital. She added, “The PCR can pick fungal cells in just 3ml of blood,” she said.

Fungal infections ail people who are immuno-suppressed, like patients with HIV and cancer, or those who had an organ transplant, among others. The invasive fungal infections are life-threatening and the mortality rate is between 70-90%. The key to cure a fungal infection is early diagnosis.

“Delay of treatment even by a few hours can cause death,” said Dr Arunaloake Chakrabarti, in-charge of the mycology division in Post Graduate Institute of Medical Education and Research, Chandigarh. Dr Chakrabarti delivered a lecture on the subject at Haffkine Institute for Training, Research and Testing, on Monday.

Since it's difficult to detect the infection soon enough, it has mostly been treated empirically, that is by first administering anti-bacterial drugs, then anti-viral, and finally anti-fungal drugs.

“I hope to patent the kit,” said Dr Kelkar. The kit was developed over a period of four years.

Infection

Ugg Boots Can Cause Infection (Med India: 13.1.2011)

Uggs- the trendy, flat-booted suede boots can increase the chances of getting fungal infection especially if they are worn without socks. These Uggs boots are popular among celebs and comfort carving pedestrians.

A fungal infection can result from any shoe that doesn't "breathe," said Mitchell Greenbaum, chief of podiatry at St. Francis Hospital.

"There are a lot of boots that create warmth but make your feet sweat," she said. And, without socks, there's nothing to absorb the sweat.

"It can definitely be a breeding ground for fungus," the New York Daily News quoted Greenbaum as saying.

Meanwhile, Olivier Zong, of surgery at NYC Footcare, told Fashionista.com, "Fungus breeds in dark, wet environments-conditions that are usually seen inside trendy sheepskin boots."

Gregg Cohen, attending physician at Long Island College Hospital, said that if you notice redness, scaling, itching in the feet, skin changes such as blisters, and cracks between the toes then something is wrong.

Wearing socks, airing out the feet periodically by removing the sheepskin boots, and using a powder on your feet to keep them dry can all lessen the risk of a fungal infection, added Cohen.

Tinnitus

Nerve stimulation may thwart tinnitus (The Asian Age: 14.1.2011)

Are you suffering from tinnitus? Fret not.

Retune the brain, for a new study says that it could cure the condition which causes incessant ringing in the ears.

Tinnitus is caused when brain overreacts to hearing damage and produces constant "phantom" sounds.

And, currently there's no cure.

But, scientists believe that the condition could be eliminated by tricking the brain into switching off the imaginary ringing.

In their study on rodents, the scientists banished tinnitus by electrically stimulating vagus nerve -a large nerve running from the head and neck to the abdomen -at the same time as playing sounds tuned to specific frequencies, the Daily Telegraph reported.

Treated rats showed responses that indicated the ringing in their ears had stopped. Animals that did not receive the therapy continued to display signs of tinnitus. According to them, when the vagus nerve is stimulated it releases chemicals that open the brain circuitry to being rewired; playing the sounds at same time permanently undoes the original damage caused by the hearing loss.

Dr Michael Kilgard, from the University of Texas, who led the study, said: "When we paired tones with brief pulses of vagus nerve stimulation, we eliminated the physiological

and behavioural symptoms of tinnitus in noise-exposed rats. "The key is that, unlike previous treatments, we're not masking tinnitus, we're not hiding the tinnitus. We are returning the brain from a state where it generates tinnitus to a state that does not generate tinnitus. We are eliminating the source of the tinnitus." Preparations are now under way for a pilot trial due to be launched in Europe early this year.

Flu Infection

How to protect kids this flu season (New Kerala: 17.1.2011)

Doctors at Cincinnati Children's Hospital Medical Center have offered some tips on how to protect kids this flu season.

The flu is an infection of the nose, throat and lungs caused by a variety of strains of influenza viruses. While the flu typically causes mild symptoms, it can be severe enough to cause hospitalization or even death. Flu most commonly occurs in the winter and early spring.

While the best way to prevent the seasonal flu is to get vaccinated, Cincinnati Children's doctors and the American Academy of Pediatrics give the following tips on how to stop the spread of flu germs:

1. Cough and sneeze into a tissue. If you don't have time to get a tissue, bend your arm and sneeze or cough into it. Teach your children to do the same.
2. Use tissues for wiping runny noses and catching sneezes. Throw the tissues in the trash after each use. Wear a mask if you are coughing or sneezing frequently.
3. Avoid kissing your child on or around the mouth or face when either of you are ill.
4. Make sure everyone washes their hands before and after coming into close contact with someone with the flu. Everyone should wash their hands with soap and warm water for at least 15 seconds (about as long as one verse of Happy Birthday). You may also use a waterless hand cleaner in addition to hand washing or if soap and water are not available.

5. Don't let children share pacifiers, cups, spoons, forks, washcloths, or towels. Never share toothbrushes.
6. Wash dishes, forks, cups and spoons in hot, soapy water or the dishwasher.
7. Change cloth towels often and wash them in hot water.
8. Wipe all surfaces, including toys, with a disinfectant or soap and hot water.
9. Keep children, particularly infants, away from secondhand tobacco smoke. Children who are exposed to tobacco smoke have an increased risk for respiratory illness.

Pathogenic Bacteria

How Pathogenic Bacteria Hide Inside Host Cells (Science Daily: 27.1.2011)

A new study into *Staphylococcus aureus*, the bacterium which is responsible for severe chronic infections worldwide, reveals how the bacteria have developed a strategy of hiding within host cells to escape the immune system as well as many antibacterial treatments. The research, published by EMBO Molecular Medicine, demonstrates how 'phenotype switching' enables bacteria to adapt to their environmental conditions, lie dormant inside host cells and become a reservoir for relapsing infections.

Staphylococcus aureus is a major human pathogen which can be carried by up to 70% of healthy people, and can lead to conditions such as deep tissue infections, osteomyelitis, and chronic lung infections, which are often hard to treat with antibiotics. A key characteristic of these infections is that relapses can occur months or years after an apparent cure.

These relapses, Dr. Bettina Löffler and her team from the Institut für Medizinische Mikrobiologie in Münster, Germany, believe are due to phenotype switching, a change in the bacterial behaviour. After infection and invasion of the patient's host cells, the bacteria form small colony variants (SCVs), tiny bacterial subpopulations that can evade the immune system as well as many antibiotics and grow slowly.

"For the microbiologist, it is difficult to detect SCVs in clinical specimens as they grow slowly, often needing several days to form and so can be easily overlooked in diagnosis," said Löffler. "Our study asked two questions: Is the development of SCVs an integral part of the infection process and what are the dynamics of SCV formation?"

The team performed long-term infection studies with *Staphylococcus aureus* in cell culture systems and also analysed tissue samples from subacute and chronic human infections.

The research revealed that in all infection models, the bacteria were able to persist within the host for several weeks after the infection, leading to the formation of SCV colonies. This showed that SCVs began to appear following infection, after the immune system response was overcome and that this persistence led to a larger phenotypic diversity of bacteria.

"These studies demonstrate that *S. aureus* are extreme versatile microorganisms that continuously sense their environmental conditions and can rapidly alter to reflect them," said Löffler. "The formation of SCV colonies is a bacterial phenotype switching strategy which is an integral part of the infection process."

This process enables the bacteria to hide inside host cells without provoking an inflammatory response from the host's immune system. In addition, they might be efficiently protected from antibiotic treatment.

"This strategy means that SCVs can be considered as 'dormant forms' of infections which can rapidly regain their full virulence and cause a patient to relapse," concluded Löffler. "This has important clinical implications as it means that targeting phenotype switching could prevent the bacteria from hiding, making the infection more vulnerable to host response and treatment."

Bacteria

Bacteria Provide Example of One of Nature's First Immune Systems, Research Shows(Science daily:30.12.2010)

Studying how bacteria incorporate foreign DNA from invading viruses into their own regulatory processes, Thomas Wood, professor in the Artie McFerrin Department of Chemical Engineering at Texas A&M University, is uncovering the secrets of one of nature's most primitive immune systems.

His findings, which appear in *Nature Communications*, a multidisciplinary publication dedicated to research in all areas of the biological, physical and chemical sciences, shed light on how bacteria have throughout the course of millions of years developed resistance to antibiotics by co-opting the DNA of their natural enemies -- viruses.

The battle between bacteria and bacteria-eating viruses, Wood explains, has been going on for millions of years, with viruses attempting to replicate themselves by -- in one approach -- invading bacteria cells and integrating themselves into the chromosomes of the bacteria. When this happens a bacterium makes a copy of its chromosome, which includes the virus particle. The virus then can choose at a later time to replicate itself, killing the bacterium -- similar to a ticking time bomb, Wood says.

However, things can go radically wrong for the virus because of random but abundant mutations that occur within the chromosome of the bacterium. Having already integrated itself into the bacterium's chromosome, the virus is subject to mutation as well, and some of these mutations, Wood explains, render the virus unable to replicate and kill the bacterium.

With this new diverse blend of genetic material, Wood says, a bacterium not only overcomes the virus' lethal intentions but also flourishes at a greater rate than similar bacteria that have not incorporated viral DNA.

"Over millions of years, this virus becomes a normal part of the bacterium," Wood says. "It brings in new tricks, new genes, new proteins, new enzymes, new things that it can do. The bacterium learns how to do things from this.

"What we have found is that with this new viral DNA that has been trapped over millions of years in the chromosome, the cell has created a new immune system," Wood notes. "It has developed new proteins that have enabled it to resist antibiotics and other harmful things that attempt to oxidize cells, such as hydrogen peroxide. These cells that have the new viral set of tricks don't die or don't die as rapidly."

Understanding the significance of viral DNA to bacteria required Wood's research team to delete all of the viral DNA on the chromosome of a bacterium, in this case bacteria from a strain of *E. coli*. Wood's team, led by postdoctoral researcher Xiaoxue Wang, used what in a sense could be described as "enzymatic scissors" to "cut out" the nine viral patches, which amounted to precisely removing 166,000 nucleotides. Once the viral patches were successfully removed, the team examined how the bacterium cell changed. What they found was a dramatically increased sensitivity to antibiotics by the bacterium.

While Wood studied this effect in *E. coli* bacteria, he says similar processes have taken place on a massive, widespread scale, noting that viral DNA can be found in nearly all bacteria, with some strains possessing as much as 20 percent viral DNA within their chromosome.

"To put this into perspective, for some bacteria, one-fifth of their chromosome came from their enemy, and until our study, people had largely neglected to study that 20 percent of the chromosome," Wood says. "This viral DNA had been believed to be silent and unimportant, not having much impact on the cell.

"Our study is the first to show that we need to look at all bacteria and look at their old viral particles to see how they are affecting the bacteria's current ability to withstand things like antibiotics. If we can figure out how the cells are more resistant to antibiotics because of this additional DNA, we can perhaps make new, effective antibiotics.

Blood Pressure

Blood Pressure Regulation

Mediator of Blood Pressure Regulation in the Liver Identified; Pressor Reflex Triggered Simply by Drinking Water (Science Daily: 27.1.2011)

For 60 years, scientists have puzzled over the possibility of a hepatic osmoreceptor that influences blood pressure regulation. Now, researchers of the Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch, the Experimental and Clinical Research Center (ECRC) of the MDC and Charité and the Hannover Medical School (MHH) appear to have made a breakthrough discovery.

Dr. Stefan Lechner and Professor Gary R. Lewin (both of MDC), Professor Friedrich C. Luft (ECRC) and Professor Jens Jordan (ECRC; now MHH) have discovered a new group of sensory neurons in the mouse liver which mediates the regulation of blood pressure and metabolism. This peripheral control center outside of the brain is triggered simply by drinking water and leads to an elevation of blood pressure in sick and elderly people.

The research is published in the journal *Neuron*.

More than ten years ago Professor Jens Jordan, MD, then a research fellow at Vanderbilt University in Nashville, Tennessee, observed a phenomenon together with his colleagues, more or less by accident. Later, at the former Franz Volhard Clinic of the Charité in Berlin-Buch, Jens Jordan again observed that in patients with a damaged nervous system, blood pressure readings rose by as much as 50 mm Hg if the patients drank a half liter of water all at once. "In young people whose sympathetic nervous system was stimulated by drugs, water intake also caused blood pressure levels to rise," said Professor Friedrich C. Luft of the ECRC. "Even in healthy older people, water drinking triggers a regulator for blood pressure." The two clinicians invited neuroscientists at MDC to collaborate with them and started a joint research project.

For 60 years researchers have suspected that there must also be a control center for the body's self-regulation located outside of the brain. Motivated by findings of recent studies, the researchers in Berlin-Buch therefore looked for sensory neurons specifically in organs peripheral to the central nervous system that would detect body changes caused by water intake and would thus be able to activate a regulator which in old and sick people causes blood pressure to rise and which stimulates metabolism in healthy young people.

"In this entire process, osmolality plays a key role," explained Dr. Stefan Lechner, a member of Professor Lewin's research group. "It is the measure of the body's water

balance. And it indicates how many molecules are dissolved in a liter of fluid. Each species has a characteristic set point for osmolality, which depends to a great extent on the immediate living conditions. We wanted to know how deviations of osmolality are able to activate a regulator."

The researchers observed in the mouse model that specific neurons in the liver react actively to water intake. The water the mice drink is absorbed in the small intestine and reaches the blood system via the liver. Due to the sudden water intake, the osmolality in the blood vessels of the liver falls under its set-point value. This deviation is registered by sensory neurons in the liver, the so-called osmoreceptors, as the researchers could now demonstrate. They found that the osmoreceptors transform the information into an electrical signal, which in turn triggers a reflex and stimulates the hepatic blood vessels to raise blood pressure.

Ion Currents Help to Elucidate the Mechanisms

To study the activation of the osmoreceptors under realistic physiological conditions, the researchers stained this newly discovered group of osmoreceptors in the liver with a dye. In their experiments they could thus show that after drinking water, even the slightest shifts of osmolality in the blood flowing through the liver activate nerve fibers in the liver and cause ion currents to flow. The ion currents were similar to those that can be measured in an ion channel located both in the central nervous system and in the internal organs (heart, liver, kidney, testicles, pancreas). This ion channel, abbreviated TRPV4, reacts very sensitively to changes and functions quasi as an osmoreceptor.

"The TRPV4 ion channel opens in just a few hundred milliseconds like the lens of a camera, letting the electrical signal through and thus activating a regulator," explained Dr. Stefan Lechner. "We were now interested in whether the TRPV4 ion channel is acting alone or whether it needs subunits to aid it, and we wanted to know how the whole thing works mechanically."

In further experiments, to elucidate the role and function of TRPV4 in this regulation process, the researchers studied mice in which the gene for the TRPV4 ion channel had been inactivated. After giving these knockout mice water to drink, they did not observe any activation of the osmoreceptors in the liver. No ion currents flowed and as a consequence, no reflex was triggered. The researchers concluded that the elevation of the blood pressure due to water intake must be associated with the presence of the TRPV4 ion channel.

Consequences for therapy

"We are now able to describe the characteristics of a completely new group of hepatic osmoreceptors on the molecular level, which in humans are possibly an extension of a very important regulating reflex," said Professor Lewin. "The research findings not only improve our understanding of the physiological role of osmoreceptors in mediating blood pressure, metabolism and osmolalic self-regulation, over the long term they could also

lead to new strategies in the treatment of diseases caused by the absence of the gene encoding the TRPV4 channel protein."

"The effect of drinking water on blood pressure regulation is already leading to therapeutic consequences in the daily routine of the hospital," Professor Jordan added. "We tell patients to drink water who, due to blood pressure regulation disorders, suffer from fainting attacks when standing. This alleviates the symptoms and at the same time we are able to reduce the amount of medication. Healthy people can also suffer fainting attacks when they stand for a long time or are otherwise under strain, e.g. when they donate blood. In many cases these can be avoided by drinking water. Our decade-long persistence in investigating osmolalic self-regulation has really paid off!"

Brain Hemorrhage

Statins May Be Too Risky For Those With Brain Hemorrhage History Medical News Today: 11.1.2011)

Patients with a history of brain hemorrhage may find that the risk of recurrence is much higher than the benefits they could gain from statins, researchers from Massachusetts General Hospital and Harvard Medical School, Boston, wrote in Archives of Neurology.

The authors explained that generally, statin use has been accepted as an effective way of significantly reducing stroke and heart disease risk. However, widespread use of the drug is a controversial subject.

The researchers wrote:

"A particular subgroup of patients for whom the advisability of statin use is unclear are those at high risk for intracerebral hemorrhage (or a stroke caused by bleeding within the brain). The reason for added concern is the increased incidence of intracerebral hemorrhage observed among subjects randomized to statin therapy in a clinical trial of secondary stroke prevention."

M. Brandon Westover, M.D., Ph.D., wrote:

"Because intracerebral hemorrhage sufferers commonly have co-morbid [co-occurring] cardiovascular risk factors that would otherwise warrant cholesterol-lowering medication, it is important to weigh the risks and benefits of statin therapy in this population."

A Markov decision model was used by the investigators to evaluate the risks and benefits. Simulated patients, based on previous research, were assigned to states that correspond to risk of disease, and could consequently experience a range of combination of events which might lead to the raised risk of stroke or heart disease, change in quality of life, or even death.

They wrote:

"Our analysis indicates that in settings of high recurrent intracerebral hemorrhage risk, avoiding statin therapy may be preferred. For lobar intracerebral hemorrhage [bleeding in the cerebrum] in particular, which has a substantially higher recurrence rate than does

deep intracerebral hemorrhage, statin therapy is predicted to increase the baseline annual probability of recurrence from approximately 14% to approximately 22%, offsetting the cardiovascular benefits for both primary and secondary cardiovascular prevention."

The benefits and risks of using statins were more evenly balanced for patients with intracerebral hemorrhage - a kind of stroke caused by bleeding deep inside the brain that has a low recurrence rate. The authors wrote "Consequently, the optimal treatment option may vary with specific circumstances."

Scientists do not know why a hemorrhagic stroke is more likely among statin users with a history of brain hemorrhage. Perhaps, a drop in cholesterol levels, or potential anti-clotting properties of statins increase their risk of brain bleeding, the authors suggest.

Prostate Cancer - Read What Dr.Latar I Did To Survive Prostate Cancer - www.nutrition2000info.com

"Heart Attack Warning" - Clean Arteries Before Surgery. Painless, Fast, Safe & Easy - www.YourTicker.com/Angioprim

PHYSIOTHERAPY SERVICES - Best Physiotherapist at your Home
Expertise:Pain/Paralysis Management - www.physiolinedelhi.com

The scientists concluded:

"In summary, mathematical decision analysis of the available data suggests that, because of the high risk of recurrent intracerebral hemorrhage in survivors of prior hemorrhagic stroke, even a small amplification of this risk by use of statins suffices to recommend that they should be avoided after intracerebral hemorrhage. In the absence of data from a randomized clinical trial (ideally comparing various agents and doses), the current model provides some guidance for clinicians facing this difficult decision."

Arch Neurol Published online January 10, 2011. doi:10.1001/archneurol.2010.356.
Accompanying Editorial - Do No Harm With Statin Treatment
Larry B. Goldstein, M.D., of Duke University and Durham VA Medical Center, Durham, N.C., in an accompanying editorial, wrote:

"The question prompting the decision analysis model reported by Westover et al epitomizes a common conundrum faced by clinicians - the need to make a therapeutic decision for a given patient in the absence of guidance from specific, high-quality clinical trial data.

In this case, exploratory data from two clinical trials (Heart Protection Study and SPARCL) suggest, but do not prove, a statin-associated increased risk of brain hemorrhage that may reduce the overall benefit of treatment in patients with a history of cerebrovascular disease."

Dr. Goldstein added that the available data are..:

"..generally consistent with the conclusion of the decision analysis -the risk of statin therapy likely outweighs any potential benefit in patients with (at least recent) brain hemorrhage and should generally be avoided in this setting," Dr. Goldstein writes. "Until and unless there are data to the contrary, or warranted by specific clinical circumstances, the use of statins in patients with hemorrhagic stroke should be guided by the maxim of nonmaleficence - Primum non nocere."

Crimean-Congo Hemorrhagic Fever (CCHF)

Deadly Virus

Deadly Virus makes first appearance in india, Kill three in Gujarat (The Indian Express: 19.1.2011)

NIV isolates Crimean Congo Haemorrhagic Fever organism

THE Pune-based National Institute of Virology (NIV) has confirmed India's first cases of the deadly Crimean Congo Haemorrhagic Fever (CCHF) from Sanand, near Ahmedabad.

The virus has so far killed three people, including a woman who first picked it up, and the doctor and a nurse who treated her at a private hospital in Ahmedabad. As of Tuesday evening, two more patients had been hospitalised.

The NIV is testing some 50 samples from the area, and the Gujarat government, warned of a possible outbreak, has begun a screening exercise in the area, covering about 16,000 villagers.

The NIV was able to isolate the CCHF virus within 15 hours of getting the samples from Sanand. "We have alerted the Gujarat authorities that the virus is highly infectious and immediate precautions need to be taken," Dr A C Mishra, Director, NIV, said.

CCHF is a viral haemorrhagic fever of the nairovirus group and spreads through the aerosol route. Symptoms include high fever and a drop in platelet count. Mortality rates can be as high as 90 per cent, said Dr Mishra.

The first victim was a woman, Amina Momin, of Kolat village near Sanand town, on January 3.

Her death was followed by the deaths, on January 13, of Dr Gagan Senke of Shalby Hospital in Ahmedabad, who was treating Amina, and then, today, of the nurse attending to Amina.

Gujarat Health Minister Jay Narayan Vyas said one patient is under surveillance at the isolation ward of Ahmedabad Civil Hospital; another case has been reported at Sterling Hospital in Ahmedabad.

A team of experts from Delhi's National Institute for Communicable Diseases (NICD) is rushing to Gujarat, Vyas said.

CCHF has symptoms similar to dengue, and occurs in cattle, sheep and goats. Outbreaks in humans, when they occur, spread very rapidly, Dr Mishra said.

The virus causes multi-organ failures and affects the brain, resulting in epileptic convulsions and finally, death.

The disease is endemic in many countries in Africa, Europe and Asia, and cases or outbreaks were reported in Kosovo, Albania, Iran, Pakistan, and South Africa in 2001. No case has ever been reported in India before.

Crimian Congo Haemorregic Fever (CCHF)

No need to panic about killer virus: ICMR (New Kerala: 20.1.2011)

The Indian Council for Medical Research (ICMR) Wednesday asked people not to panic about the Crimian Congo Haemorregic Fever (CCHF) virus that has killed three people in Ahmedabad, saying its outbreak can easily be controlled by proper hygiene.

The CCHF outbreak can easily be controlled by proper hygiene and infection control measures in hospitals. Similar precautions should be taken in the community specially while slaughtering animals from whose tissues the infection can spread to humans," an ICMR statement said.

The first case of human infection from CCHF virus was reported from Ahmedabad. Tests conducted at National Institute of Virology, Pune have confirmed the presence of CCHF virus in blood as well as urine samples of the patient.

A patient and her consulting doctor and nurse died of the fever this month.

The CCHF virus is known to be transmitted among animals through ticks. It kills humans in 20 to 40 percent cases.

According to ICMR, after a one to three day incubation period following a tick bite (5-6 days after exposure to infected blood or tissues), flu-like symptoms appear which may resolve after one week.

"In up to 75 percent of cases, however, signs of haemorrhage appear within 3-5 days of the onset of illness. Patients usually begin to recover after 9-10 days from the onset of symptoms, but there could be mortality in some cases," it said.

A team of specialists from the National Institute of Communicable Diseases has already been sent to Ahmedabad.

The CCHF virus had earlier been reported from Africa, the Balkans, the Middle East and Pakistan. There is evidence of CCHF infection being present in India in animals. However, they don't get the disease.

Crimean-Congo Hemorrhagic Fever (CCHF)

No new cases of Congo virus: Health Ministry (The Hindu:21.1.2011)

This is the virus' first appearance in India

The Union Ministry of Health and Family Welfare on Thursday claimed that no new cases of the Crimean-Congo Hemorrhagic Fever (CCHF) were reported from Gujarat even as a six-member central team of the National Institute of Communicable Diseases (NICD) arrived in Ahmedabad to investigate the outbreak.

The National Institute of Virology (NIV) at Pune has sent a team as well.

Surveillance begun

Surveillance activity has been started in the affected area with the 33 teams of the State government having carried out house-to-house visits in six villages and three hamlets near Kolat, in the Sanand taluka, around 35 km from Ahmedabad, covering a population of more than 26,000 people, said an official statement issued by the Ministry here.

From among the 100-odd cases of fever detected, all but two, who are under surveillance, have recovered.

Fifty-eight samples have been collected, including from the staff of the hospital in Ahmedabad where three deaths were reported. Forty-five of them have already tested negative at the NIV. The State Animal Husbandry Department is conducting surveillance among domesticated animals.

The Ahmedabad Municipal Corporation has also surveyed 58 hospitals over the past 15 days for any unusual deaths. But not a single case had been reported for viral hemorrhagic fever.

Treatment protocol

A detailed treatment protocol for CCHF has been developed at the B.J. Medical College, Ahmedabad, with the help of various experts.

Recommendations on prevention and treatment have been obtained from the World Health Organisation and shared with the Central team and the State government.

An expert team is also meeting to review the treatment protocol.

No cure yet

Congo fever, a highly infectious disease which spreads through the aerosol route, has no known treatment as yet. Among animals, it is transmitted through ticks.

The virus has been detected in India for the first time with three deaths reported since January 3.

Dengue

Dengue

Tweaked mosquitoes go out to take on dengue (The Times of India: 27.1.2011)

Malaysia released about 6,000 genetically modified mosquitoes into a forest in the first experiment of its kind in Asia aimed at curbing dengue fever, officials said on Wednesday.

The field test is meant to pave the way for the use of genetically engineered *Aedes aegypti* male mosquitoes to mate with females and produce no offspring or ones with shorter lives, thus curtailing the mosquito population. Only female *Aedes aegypti* mosquitoes spread dengue fever, which killed 134 people in Malaysia last year.

A similar trial in the Cayman Islands last year — the first time genetically modified mosquitoes have been set loose in the wild after years of laboratory experiments and hypothetical calculations — resulted in a dramatic drop in the mosquito population in a small area studied by researchers.

The plan has sparked criticism by some Malaysian environmentalists, who fear it might have unforeseen consequences, such as the inadvertent creation of uncontrollable mutated mosquitoes. Critics also say such plans could leave a vacuum in the ecosystem that is then filled by another insect species, potentially introducing new diseases.

Government authorities have tried to allay the concerns by saying they are conducting small-scale research and will not rush into any widespread release of mosquitoes. The Malaysian government-run Institute for Medical Research said it released about 6,000 sterile male lab mosquitoes in an uninhabited forest area in eastern Malaysia on December 21. Another 6,000 wild male *Aedes aegypti* mosquitoes were also placed in the area for scientific comparison, it said in a statement.

The institute provided few details of the experiment, but said it was “successfully” concluded on January 5, and that all the mosquitoes were killed with insecticide. It said it is not planning to release any more mosquitoes until it analyzes the results.

It was the first such trial in Asia, an official in the Ministry of Natural Resources and Environment said on condition of anonymity because he was not authorized to make public statements. AP

Diabetes

Diabetes

Cure for insulin-dependent diabetes could be developed within three years (The Tribune: 22-12-2010)

Melbourne: A new study by researchers in Sydney has offered fresh hope to patients with insulin-dependent diabetes. Professor Ann Simpson and her team at the University of Technology, Sydney (UTS), say that a cure for the condition can be developed within three years.

They are leading the fight against type 1 diabetes, with two separate teams at Westmead and UTS attempting to beat the potentially deadly condition. Researchers believe their study will lead to a treatment for type 1 diabetes after they successfully reversed the debilitating disease in mice, rats and pigs. "We are thrilled with the results we have seen so far and I see absolutely no reason why the same technique will not work on humans," the Daily Telegraph quoted her as saying. —

Diabetic

Diabetic women with depression at higher risk of dying from heart disease (New Kerala: 4.1.2011)

A new study has suggested that older women who suffer from both diabetes and depression are at a higher risk of dying from all causes, including heart disease, over a six-year period.

In fact, symptoms of depression affect between one-fifth and one-fourth of patients with diabetes, nearly twice as many as individuals without diabetes.

An Pan of the Harvard School of Public Health, Boston, and colleagues looked at 78,282 women aged 54 to 79 in 2000 who were participating in the Nurses' Health Study.

Women in the study were confirmed to be type II diabetes via questionnaires. They were classified as having depression by diagnosis, were treated with antidepressants or scored high on an index measuring depressive symptoms.

During the six-year follow up, the researchers found a 44 percent increased risk of dying from cardiovascular among women with depression and a 35 percent increased death risk among women with diabetes, compared to those who had neither.

For cardiovascular disease alone, women with diabetes had a 67 percent higher risk of death, women with depression had a 37 percent increased risk and women with both had a 2.7-fold increased risk.

The authors say the reasons are unclear, but perhaps depression leads to poor glycemic control and failure to control diabetes that leads to complications.

Diabetes and depression are both linked to unhealthy behaviours such as poor diet, smoking and a sedentary lifestyle, they added.

They also speculate that depression might be linked to higher death rates in women because of changes in the nervous system that affect the heart.

"Considering the size of the population that could be affected by these two prevalent disorders, further consideration is required to design strategies aimed to provide adequate psychological management and support among those with longstanding chronic conditions, such as diabetes," the authors concluded.

Diabetes

Urban Poor in Ecuador Vulnerable To Diabetes And Cardiovascular Disease (Med India: 5.1.2011)

The urban poor in Ecuador are vulnerable to type 2 diabetes and cardiovascular disease, it has been found.

Results of an epidemiological study show that metabolic syndrome is prevalent among them. The syndrome increases a person's risk of developing cardiovascular disease and type 2 diabetes.

Researchers at the Jean Mayer USDA Human Nutrition Research Center on Aging (USDA HNRCA) at Tufts University and the Corporacion Ecuatoriana de Biotecnologia enrolled 225 women and 127 men age 65 and older, living in three low-income neighborhoods on the outskirts of Quito, the capital of Ecuador. The authors examined the relationship between the metabolic syndrome and micronutrients such as folate, zinc and vitamins C, B12 and E. The participants reported their food intake in biweekly interviews and provided blood samples.

Using the International Diabetes Foundation (IDF) definition, the authors determined that 40 % of the population had the metabolic syndrome, with a disproportionate number of women affected: 81 % compared to 19% of the men, which the authors attribute to more of the women being overweight. According to the IDF, the metabolic syndrome is present in centrally obese men and women, as defined by hip and waist measurements, with at

least two of the four following metabolic risk factors: raised triglycerides, reduced high-density lipoprotein (HDL) cholesterol, raised blood pressure, and raised fasting plasma glucose (blood sugar).

“In this population of low-income Ecuadorians, we observed a pattern of high carbohydrate, high sodium diets lacking in healthy fats and good sources of protein. Our blood analyses indicates a significant number of participants weren’t consuming enough of a range of micronutrients,” says senior author Simin Nikbin Meydani, PhD, DVM, director of the USDA HNRCA and the Nutritional Immunology Laboratory at the USDA HNRCA. “After adjusting for age and sex, we observed significant relationships between the metabolic syndrome and two of the micronutrients, vitamins C and E.”

Diabetes

Baylor Researchers Take Step Forward In Diabetes Study (Medical News Today: 10.1.2011)

Researchers at Baylor All Saints Medical Center are studying a solution they believe will improve the quantity and quality of isolated human pancreatic islet cells. The harvested cells can then be transplanted into the livers of patients with Type 1 diabetes, enabling them to produce their own insulin.

This week, the hospital received word that the National Institutes of Health (NIH) has awarded Shinichi Matsumoto, M.D., Ph.D., a two-year grant to continue studying his ductal preservation method. The NIH, a division of the U.S. Department of Health and Human Services, funds the highest caliber research and is the nation's leading medical research supporter.

Dr. Matsumoto is director of the islet cell laboratory at Baylor Research Institute (BRI), an affiliate of Baylor Health Care System. Baylor All Saints is the primary location for the research.

Preliminary data Dr. Matsumoto included in the grant application indicates that his method increases islet yield more than three times that previously achieved.

"Since we have an established clinical islet transplantation program at Baylor, the results from these experiments will be immediately applied in the clinical field," Dr. Matsumoto said. "We believe this research will overcome major challenges facing islet cell transplantation; thereby achieving a milestone in advancing islet transplantation from

experimental treatment to standard therapy. This research may be an important next step toward a treatment for diabetes."

Islet cell transplantation has been shown to be a promising treatment and possible cure for Type 1, or juvenile onset diabetes, but major challenges remain. These challenges include a low success rate of islet isolation, the necessity for multiple donor organs and the difficulty of maintaining insulin-free status.

"If this approach is successful, we will obtain high quantity and quality of human islets, therefore resolving these major issues," Dr. Matsumoto said.

All Saints Health Foundation is conducting a capital campaign for the islet cell project. To date, more than \$5.5 million has been raised toward the goal of \$9.8 million to fund research operations and transform an existing medical building on the All Saints campus into a state-of-the-art lab facility.

The Centers for Disease Control ranks diabetes as the sixth leading cause of death in the United States. In Texas, with its rapid population growth and ethnic diversity, an estimated 1.3 million people have been diagnosed with the disease while another 418,000 are believed to be undiagnosed.

Diabetes

3,000 Steps Five Days A Week Wards Off Diabetes (Medical News Today: 14.1.2011)

If you walk three thousand steps a day, five days each week, your chances of developing diabetes and becoming obese are significantly reduced, Australian researchers report in the BMJ (British Medical Journal). Increase your daily steps over a five year period to 10,000 steps a day, and the benefits skyrocket. This is the first study to assess the impact of doing a daily step count on insulin sensitivity, the authors claim.

Previous studies have demonstrated how physical activity can reduce insulin resistance and BMI (body mass index), both indicators of looming diabetes. However, none had clearly shown how adding a certain number of steps each day to your physical activity can significantly improve your chances of remaining obese- and diabetes-free.

Most experts advise people to walk 10,000 steps daily. However, doing 3,000 steps five times a week can also work. Also, you don't have to start off with the 10,000 steps - you can gradually build up over a five year period.

Scientists from the Murdoch Children's Research Institute, Melbourne, Australia, gathered data on 592 adults, all of them middle-aged. They had taken part in a nationally representative study aimed at gauging diabetes rates throughout Australia between 2000 and 2005.

The participants underwent a comprehensive health check, and then completed a questionnaire that revealed details on their eating habits and lifestyle. Each adult was given a pedometer and shown how to use it.

A pedometer, also known as a step counter is a portable electronic device that counts each step you take by detecting the motion of your hips - you attach it to your side. It is usually worn on the belt and you keep it on all day - it records how many steps you have walked during the day.

The participants were followed-up again five years later. The researchers also took into account other lifestyle factors, such as smoking status and alcohol intake.

The investigators found that those with a higher daily step count over the five year period generally had a lower BMI, lower waist to hip ratio, and superior insulin sensitivity, compared to individuals with a low daily step count - regardless of what their dietary energy intake was. They added that the more active individuals enjoyed the above-mentioned benefits mainly because of a change in fatness (adiposity) over the five years.

The researchers worked out that sedentary individuals who gradually increased their daily step count to 10,000 over a five-year period would enjoy a threefold improvement in insulin sensitivity compared to those who managed to reach 3,000 steps a day (five days a week) at the end of five years.

It is important to remember that staying at 3,000 steps a day does have its benefits, compared to remaining completely sedentary.

The authors concluded:

"These findings, confirming an independent beneficial role of higher daily step count on body mass index, waist to hip ratio, and insulin sensitivity, provide further support to promote higher physical activity levels among middle aged adults."

According to the American Diabetes Association:

18 million Americans are diagnosed with diabetes

5.7 million Americans have diabetes but don't know it (undiagnosed)

57 million individuals in the USA have pre-diabetes

186,300 people under the age of 20 years have diabetes in the USA

2 million US teenagers have pre-diabetes

10.7% of Americans over the age of 20 have diabetes

11.2% of American adult males have diabetes

10.2% of American adult females have diabetes

Type 1 Diabetes is an autoimmune disease - the person's body has destroyed his/her own insulin-producing beta cells in the pancreas. A person with Type 2 Diabetes does not produce enough insulin, or suffers from 'insulin resistance' (the insulin is not working properly). Type 1 Diabetes is unavoidable and is not caused by lifestyle. Type 2 Diabetes is usually caused by being overweight and having a sedentary lifestyle.

Diabetes

Having diabetes can injure your eyes severely (New Kerala: 18.1.2011)

Having too much sugar in your blood can injure many parts of the body, including your heart, kidneys -- even your eyes.

Diabetes is a serious disease, but if an individual adopts healthy lifestyle habits, complications can be prevented.

It's important to check your blood sugar levels regularly and make sure you lower it if necessary. Too high of a blood sugar level, especially over a prolonged period, can damage many areas of the body.

Insofar as the eyes are concerned, diabetes can damage the blood vessels in your eyes.

This damage can lead to glaucoma, cataracts, structural changes to your retina, even blindness.

When blood vessels are damaged, nerve signals can't reach your eyes.

In addition, having diabetes can lead to a buildup of pressure from fluid, which can compress nerves and other structures in your eyes.

Given the above information, it is essential to know how your eye works.

When we look at something, light passes through the front of the eye, and is focused by the lens onto the retina. The retina is a delicate tissue that is sensitive to light. It converts the light into electrical signals that travel along the optic nerve to the brain. The brain, in turn, interprets these signals to "see" the world around us. The retina is supplied with blood by a delicate network of blood vessels.

These blood vessels can be damaged by diabetes.

Light is focused onto an area of the retina called the macula, which is about the size of a pinhead. This highly specialised part of the retina is vital, because it allows you to see fine detail for activities such as reading and writing, and to recognise colours.

The rest of the retina gives you side vision (peripheral vision). The eye is filled with a clear jelly-like substance called the vitreous gel. Light passes through the gel to focus on the macula.

The most serious eye condition associated with diabetes involves the network of blood vessels supplying the retina. This condition is called diabetic retinopathy.

The unusual changes in blood sugar levels resulting from diabetes can affect the lens inside the eye, especially when diabetes is uncontrolled. This can result in blurring of vision which comes and goes over the day, depending on your blood sugar levels.

A longer term effect of diabetes is that the lens can go cloudy and this is called a cataract.

Not everyone who has diabetes develops an eye complication. Of those that do, many people have a very mild form of retinopathy which may never progress to a sight threatening condition.

In diabetic retinopathy, diabetes affects the tiny blood vessels of the eye and if they become blocked or leak then the retina and possibly your vision will be affected.

The extent of these changes determines what type of diabetic retinopathy you have. Forty per cent of people with type 1 diabetes and twenty per cent with type 2 diabetes will develop some sort of diabetic retinopathy.

In diabetic retinopathy, the blood vessels in the retina are only very mildly affected, they may bulge slightly (microaneurysm) and may leak blood (haemorrhages) or fluid (exudates).

As long as the macula is not affected, vision is normal and you will not be aware that anything is wrong.

Your retinal screening test will keep a close check on these early changes and ensure that any signs of progression to more serious stages of retinopathy are detected early.

Maculopathy means that your macula is affected by retinopathy.

If this happens, your central vision will be affected and you may find it difficult to see detail such as recognising people's faces in the distance or seeing detail such as small print.

Most maculopathy can be treated with laser with the aim of preserving as much vision as possible. The amount of central vision that is lost varies from person to person. However, the vision that allows you to get around at home and outside (peripheral vision) is not affected.

If diabetic retinopathy progresses, it can cause the larger blood vessels in the retina to become blocked. These blockages can result in areas of the retina becoming starved of oxygen. This is called ischaemia. If this happens the eye is stimulated into growing new vessels, a process called neo-vascularisation.

This is the proliferative stage of diabetic retinopathy, and is nature's way of trying to repair the damage by growing a new blood supply to the oxygen starved area of your retina.

Unfortunately, these new blood vessels are weak, and grow in the wrong place - on the surface of the retina and into the vitreous gel. As a result, these blood vessels can bleed very easily which may result in large haemorrhages over the surface of the retina or into the vitreous gel. These types of haemorrhages can totally obscure the vision in the affected eye as light is blocked by the bleed. With time the blood can be reabsorbed and vision can improve.

Extensive haemorrhages can lead to scar tissue forming which pulls and distorts the retina. This type of advanced diabetic eye disease can result in the retina becoming detached with the risk of serious sight loss.

Only between 5 and 10 per cent of all diabetics develop proliferative retinopathy. It is more common in people with type 1 diabetes than type 2. Sixty per cent of type 1 diabetics show some signs of proliferative disease after having diabetes for 30 years.

The following action reduces your risk of developing retinopathy or helps to stop it from getting worse:

- controlling your blood sugar (glucose levels)
- tightly controlling your blood pressure
- controlling your cholesterol levels
- keeping fit, maintaining a healthy weight and giving up smoking are all part of good diabetes control. Nerve damage, kidney and cardiovascular disease are more likely in smokers with diabetes. Smoking increases your blood pressure and raises your blood sugar level which makes it harder to control your diabetes

- regular retinal screening (see more below). The most effective thing you can do to prevent sight loss due to diabetic retinopathy is to attend your retinal screening appointments. Early detection and treatment prevents sight loss.

Risk factors that cannot be controlled:

- the length of time you have had diabetes. This is a major risk for developing diabetic retinopathy.

- your age affects the progression of diabetic retinopathy

- your ethnicity. Studies have suggested higher levels of diabetic retinopathy in certain ethnic groups, while other work has suggested that these differences are due only to social factors.

Most complications can be treated, but it is vital that they are diagnosed early. They can only be detected by a detailed examination of the eye carried out at a specialist screening centre.

Most sight-threatening problems caused by diabetic retinopathy can be managed by laser treatment if detected early enough. The aim of laser treatment is to prevent bleeding or to prevent the growth of new blood vessels. The laser can be used in two ways: Localised Laser Treatment where laser can seal leaking individual vessels or small groups of vessels and help reduce the swelling of the retina. This type of treatment is quick, sometimes taking only a few minutes, and Pan-retinal Laser Treatment, which aims to treat large areas of the peripheral retina with the laser. This treatment stops the retina from producing the growth factors that stimulate new blood vessels to grow. If the treatment is successful, the new vessels shrink and disappear over a few months.

You can usually be treated in an outpatient clinic and do not normally need to stay in hospital. Eye drops enlarge your pupils so that the eye specialist can look into your eye. Your eye is then numbed with drops and a small contact lens is put onto your eye to stop it blinking. During the treatment you will be asked to move your eyes in certain directions and you will be able to do this easily with the contact lens in place. When treatment is first suggested, ask how long each session is likely to last. Some people need more than one treatment session.

Local treatment for sealing blood vessels does not usually cause discomfort. Pan retinal treatment can be uncomfortable, so you may need a pain-relieving tablet at the same time as the eye drops. Further pain relief is available so remember:

Important points to remember

- Early diagnosis of diabetic retinopathy is vital.

- Attend your retinal screening appointment.

- Don't wait until your vision has deteriorated to have an eye test.
- Speak to your diabetic eye clinic if you notices changes to your vision.
- Most sight-threatening diabetic problems can be managed by laser treatment if it is done early enough.
- Don't be afraid to ask questions or express fears about your treatment.
- Good control of sugar, blood pressure and cholesterol reduces the risk of diabetes-related sight loss.
- Attend your diabetic clinic or GP surgery for regular diabetes health checks, including blood pressure and cholesterol monitoring.
- Smoking increases your risk of diabetes-related sight loss. Your GP can tell you about NHS stop smoking services in your area.

Diabetologists and the medical fraternity say that it is essential to follow a prescribed diet recommended by your doctor or dietitian to prevent diabetes affecting any part of the body.

It is recommended that an individual undertake at least 30 minutes of exercise each day and take diabetes recommended medication.

It is also recommended that blood sugar and blood pressure is monitored often to keep both under control.

If pregnant, seeing your eye doctor within the first trimester of pregnancy is advised.

Diabetes

WHO gives nod to 'new' diabetes test? (The Times of India: 18.1.2011)

A common test in urban Indian pathological labs to detect diabetes — has finally been endorsed by the World Health Organisation (WHO).

A report by WHO's expert consultation issued on Monday on the diagnosis of diabetes recommends the acceptability of glycated haemoglobin or HbA1c as an additional test to diagnose this debilitating disease that affects 220 million people worldwide.

Dr Ala Alwan, assistant director-general of WHO's noncommunicable diseases and mental health, said, "Testing HbA1c is a practical way of diagnosing diabetes. Unlike other means of diagnosis, it does not require a patient to fast before a blood sample is taken nor to consume a glucose drink that many people find unpalatable."

Reacting to the move, Dr Navin Dang, director of Dr Dang's Laboratories, told TOI, "HbA1c is now being globally accepted as a very reliable test to diagnose diabetes. Moreover, HbA1c also has the advantage of reflecting the person's average blood glucose levels over the preceding 2-3 months. We are doing this test routinely in our lab."

However, Dr Anoop Mishra, chairman of Fortis' centre of excellence for diabetes, said the biggest problem with HbA1c is its cost.

For him, the blood sugar test taken after 10 hours of fasting and blood test taken two hours after consuming 75 mg of glucose are still the best.

"If the present day blood glucose tests cost Rs 100, HbA1c, which was cleared by the American Diabetes Association last year, costs around Rs 500 and is therefore not affordable by most Indians. We also don't have standardized labs to carry out HbA1c test, specially in tier two and three non-metropolitan cities. Also if haemoglobin levels are low in a patient, HbA1c could throw up inaccurate results," Dr Mishra said.

Dr Alwan too supported Dr Mishra's view. He said, "Its higher cost in comparison to other diagnostic tools will, for now, make it harder for developing countries to use. It also remains unreliable in medical conditions with rapid red cell turnover, such as iron deficiency anaemias.

Diabetic

Study Finds Why Diabetics are at Increased Risk of Stroke Injury (Med India:25.1.2011)

Joslin Diabetes Center researchers have discovered one reason why people with diabetes can suffer more damage during strokes.

Strokes are a leading cause of mortality and adult disability. Those that involve intracerebral hemorrhage (bleeding in the brain) are especially deadly, and there are no effective treatments to control such bleeding.

Moreover, diabetes and hyperglycemia (high blood glucose levels) are associated with increases in bleeding during hemorrhagic stroke and worse clinical outcomes.

But researchers now have identified one key player that contributes to this increased bleeding, a discovery that may pave the way toward treatments that minimize adverse stroke outcomes both for people with pre-existing diabetes and those with hyperglycemia identified at the time of stroke.

Studies in the lab of Joslin Investigator Edward Feener have pinpointed a new mechanism involving a protein called plasma kallikrein that interferes with the normal clotting process in the brain following blood vessel injury with diabetes.

The scientists began by injecting a small amount of blood into the brains of rats with diabetes and of control animals without diabetes. The difference was dramatic-the diabetic animals bled over a much greater area of the brain.

Work in the Feener lab had previously implicated plasma kallikrein in diabetic eye complications. When the experimenters pre-treated the diabetic animals with a molecule that inhibits the protein's effects, brain damage from the blood injections dropped to levels similar to that in the control animals. Conversely, when pure plasma kallikrein was injected into the brain, it produced little impact on the control animals but rapidly increased major bleeding in the animals with diabetes.

Diabetes

Researchers Uncover Potential 'Cure' For Type 1 Diabetes (Medical News Today: 28.1.2011)

Type 1 diabetes could be converted to an asymptomatic, non-insulin-dependent disorder by eliminating the actions of a specific hormone, new findings by UT Southwestern Medical Center researchers suggest.

These findings in mice show that insulin becomes completely superfluous and its absence does not cause diabetes or any other abnormality when the actions of glucagon are suppressed. Glucagon, a hormone produced by the pancreas, prevents low blood sugar levels in healthy individuals. It causes high blood sugar in people with type 1 diabetes.

"We've all been brought up to think insulin is the all-powerful hormone without which life is impossible, but that isn't the case," said Dr. Roger Unger, professor of internal medicine and senior author of the study appearing online and in the February issue of Diabetes. "If diabetes is defined as restoration of glucose homeostasis to normal, then this treatment can perhaps be considered very close to a 'cure.' "

Insulin treatment has been the gold standard for type 1 diabetes (insulin-dependent diabetes) in humans since its discovery in 1922. But even optimal regulation of type 1 diabetes with insulin alone cannot restore normal glucose tolerance. These new findings demonstrate that the elimination of glucagon action restores glucose tolerance to normal.

Normally, glucagon is released when the glucose, or sugar, level in the blood is low. In insulin deficiency, however, glucagon levels are inappropriately high and cause the liver to release excessive amounts of glucose into the bloodstream. This action is opposed by insulin, which directs the body's cells to remove sugar from the bloodstream.

Dr. Unger's laboratory research previously found that insulin's benefit resulted from its suppression of glucagon.

In type 1 diabetes, which affects about 1 million people in the U.S., the pancreatic islet cells that produce insulin are destroyed. As a countermeasure to this destruction, type 1 diabetics currently must take insulin multiple times a day to metabolize blood sugar, regulate blood-sugar levels and prevent diabetic coma. They also must adhere to strict dietary restrictions.

In this study, UT Southwestern scientists tested how mice genetically altered to lack working glucagon receptors responded to an oral glucose tolerance test. The test - which can be used to diagnose diabetes, gestational diabetes and prediabetes - measures the body's ability to metabolize, or clear, glucose from the bloodstream.

The researchers found that the mice with normal insulin production but without functioning glucagon receptors responded normally to the test. The mice also responded normally when their insulin-producing beta cells were destroyed. The mice had no insulin or glucagon action, but they did not develop diabetes.

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"These findings suggest that if there is no glucagon, it doesn't matter if you don't have insulin," said Dr. Unger, who is also a physician at the Dallas VA Medical Center. "This does not mean insulin is unimportant. It is essential for normal growth and development from neonatal to adulthood. But in adulthood, at least with respect to glucose metabolism, the role of insulin is to control glucagon."

"And if you don't have glucagon, then you don't need insulin."

Dr. Young Lee, assistant professor of internal medicine at UT Southwestern and lead author of the study, said the next step is to determine the mechanism behind this result.

"Hopefully, these findings will someday help those with type 1 diabetes," Dr. Lee said. "If we can find a way to block the actions of glucagon in humans, then maybe we can minimize the need for insulin therapy."

Dr. Unger said anything that reduces the need for injected insulin is a positive.

"Matching the high insulin levels needed to reach glucagon cells with insulin injections is possible only with amounts that are excessive for other tissues," he said. "Peripherally injected insulin cannot accurately duplicate the normal process by which the body produces and distributes insulin. If these latest findings were to work in humans, injected insulin would no longer be necessary for people with type 1 diabetes."

Dr. May-Yun Wang, assistant professor of internal medicine at UT Southwestern, and researchers from the Albert Einstein College of Medicine also contributed to the work.

The study was supported in part by the VA North Texas Health Care System, the American Diabetes Association and the National Institutes of Health.

Eye Disease

'Bionic Eye'

'Bionic Eye' Can Restore Sight to the Blind (Med India: 22-12-2010)

Blind people may soon be able to regain their sight with the aid of a 'bionic eye'. The microchip has already been tested in Germany and patients were able to read letters and recognize objects.

A German company made device, fits under the retina and works like a digital film camera. A 3mm sq array of 1,500 light sensors sends pulsed electrical signals to adjoining nerve cells, which relay the messages to the brain.

The implant is designed to help patients with retinitis pigmentosa, an inherited disorder, which gradually destroys the retina.

Previously, it was tested in Germany on three blind patients. Within days of the surgery, the two men and one woman could things on the table, walk around a room with confidence, tell the time from a clock, and distinguish between subtle shades of grey.

The results were published last month in the journal Proceedings of the Royal Society B.

Tim Jackson, who will head the King's College team, said: "We are delighted to be involved in testing this pioneering technology. Surgeons at King's College Hospital, London, hope to select six patients for the trial, due to get under way in March, reports the Scotsman. The results demonstrated by the German team are genuinely impressive, and they represent an important step towards artificial vision that could greatly enhance the quality of life for people with an incurable, blinding disease."

Glaucoma

New Biological Pathway Behind Glaucoma Progression Identified (Med India: 4.1.2011)

In a recent study researchers have identified a new and unexpected biological pathway that appears to contribute to the development of glaucoma and its resulting in vision loss. The identification was done by a team of researchers from the Kennedy Krieger Institute and four other collaborating institutions.

Prior research has suggested that the optic nerve head, the point where the cables that carry information from the eye to the brain first exit the eye, plays a role in glaucoma. In this study, researchers report a series of findings that offer novel insights into cellular and molecular mechanisms operating at the optic nerve head in two mouse models of glaucoma. Most notably, they discovered that at a specific location within the optic nerve head, there is a unique class of cells called astrocytes that demonstrate properties that appear to make them a critical factor in the visual blinding that occurs in glaucoma.

Further, at this same site, researchers found abnormal forms of a protein called gamma synuclein that is similar to abnormal forms of alpha synuclein, a related protein known for its key role in cell loss in Parkinson's disease. The findings suggest that a biological process similar to Parkinson's disease unfolds in glaucoma at the specific anatomical location pinpointed in this study for the first time.

Finally, researchers discovered that at this anatomical location, there is a surprising process whereby astrocytes remove the debris of neurons, the cells that die in neurodegenerative disorders such as glaucoma. It is likely that this newly discovered process involving removal of the debris of one cell by a neighboring cell is important not only in glaucoma and Parkinson's disease, but also for many neurodegenerative diseases.

Eye Care

How not to damage eyes in winter (The Tribune: 19.1.2011)

Reena went to Narkanda along with her friend in the recent winter vacations to enjoy the beauty of snow — photographing, skiing, playing snowball, making snowman, etc. She came back with the complaints of pain, watering, blurred vision and inability in opening her eyes. She now had snow blindness. While administering treatment, her eye doctor advised her to be more careful about the eyes during winter than even in summer.

The sun's influence does not diminish during winter, so the eyes need to be protected during winter too. Exposure to UV rays during winter can harm the eyes as much as it can increase the risk of developing sunlight-related eye disorders, including cataracts.

The sun is not the only eye hazard in winter. The cool winds and drier air can irritate the eyes while one is outdoors. UV radiation and glare when skiing can cause snow blindness (photokeratitis). The condition results from sunburn to the cornea.

Most people will feel their eyes dry and astringent in winter. Especially, heating the air with room-heaters/blowers contributes to dry eyes. On the other hand, as it is cold outdoors, many people reduce outdoor activities. They spend a long time indoors watching TV, playing computer games or reading books. This means excessive use of eyes, which can lead to dry eyes.

Eyes should blink 20 to 25 times per minute. But if you focus on one thing, it will reduce to 5 to 10 minutes. This affects the moisture secretion and distribution on the eye surface. It makes the eye dry by accelerated tear evaporation. Besides, several consecutive hours of using eyes will consume light-sensitive pigment within eye organization. This will significantly affect the visual function.

Indoor heat used during the winter months tends to rid the air of moisture which can dry out and irritate eyes. Use a humidifier in the bedroom during winter with low humidity. This helps moisten dry eyes, especially when exposed to forced air heating.

Eye care tips

1 Wear sunglasses that block 99 to 100 per cent of UV light, especially when the ground is covered with snow. People forget that the sun is just as bright when reflected by the snow as it is when glinting off the ocean and beach, leading to sunburned eyes. Overexposure to the winter sun's powerful ultraviolet (UV) rays without proper eye protection can harm the eyes. Although photokeratitis may heal with time, the best way to preserve your vision is to avoid excess UV ray exposure.

1 Contact lens-wearers should limit their outdoor exposure and use artificial tears frequently. Soft contact lenses, in particular, are like little sponges. They need lots of moisture. If they start to dry out, they can change shape and stick to the eye, becoming painful and cloudy. Drinking alcohol can also enhance this problem.

1 A pair of ski goggles with polycarbonate lenses, properly fitted, can block out harmful UV light. The goggles will also protect the eyes from hazards such as tree branches and flying ski pole tips.

1 Bundle up by wearing a brimmed hat, wrap around sunglasses and a hooded jacket or coat. This will help block the swirling cold wind from entering your eyes and prevent the tear film covering the eyes from evaporating.

1 Use good eye lubricant drops to protect the delicate eye area, especially during the winter months.

1 Aim car vents at feet, not eyes.

1 Turn down the heat at home which dries out the eyes. Use a humidifier.

1 Eat plenty of fish and foods with Vitamins A, C, E and Omega-3 fatty acids.

1 Drinks lots of water and get plenty of rest.

1 Green tea and chrysanthemum tea are beneficial for eyes. They can prevent eyes fatigue.

H1N1

H1N1

Impact Of Flu Vaccine Opt-Out Is Being Seen As (H1N1) Returns To Europe (Medical News Today: 10.1.2011)

As the UK and a number of European countries are now experiencing epidemics of influenza, including A(H1N1) which was the 2009 pandemic virus, the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) warns that the consequences of non-vaccination could emerge as a new flu emergency and are calling for greater efforts to encourage vaccination, not only for at risk groups but also health care workers.

The UK has been experiencing a surge in both mild and very severe cases of influenza primarily associated with A(H1N1), which according to the World Health Organization (WHO) has not yet peaked. With the return to schools and work after the Christmas holidays, numbers are expected to stay high for some time. To date, those severely affected are young adults (notably including pregnant women), some without any underlying chronic illness. And most of the very severe cases and identified deaths associated with A(H1N1), as well as other influenza viruses, have been under the age of 65 and largely unvaccinated.

There are concerns that what is happening in the UK could be mirrored in other parts of Europe with France, the Russian Federation and Ukraine already reporting influenza rates above their usual thresholds. "Whilst the 2009 pandemic may not have had the catastrophic outcomes that many first feared, what we are seeing in the 2010 seasonal flu period is a return of A(H1N1) with vengeance to parts of Europe, and now in combination with other respiratory viruses including influenza B", said Professor Giuseppe Cornaglia, President of ESCMID. "Influenza viruses are unpredictable and we are currently witnessing A(H1N1) affecting groups not usually hit by the old (pre 2009) seasonal influenza, such as young adults and those without underlying health risks, many of whom are not vaccinated."

The return of A(H1N1) influenza is the focus of an editorial in the Clinical Microbiology and Infection (CMI) journal authored by the ESCMID President, Professor Cornaglia, and the CMI Editor-in-Chief, Professor Didier Raoult.

"We know that the flu vaccine works and is very safe, yet uptake in many European countries is much lower than desired. Whether this is a result of general vaccine scepticism, doubts about the safety of a new vaccine or the perception that A(H1N1) is not a threat, the risks of opting out of the vaccine have to be made clear," said Professor

Cornaglia. "Much better public health communication is imperative to increase vaccination rates and there is simply no reason for those at risk or who are being offered it not to get vaccinated."

The increased cases of severe influenza are also putting pressure on some intensive care units, for example in the UK with such patients occupying more than 20% of intensive care space. In countries with limited capacity for higher level care, such additional strain on health systems struggling in the middle of winter carries real public health risks.

Heart Disease

Heart Disease

Report on Top 10 Major Advances in Heart Disease in 2010(MedIndia: 24-12-2010)

The annual list of the top 10 major advances in heart disease has been compiled by the American Heart Association.

"We have come far in the past decade, reducing heart disease deaths by more than 27 percent," said Ralph Sacco of the University of Miami.

"But we know there is still much to be done in improving the lives of heart disease and stroke patients - and more importantly, in preventing these devastating diseases in the first place. Scientific research will help us lead the way," said Sacco.

The highlights of the top ten advances in cardiovascular research in 2010:

1. Tailoring treatment for people with diabetes to reduce their risk of cardiovascular disease

New research from the ACCORD Study Group offered insight into specific treatments that can reduce their risk of cardiovascular disease (CVD). The first study found that aggressive blood pressure control does not reduce CVD risk in people with type 2 diabetes at high risk for CVD.

In a second study, a combination therapy with a statin plus a fibrate was no better at reducing risk than a statin alone in patients with type 2 diabetes at high risk for CVD.

2. New advances for patients who aren't candidates for conventional valve surgery

Two new studies have supported evidence that Transcatheter aortic valve implantation (TAVI) can improve symptoms and outcomes - including quality of life - even over the course of several years. While there are some risks associated with TAVI, including strokes and other major cardiovascular events, the catheter-based procedure offers significant progress in this area.

Heart

How to protect your heart in winter (The Tribune: 22-12-2010)

Eating “sarson ka saag” and “makki ki roti” with a dollop of butter, gajjak, rewri and groundnuts, sitting around the fire, cuddling up in a warm blanket and — guess what — having a heart attack! This is something very common in winter.

In a study published in “Circulation” the journal of the American Heart Association - researchers have found that the rate of heart disease-related deaths rises sharply between December 25 and January 7. There is a combination of factors that increase the heart attack risk in winter:

Spasm of arteries: When a person gets exposed to cold weather, the body’s automatic response is to narrow the blood vessels to the skin so that heat is retained . But for people who already have arteries filled with plaque, the narrowing of the blood vessels raises the risk that it will become blocked, triggering a heart attack. The problem is higher in India as we do not live in artificially regulated temperatures as in the West.

Increased blood pressure due to the narrowing leading to a strain on the heart: This has the effect of a double whammy - not only does the heart have to work harder but its blood supply is reduced. While this may be tolerated well by a normal heart, in a diseased heart it can precipitate an attack.

Thicker blood: In cold weather, blood platelets appear to be more active and stickier and, therefore, more likely to clot. In fact, even the levels of cholesterol rise during winter.

Holiday feasting: People tend to eat and drink more and gain more weight during the holiday season and winter months — all of which are hard on the ticker.

Unaccustomed exercise: Every year on January 1 . millions of people join gyms as part of their New Year resolution to get in shape, and many may over-exert themselves too soon.

There is no doubt that exercise is good, but the exercise that the body is not prepared to handle is not good . Start an exercise regimen under the supervision of your doctor if you have heart disease risk factors. Beginning your new routine gradually is not only less taxing on your body, but also easier to stick to.

Increased stress hormones: During the winter months, there is a change in the ratio of daylight hours to dark hours, which causes an increase of stress hormones such as cortisol.

Snow shovelling: Believe it or not, studies from Shimla show that heart attack rates jump dramatically in the first few days after a major snowstorm, usually a result of snow shovelling. One of my patients — a PT teacher at a boarding school in Shimla — suffered a heart attack as he was showing his NCC students how to work in the snow. Shovelling snow or any physical strenuous activity makes the heart work harder and raises your blood pressure.

Stressful season: Depression is not uncommon in winter. The holiday season for many people is a very stressful time due to family issues or financial pressure, causing anxiety, loneliness and depression and these are all linked to heart attacks. Seasonal affective disorder or SAD is caused by the lack of exposure to sunlight during the winter months.

Less daylight: Less of sunlight in winters not only adds to depression but also lowers the levels of vitamin D (which comes from sunlight falling on the skin) - this by itself has been linked heart attacks.

Flu (Influenza): Winter also raises your chances of getting the flu due to low humidity brought on by cold weather and indoor heating. A flu infection can cause blood pressure, stir up white blood cell activity and change C-reactive protein and fibrinogen levels in the blood - all bad news for your heart. Flu and other respiratory disease in winter cause inflammation, which in turn make the plaque less stable and may dislodge it, contributing to heart attacks. If you come down with the flu, a cold or a cough, ask your doctor before taking any over-the-counter decongestant. Those containing pseudoephedrine and phenylephrine can raise blood pressure, which can increase your chances of having a heart attack.

Delay in seeking treatment: The risk is higher during the holidays because people commonly delay seeking treatment for symptoms during this time of the year. I vividly remember a polite elderly patient in Sydney who apologised profusely for having “disturbed” me in the holiday season with a heart attack. So, does this mean you have to fear winter and huddle indoors all the time? Not at all ! The message is not to be afraid of the winter but to know that winter is a period of increased risk and you have to look for ways to minimise that risk. So, during the winter, try to keep your heart healthy by keeping the following pointers in mind:

I Stick to your normal exercise plan.

I Avoid very early morning walks - wait for sunrise.

I Wear proper attire — a thermal inner, muffler, cap, warm socks and a jacket with hood are good investments to enjoy a healthy walk. For Sikh gentlemen, a turban offers good protection to the head and ears from the cold.

I Start slow - the cardiovascular system can adapt to slow and progressive changes, but it has a much more difficult time adapting to sudden changes.

II Have a proper trained gym instructor chart, a graded exercise programme for you . Don't aim for an SRK-6 pack in a short time.

I Eat a prudent diet, low in saturated fats and calories. Nuts and dry fruits can be taken in moderation if one is not overweight. Avoid fatty, fried and non-vegetarian food.

1 Avoid tobacco , coffee , tea or alcohol just to “warm you up” — the additional nicotine and caffeine put an increased stress on the heart . “Holiday spirits” also increase blood pressure and rhythm irregularity .

1 Skip the frantic last minute shopping trip to the mall for buying New Year gifts. Plan well in time — gifting online is a good option.

1 Stop and smell the roses. Don’t get stressed out about preparations — take time to enjoy celebrations with family and friends .

1 Avoid gambling on New Year. It can be stressful, harming you both financially and health-wise

1 Know and manage your blood pressure.

1 Don’t ignore symptoms if you are not feeling well. Doctors on duty will not mind.

1 “Let The Sunshine In” — Sit in the sun — this improves your levels of vitamin-D.

1 Take your medication as recommended

1 Do not postpone doctor’s visits.

The writer, Head of the Cardio-Vascular & Thoracic Surgery Department, CMC, Ludhiana, was earlier at the St Vincents Hospital in Australia and the Escorts Heart Institute , New Delhi.

Heart

Don't Trouble Your Heart: Naturally High Hemoglobin OK in Dialysis Patients, Study Suggests ((Science Daily: 21-12-2010)

ScienceDaily (Dec. 16, 2010) — Naturally occurring high hemoglobin levels are safe for kidney disease patients on dialysis, according to a study appearing in an upcoming issue of the Journal of the American Society Nephrology (JASN). The results suggest that there is no need to lower these levels to protect patients' health.

The vast majority of individuals who develop advanced chronic kidney disease (CKD) also develop progressive anemia, or red blood cell deficiency, that must be treated with medication. Prior to the approval of such erythropoiesis-stimulating agents in 1989, many dialysis patients maintained hemoglobin concentrations < 10 g/dL, with attendant fatigue and the need for repeated blood transfusions. Treatment is controversial, though, because correcting CKD patients' anemia so their target level of hemoglobin, which carries

oxygen, is towards the normal range of ~14 g/dL may lead to serious thrombotic complications or even increased risk of death.

Researchers have wondered: are dialysis patients whose hemoglobin levels remain high naturally also at risk? Studying these patients provides a natural opportunity to investigate the clinical outcomes associated with higher hemoglobin concentrations in the absence of effects of prescribed drugs.

David Goodkin, MD (Arbor Research Collaborative for Health) and his colleagues studied the health of patients enrolled in the Dialysis Outcomes and Practice Patterns Study (DOPPS), which follows thousands of dialysis patients in 12 countries. Of 29,796 dialysis patients enrolled in the DOPPS with information on hemoglobin levels and medication dose over a 4 month period, 545 (1.8%) maintained hemoglobin concentrations > 12 g/dL without medication to stimulate red blood cell production by the bone marrow.

These patients were more likely to be men, to have been receiving dialysis for more years, and to have underlying cystic kidney disease. Conditions that lower oxygen levels in the blood, such as lung disease, cardiovascular disease, and smoking, were also associated with an increased likelihood of manifesting higher hemoglobin concentrations. The investigators discovered that these patients did not have an elevated risk of dying compared with patients who had lower hemoglobin levels, after adjusting for age, sex, and concomitant diagnoses. Also, there were no differences in mortality between these patients and the subset of other patients who were taking medications to achieve hemoglobin concentrations > 12 g/dL.

While current guidelines caution against prescribing drugs to achieve hemoglobin concentrations > 12 g/dL in kidney disease patients, these findings suggest there is no need to remove blood, or phlebotomize, patients whose hemoglobin levels naturally reach this level without medication. The authors added that "determining the appropriate hemoglobin target range and pharmacological management strategy for dialysis patients is a very complex endeavor and the solution remains a work in progress."

Vitamin-(Prevent Heart Problem)

Marmite vitamin may prevent heart problems (The Tribune: 5.1.2011)

Experts have claimed that a vitamin found in Marmite has the potential to prevent heart diseases. Scientists from Bristol University, who carried out the experiment in mice, also suggested that a derivative of vitamin B1, called benfotiamine, speeds up the healing of tissue following heart damage, reports the Daily Express. The discovery could offer fresh hope to people who have diabetes and face an increased risk of heart problems. "Supplementation with benfotiamine from early stages of diabetes improved the survival and healing of the hearts of diabetic mice that have had heart attacks, and helped prevent cardiovascular disease in mice with both Type 1 and Type 2 diabetes," said Prof Paolo

Madeddu, who led the study. “We conclude that benfotiamine could be a novel treatment for people with diabetes, and the next step in this research will be testing whether similar effects are seen in humans,” he added.

Heart healthy

5 easy steps to pump up your heart (New Kerala: 13.1.2011)

Want to keep your heart healthy? Then you need to know the following

Holly Andersen, director of education and outreach at the Ronald O. Perelman Heart Institute of NewYork-Presbyterian Hospital has offered some easy steps to improve heart health and overall well-being throughout the year.

Step 1: Know your numbers. Your blood pressure, cholesterol and triglyceride levels are the most important numbers you will need to know before you begin on the path to good heart health.

Step 2: Start walking. Exercise is the fountain of youth. A simple 20- to 30-minute walk a few days a week can actually reduce the risk of premature death by more than 50 percent.

Step 3: Laugh out loud. Laughter really is the best medicine. Just 15 minutes of laughter is about equivalent to 30 minutes of aerobic exercise with respect to our cardiovascular health. Laughter has also been linked to the healthy function of blood vessels, an increase of the brain hormones that improve mood, and reduction of pain and anxiety.

Step 4: Focus on your waistline, not your weight. Your waistline is a better measurement of your overall health than your weight because the amount of fat around your waistline is directly linked to high blood pressure and high cholesterol and can place you at increased risk for diabetes.

Step 5: Get a good night's sleep. Sleep is one of the most undervalued elements of our daily routines, but it is absolutely vital to good health. Lack of sleep increases your blood pressure, induces stress, increases your appetite and slows down your metabolism, dampens your mood and decreases your cognition

Healthy Heart

Heart Health Tied To HDL "Good" Cholesterol Function, Not High Level (Medical News Today: 14.1.2011)

Reduced risk of coronary artery disease is more closely linked to the function of HDL, the so-called "good cholesterol", and not so much to its level in the blood as previously thought, according to a new US study published in the New England Journal of Medicine, NEJM.

The discovery could affect the development of drugs that target HDL in treating heart disease, said the researchers.

You can read about the study, led by the University of Pennsylvania School of Medicine (Penn) in Philadelphia, online in the 13 January issue of NEJM.

A major cause of cardiovascular disease is atherosclerosis, caused by the build up of plaques of fatty materials like cholesterol on the linings of artery walls.

When researchers discovered that high levels of high-density lipoprotein (HDL) cholesterol, the so-called "good" cholesterol were linked to reduced risk of cardiovascular disease, there was a rush to develop new drugs to treat heart disease by targeting HDL levels.

However, recent studies have questioned whether using drugs to increase HDL is good for patients.

In this study, Dr Daniel J Rader, director, Preventive Cardiology at Penn, and colleagues, found that a particular measure of HDL function, which they call "efflux capacity", is more closely linked to protection against heart disease than HDL level itself.

Efflux capacity is a measure of how well HDL removes cholesterol from cholesterol-loaded macrophages, a type of white blood cell, that accumulate in arterial plaque.

Recent studies have suggested that perhaps it is how HDL functions rather than how much of it there is in the blood that affects cardiovascular risk and the effectiveness of HDL-targeted drugs, so Rader and colleagues decided to investigate efflux capacity.

"Our study is the first to relate a measure of HDL function - its ability to remove cholesterol from macrophages - to measures of cardiovascular disease in a large number of people," Rader told the press.

For the study, 203 healthy people volunteered to undergo assessment of the thickness of the "intima-media" of their carotid artery, a measure of atherosclerosis. The researchers also recruited 442 patients with coronary artery disease, and 351 patients without the disease.

To measure the efflux capacity of HDL in all three groups of participants, Rader and colleagues used "a validated ex vivo system that involved incubation of macrophages with apolipoprotein B-depleted serum," taken from their blood samples.

The results showed an inverse relationships between cholesterol efflux capacity and the thickness of the carotid intima-media both before and after adjustment for HDL cholesterol levels.

After adjusting for age and gender, the results also showed that increasing efflux capacity was tied to decreased likelihood of having coronary artery disease. The strength of the link did not change after adding traditional risk factors such as HDL cholesterol levels.

The researchers also found that men and current smokers had decreased HDL efflux capacity.

Rader and colleagues suggested that although cholesterol efflux is only one of the many functions of HDL, and represents only a small fraction of the overall flow through the cholesterol pathway, it is probably the one with most impact on protecting against heart disease.

Rader said their findings support the idea that measuring what HDL does gives better information than just measuring its level, and points to the need to measure HDL function in assessing new drugs that target HDL.

"Future studies may prove fruitful in elucidating additional.

Transient Ischemic Attack (TIA)

Mini-strokes create lasting damage to the brain (New Kerala: 31.1.2011)

A new research has suggested transient ischemic attack (TIA), also known as a mini-stroke, creates lasting damage to the brain

The stroke research team, led by Lara Boyd, of the Brain Research Centre at Vancouver Coastal Health and the University of British Columbia, studied 13 patients from the Stroke Prevention Clinic at Vancouver General Hospital and compared them against 13 healthy study participants.

The patients were studied within 14-30 days of their episode, and showed no impairment through clinical evaluation or standard imaging (CT or MRI).

Participants then underwent a unique brain mapping procedure using transcranial magnetic stimulation (TMS) with profound results.

"The brain mapping capabilities of the TMS showed us that TIA is actually causing damage to the brain that lasts much longer than we previously thought it did. In fact, we are not sure if the brain ever recovers," said Boyd.

In the TIA group, brain cells on the affected side of the brain showed changes in their excitability - making it harder for both excitatory and inhibitory neurons to respond as compared to the undamaged side and to a group of people with healthy brains.

These changes are very concerning to the researchers as they show that TIA is likely not a transient event.

"We know that TIA is a warning sign of future stroke. We treat every TIA as though it will result in a stroke, but not every person goes on to have a stroke. By refining this brain mapping technique, our hope is to identify who is most at risk, and direct treatment more appropriately," said Philip Teal, co-author of the study.

The findings were reported in *Stroke*, the journal of the American Heart Association.

HIV/AIDS

AIDS immunity

AIDS immunity is all in the proteins (New Kerala News: 27-12-2010)

A large-scale genetic analysis has suggested that tiny changes in the structure of a protein help the immune system to recognize and destroy infected cells, reports Nature.

Most people who contract HIV eventually end up with full-blown AIDS as the virus replicates in their cells, reaching very high levels and damaging their immune systems.

However, the virus does not progress to this stage in about 1 out of every 300 infected people. These "HIV controllers" do not require treatment, because their bodies suppress the replication of the virus.

Bruce Walker of the Harvard University in Charlestown, first thought of carrying out the study when he recognized the clinical value of such HIV controllers.

"I realized that we could create a cohort by going directly to physicians around the world, and I thought we should figure out what is genetically unique about people who do well compared with people who do badly," he said.

Walker and his colleagues sampled the DNA of more than 900 HIV controllers. They compared it with the genetic code of 2,600 individuals with normal HIV infections, using a technique called a genome-wide association study (GWAS).

The GWAS tested single nucleotide polymorphism (SNP) variations - changes in one letter of DNA - at a million points in the genomes of these individuals, and found more than 300 sites that were statistically associated with control of HIV.

All the sites identified are in a region of the genome that codes for proteins involved in immune response, called HLA proteins. The researchers used regression analyses to narrow their search down to the four sites most strongly linked to HIV immunity.

It isn't possible to tell from the statistics alone whether these sites cause HIV immunity themselves or are simply closely associated with others that do. But using a detailed map of the HLA regions of the genome, created as part of an earlier diabetes study², the team pinpointed specific amino acids in the protein HLA-B that differed between controllers and people with normal infections.

These amino acids seemed to be behind the ability to control the virus.

"Out of the three billion nucleotides [that make up the human genome], we narrowed it down to a handful of amino acids that define the difference, each coded for by just three nucleotides," said Walker.

Changes in the amino acids identified by Walker's team altered how HLA-B presents viral peptides from HIV to the immune system, but how this process differs between controllers and people with normal HIV infections remains unclear

HIV binds

Discovery Suggests a New Way to Prevent HIV from Infecting Human Cells (Science Daily: 23-12-2010)

Researchers at the University of Minnesota have discovered how HIV binds to and destroys a specific human antiviral protein called APOBEC3F. The results suggest that a simple chemical change can convert APOBEC3F to a more effective antiviral agent and that shielding of a common feature shared by related proteins may yield a similar outcome.

This discovery highlights the potential for a novel approach to combating HIV/AIDS that would seek to stabilize and harness the innate antiviral activity of certain human proteins, according to lead author John Albin, a researcher in the laboratory of Reuben Harris, associate professor of biochemistry, molecular biology and biophysics in the College of Biological Sciences.

The finding was published in the Journal of Biological Chemistry.

Human cells produce a family of antiviral proteins (called APOBECs) that have the unique and natural ability to destroy HIV. But HIV has evolved a way to overcome restriction using an accessory protein called Vif (virion infectivity factor) to degrade the APOBEC proteins and allow the virus to spread. Albin and colleagues learned where Vif interacts with one antiviral protein, APOBEC3F, and showed how the connection can be interrupted by a simple chemical change on the surface of APOBEC3F. They also noted that similar interaction sites are found on the same surface in other members of this antiviral protein family.

"This suggests that the interaction between Vif and these antiviral APOBEC proteins could be blocked with a drug that would shield the Vif interaction region," Albin says.

"Such an intervention has the potential to allow as many as seven natural antiviral drugs to spring into action and prevent HIV from spreading."

The Harris lab is focuses on understanding every level of the vital interaction between these human cellular proteins and HIV Vif. They envision that future studies will involve a more refined mapping of the physical interactions between Vif and APOBEC3 proteins, investigation of the potential for HIV to resist stabilizing changes in APOBEC3 proteins, and screens for drug-like compounds that help the cellular APOBECs destroy HIV.

John Albin, a student in the Combined MD-PhD Training Program at the University of Minnesota Medical School, and is completing a thesis under the guidance of his advisor, Reuben Harris, through the Microbiology, Immunology & Cancer Biology PhD program. His studies in the Harris lab focus on the potential of APOBEC proteins to impact HIV evolution and pathogenesis.

This latest finding builds on a body of research from Harris's lab about the relationship between HIV and APOBEC proteins. In 2003 and 2004, Harris helped discover that the APOBEC proteins have the ability to counteract HIV infection.

Harris, who won a 2009 challenge grant from the Bill & Melinda Gates Foundation to explore ways to block HIV and APOBEC3 interaction, has been studying mechanisms of mutation for nearly 20 years, first as a doctoral student at the University of Alberta, then as a post-doctoral fellow at the Laboratory of Molecular Biology in Cambridge, England, and for the past seven years as an NIH supported principal investigator at the University of Minnesota. His laboratory focuses on how mutations can be harnessed to destroy pathogens.

HIV

Gigolos put women clients to high HIV risk (The Tribune: 5.1.2011)

Between 250 and 400 gigolos operative in tricity
Most of them are in the 21-30 age group
They earn anywhere from Rs 3,000 to Rs 25,000, depending on their age
Their clients are mostly single women in the 35-55 age group

Demanding "money for sex" is no longer limited to female sex workers in this region. For the first time, a study conducted by an NGO has revealed existence of gigolos (male prostitutes) in the region. Even more alarming fact is that their number is increasing fast, but there is no initiative at the national or local level to create awareness among members of this group about the risk of HIV/AIDS or STDs.

A study undertaken by the SHAKSHAM Trust, a body supporting the rights of men who have sex with men (MSM) in collaboration with an NGO, the BNCI-BUTTERFLY Nature Club of India, has indicated that there are anywhere between 250 and 400 gigolos, majority of them in the 21-30 age group, serving women in the tricity alone. An interaction with 50 such gigolos in Chandigarh, Panchkula, Mohali and Kharar has revealed that most of these men became sex workers due to unemployment or to supplement their income.

The study indicates that those who take services of these gigolos are mostly single women in the 35-55 age group having high income. Since a majority of them are past the age of child-bearing, they do not want to use any family planning methods like condoms, exposing them to a higher risk of HIV/STD transmission.

Dr Amarjit Singh of the Department of Community Medicine at the PGI said, "I am not directly involved with the study, but if its findings are to be believed, it indicates that the problem is there. Earlier, isolated cases were reported at the Department of Dermatology, but this indicates that there is a problem and the presence of gigolos has been established. The National Aids Control Society (NACO) and other agencies must include gigolos in the high-risk category."

Dr Avinash Jolly, who conducted the survey for the BNCI-BUTTERFLY Nature Club of India in the tricity, said the gigolos interviewed showed some knowledge of HIV/AIDS and sexually transmitted diseases (STDs). He said it was found that the gigolos were a very cohesive and well-organised group that followed high code of ethics in dealing with their clients. A majority of them were involved in some occupation that served as a cover. Some gigolos even claimed that college students were also their clients. These clients want to experiment and learn about sexual techniques prior to marriage. According to Islaamuddin, President SHAKSHAM Trust, the number of such clients is small, but this section is highly aware about HIV/AIDS transmission.

As per the study, gigolos have evolved their own slang with words like Jiggu (a small height man who would have normal sex with women) and Jaanu (a tall man indulging in similar acts). A Jackpot indulges in fetish acts, while Rambo, Raja, Raju gentleman, hero and Saboo have their personal traits and expertise.

Interestingly, most of these gigolos are unmarried. Their educational qualifications range from secondary level to postgraduation. Only 10 out of the 50 gigolos interviewed for the study were born and brought up in the city, while the remaining were migrants, mainly from Punjab and Haryana. Some of them were from Uttar Pradesh, Bihar, West Bengal, etc. Gigolos earn anywhere from Rs 3,000 to Rs 25,000, depending upon their age, personality and looks.

Although 92 per cent of the gigolos were aware that HIV could lead to death, they were not willing to give it up.

BNCI director Pinki H Madaan and social activist Ashwani Kumar, who were associated with the study, say gigolos find clients through friends, on railway stations, at cinema halls, parks and even in public transport. Since a majority of them use drug substance or alcohol prior to sex to overcome inhibition, it pushes them further towards high risk of exposure.

Aids Virus

HIV covers? New gel a 100% success in lab (Times of India: 7.1.2011)

An experimental gel protected female monkeys from the Aids virus in a test designed to mimic human sexual transmission, researchers said.

The gel uses an Aids drug along with a zinc compound and protected all animals tested from infection with the monkey version of HIV, the researchers report in the Public Library of Science open-source journal PLoS ONE. It "afforded full protection (21 of 21 animals) for up to 24 hours after two weeks of daily application," they wrote.

The gel uses a very small amount of active drug and thus might be safe and cheap, said the Population Council in New York, which led the study. The study joins a growing body of experiments that are beginning to show progress in preventing Aids, a fatal and incurable virus that infects 33 million people globally and which has killed 25 million.

Melissa Robbiani of the Population Council, who worked with the National Cancer Institute and other laboratories to test the gel, is hoping to test it on people. In July researchers stunned Aids experts when they found a similar gel using the Gilead Sciences Aids drug tenofovir reduced HIV infections in women by 39% over two and a half years.

Non-profit groups are moving ahead to develop that gel and the US Food and Drug Administration has given it fast-track designation. "It is like a positive domino effect," said Bethany Young Holt, director of the Coalition Advancing Multipurpose Innovations, a women's health research and advocacy group and an expert on microbicides — gels, creams or other products that protect against infection.

A microbicide could help protect against HIV while allowing a woman to get pregnant, and, if necessary, she could use the product without letting her partner know. This product does not prevent pregnancy but the researchers are working on a combined gel or a vaginal ring that includes a contraceptive. REUTERS

The gel uses an Aids drug along with a zinc compound and protected the tested animals from infection with the monkey version of HIV

HIV Test

Make HIV test a must before marriage' The Times of India: 11.1.2011)

The Kerala Women's Commission has urged the state government to make HIV tests mandatory for wannabe couples. The panel says it finds alarming the predicament of women who become AIDS victims because of their husbands and such a test would act as an effective preventive measure.

“Many women, mostly poor, come to us complaining that they've been infected by their partners. After hearing their difficulties, we decided to conduct a study to go into the problem,” Justice D Sreedevi, commission chairperson said. The study revealed that the number of men getting married keeping their infection a secret has only increased. Women who get infected have to go through an ordeal and at least 70% of them are sacked by their employers. Most of these women earn Rs 1,000 or less. “Given these problems, we felt the best possible solution would be to make HIV test mandatory before marriage. The government should make a law to ensure this,” Justice Sreedevi said.

TN first state to develop HIV stigma index (The Times of India: 11.1.2011)

Chennai: Sreelatha S (42) was good at her work. But she was asked to quit after people at her workplace learnt about her HIV-positive status six months ago. “Suddenly people started feeling uncomfortable around me. I was asked to quit,” she says. Experiences of people like Sreelatha will go into the making of a ‘stigma index’ which Tamil Nadu hopes to use for fighting discrimination. The state, which has 1.5 lakh people living with HIV, will be the first in the country to have such an index.

HIV positive people will interview victims of stigma so that they open up and discuss their experiences. The accounts of such people would go into developing the index which will eventually reflect the levels and spread of discrimination. “The research outcome would help government and communities strategise programmes to reduce stigma,” said Vishwanath Koliwad, secretary general of the Family Planning Association of India.

AIDS pandemic

India nipped AIDS pandemic in the bud The Financial Express: 12.1.2011)

INTERVIEW - HELENE GAYLE PRESIDENT, CARE USA

Three months after announcing commitment worth \$1.8 billion to improve healthcare indices in India in addition to a few select countries, Helene Gayle, president, CARE, USA and head, advisory council to President Barack Obama on HIV/AIDS is in India to give shape to the organisation's plans. During her visit, she is slated to meet Bihar CM Nitish Kumar to firm up her organisation's role in the implementation of healthcare reforms in the state. Gayle spoke to FE's Soma Das about the continuous resource flow to philanthropic activities despite economic recession, which according to her shows a change in the mindset of donors. Excerpts: What is CARE's mandate in Bihar? And how much would you be investing?

We took one year to complete the diagnostics in Bihar which is to study the specific problems and bottlenecks as they exist on the ground that can be addressed to usher in healthcare reforms in the state.

Now we are ready to start work towards helping Bihar move closer towards the millennium development goals.

The project involves working with all stakeholders from the government to the communities and NGOs. We are hopeful that meaningful intervention will translate into dramatic results for Bihar's healthcare indices in the next three to five years. We would be working on two parallel projects, one on the MDG goals with a special reference to maternal mortality rate and child mortality rate, the other on comprehensive healthcare reforms.

We could be investing or mobilising resources worth \$60 million for the Bihar project and state government would be sponsoring the balance.

Which are the other states where CARE is considering investing in?

We have been working on similar programme on health reforms in Orissa and have been approached by the Madhya Pradesh government. Other states with poor development indicators such as UP, Jharkhand and Chhattisgarh would also remain focus areas. We have successfully implemented and developed unique models of development across the world and we are replicating and building on them in India.

How do you evaluate India's contribution to managing AIDS situation in world?

India has demonstrated a lot of promise and leadership in successfully handling the HIV/AIDS situation at home and has stopped it from exploding into an epidemic, when it had the potential to become one. This, India has managed by increasing preventive steps on one hand and enhancing access to treatment on the other. In this, the ability and competence of Indian drug firms in manufacturing generic versions of the HIV drug helped in

averting what could have spiralled into a crisis. Also, these firms helped the rest of the world access affordable high quality generic drugs.

But on a global stage, there is visible rift between pharma research firms and generic firms.

Among the many roles, we also play the role of neutral brokers between R&D firms and generic firms. To improve access to medicine we discuss options like tiered pricing system and shorter patent periods in special cases with pharma firms.

Has CARE seen any impact of economic recession on resource flows?

We haven't seen the impact of it yet. Most indicators suggest that economic recovery has already started. We believe that if it hasn't affected us till now, it must imply a fundamental change in the mindset in individuals, nations, governments and companies which donate. Our organisation depends a lot on individual donations. It was heartening to see that our donors remained loyal during the most difficult times.

HIV Awareness

Red Ribbon buses to spread HIV awareness in backward districts (The Times of India: 19.1.2011)

New Delhi: Remember the Red Ribbon Express — the eight-coach train that covered 25,000 km spreading awareness about HIV. India is now working on rolling out Red Ribbon buses that would reach out to the most backward villagers — targets that the chugging train missed out while passing through 22 states and 152 districts in one year.

Speaking exclusively to ToI, Union health minister Ghulam Nabi Azad said though the train was first introduced in India in 2007, it was primarily used for creating awareness against HIV.

In 2010, the ministry decided to use the train to test people for HIV. Doctors, posted on the train and at stations, counselled the patients.

“The train reached out to eight million people, trained 81,000 and tested 36,000 for HIV. I have asked National Aids Control Organisation (Naco) to identify specific high prevalence districts, where we will send Red Ribbon buses to provide treatment, counselling and talk about safe sex. The buses will have testing and treatment facilities on board,” Azad said.

Naco is close to identifying around 35 high prevalence districts in six states — West Bengal, Madhya Pradesh, Jharkhand, Orissa, Bihar and Uttar Pradesh — where the Red Ribbon buses will be rolled out by April.

A bus, a testing and treatment mobile unit with two doctors and four counsellors will be dedicated for three districts. “Those being targetted are from backward districts, which the train couldn’t reach. Our idea is to contain the virus in small pockets and not let it spread,” the minister added. The targetted districts are known to be hotspots for migrants to urban areas.

“The buses and medical unit will teach migrants about safe sex habits and precautions. They will also be encouraged to get tested for HIV before leaving the village and after returning from the city,” a Naco official said.

Around 1.2 lakh Indians got infected with HIV in 2010, even though the incidence rate of new cases fell in the country by over 50% in the last decade. India, which has 2.4 million HIV patients, ranks third after South Africa and Nigeria. However, the country’s HIV prevalence is still low at 0.31% from 0.36% in 2006.

Migrants are believed to be fuelling India’s HIV epidemic. This has led Naco to identify 68 main railway stations in districts across 11 states from where migrants usually board long-distance trains for urban areas.

Studies on the relation between migration and HIV conducted recently by Naco in three popular migration corridors — Ganjam-Surat, Darbhanga-Delhi and Azamgarh-Mumbai — threw up shocking findings. The highest burden of HIV was found to be among migrants, after the high-risk groups like sex workers and men who have sex with men.

According to the 2001 census, 30.1% of the population was considered to have migrated (314 million) — a considerable increase from 27.4% in 1991.

HIV

People with HIV 'three times more likely to have a stroke'(New Kerala: 21.1.2011)

Washington, Jan 20 : People infected with human immunodeficiency virus (HIV) may be up to three times more likely to have a stroke compared to those not affected with HIV, new research suggests.

For the study, scientists reviewed all stroke hospitalizations in the United States within the last decade. The number of stroke diagnoses in the general population declined with 71,742 fewer strokes overall.

However, stroke diagnoses among people with HIV increased by 537 more strokes from the start of the decade. For those with HIV, the study showed an increase in ischemic strokes but no increase in hemorrhagic strokes.

An ischemic stroke is caused by a blood clot and is the most common type of stroke.

"The average age for a stroke among people with HIV was in the 50s, which is much lower than that of those without HIV. This finding suggests that HIV or HIV treatments may be directly related to stroke occurrence," said Bruce Ovbiagele, Professor of Neurosciences at the University of California, San Diego and a member of the American Academy of Neurology.

"Indeed, one potential explanation is the increasingly widespread use of combination antiretroviral medications in HIV-infected people. While these therapies have greatly increased life expectancy, they may boost the presence of risk factors associated with stroke. Another possibility is that longer exposure to HIV as a result of greater survival, even at low viral load levels, may allow for the virus to increase stroke risk."

The study has been published in the online issue of Neurology, the medical journal of the American Academy of Neurology.

Kidney disease

Kidney disease

Sticking to a vegetarian diet may be good for kidney disease patient (New Kerala: 24-12-2010)

Kidney disease patients must limit their phosphorous intake, as high levels of the mineral can lead to heart disease and death.

While medical guidelines recommend low phosphorus diets for patients with chronic kidney disease (CKD), phosphorus content is not listed on food labels.

Sharon Moe (Indiana University School of Medicine and Roudebush Veterans' Affairs Medical Center) and her colleagues studied the effects of vegetarian and meat-based diets on phosphorous levels in nine patients with CKD.

Patients followed a vegetarian or meat-based diet for one week, followed by the opposite diet two-to four- weeks later. Blood and urine tests were performed at the end of each week on both diets.

Despite equivalent protein and phosphorus concentrations in the two diets, patients had lower blood phosphorus levels and decreased phosphorus excretion in the urine when they were on the vegetarian diet compared with the meat-based diet.

The authors concluded that their study demonstrates that the source of protein in the diet has a significant effect on phosphorus levels in patients with CKD.

Kidney

Kidney's role vital in managing blood pressure (New Kerala: 17.1.2011)

The kidneys play a vital role in maintaining blood pressure, says a new study.

The organ is made up of roughly a million basic working units called nephrons, which remove waste products from the blood, recycle some substances and eliminate what is left as urine.

The end segment of nephrons, called the distal nephron, helps set blood pressure by controlling the amount of sodium in our blood, according to scientists at the University of Texas Health Science Centre, reports the Journal of Biological Chemistry.

They demonstrated that sodium handling by the distal nephron is under the control of a local regulatory system, according to a Texas statement.

Loss of this system leads to hypertension (high blood pressure) resulting from improper salt retention by the kidneys, the scientists found in mouse studies.

"These studies provide the first unequivocal evidence of a blood pressure control system in the distal nephron of the kidney," said senior study author James Stockand, professor of physiology at the Texas Health Science Center.

Many medications that treat high blood pressure target salt handling in the kidney. "Our work identifies a possible new therapeutic target," Stockand said.

Key kidney DNA

Heart failure risk tied to kidneys (The Times of India: 19.1.2011)

Key Renal DNA Sequence Variant Plays Significant Role: Experts

For the first time, an international team of scientists has discovered a key kidney DNA sequence variant which plays a significant role in increasing the risk of heart failure.

The DNA variant, a change in a single letter of the DNA sequence which is common in people, impairs channels that control kidney function, the researchers found. "It's not a heart gene," said Gerald Dorn, from the Washington University School of Medicine in St Louis, who is the lead author of the study.

"It's a kidney gene. This protein is not even expressed in the heart. Nobody has previously considered that kidney-specific gene defects might predispose you to heart failure."

Heart failure is diagnosed when the heart can no longer provide sufficient blood to the body. It can have a number of causes, including high blood pressure, cancer therapy, viral infections of the heart or heart attack.

But the unexpected findings, published in the journal *The Proceedings of the National Academy of Sciences*, highlighted the advantage of performing genome-wide studies to find DNA sequence variants associated with disease.

“I was surprised by the finding,” says Thomas Cappola, of the University of Pennsylvania School of Medicine, who was also a lead investigator on the study.

“This is a good example of how taking unbiased approaches to study human disease can lead you to unexpected targets.” PTI

Liver Disease

Liver Disease

New hope for patients with end-stage liver disease (New Kerala: 13.1.2011)

Researchers have offered new hope to patients with end-stage liver disease.

Transplanting their own (autologous) bone marrow-derived stem cells into 48 patients with end-stage liver disease resulted in therapeutic benefit to a high number of the patients.

Yet, the mechanism by which the infusion of CD34 stem cells improves liver function remains elusive, they said.

According to the study's corresponding author, Mark A. Zern of the University of California Davis Medical Center, Sacramento, CA, the study sought to evaluate the safety and efficacy of transplanting autologous bone marrow-derived CD34+ stem cells in 48 patients, 36 of whom had chronic, end-stage hepatitis C-induced liver disease, and 12 with end-stage autoimmune liver disease.

"For all patients there was a statistically significant decrease in peritoneal cavity fluid, or 'ascites.' There was also clinical and biochemical improvement in a large percentage of patients who received the transplantation," said Zern.

The researchers reported that they obtained "reasonable numbers of CD34+ cells" that were then "amplified and partially differentiated into hepatocyte precursor cells."

"This enabled us to transplant as many as one billion of these cells per patient. The finding of improvement in ascites in a significant number of patients is impressive and somewhat surprising, suggesting that cell transplantation might be clinically significant beyond the improvement in laboratory parameters," explained Zern.

The team also reported that prior to transplantation, the cells were already beginning to develop a hepatocyte phenotype while in culture, suggesting that the cells may have acted as hepatocyte-like cells following engraftment.

Malaria

Malaria

Malaria; Could The Ingestion Of "Modified" Starch Be A New Vaccine Strategy?(Medical News Today: 24-12-2010)

There is no efficient vaccine against malaria, although nasal and oral vaccination seems to be the most promising and suitable solution in countries where the parasite *Plasmodium*, which causes the disease, is rife. Researchers from two laboratories in northern France (CNRS/Inserm/Institut Pasteur de Lille/Universités Lille 1 et 2) (1) have successfully vaccinated and protected mice by feeding them starch derived from green algae and genetically modified to carry vaccine proteins. These encouraging results, which make it possible to envisage a simple and safe vaccination for children in countries at risk, are available online, on the scientific journal PloS One's website.

According to the WHO, malaria affects approximately 300 to 500 million people worldwide and kills one million each year, mostly young children. Insecticide-resistant mosquitoes carrying the disease and multi-drug resistant parasites are on the increase. In this context, the development of a vaccine that alleviates symptoms and reduces mortality would be a valuable new tool in the fight against malaria. Researchers aim to test the efficacy of vaccine candidates among proteins that allow the parasite to penetrate host cells and infect them, in order to devise the best strategy for vaccine delivery.

Researchers from the Centre d'Infection et d'Immunité de Lille (CNRS/Inserm/Institut Pasteur de Lille/Universités Lille 1 et 2) and the Unité de Glycobiologie Structurale et Fonctionnelle (CNRS/Université Lille 1) have developed a new vaccine strategy based on the ingestion of genetically modified starch. They used antigens that have shown their efficacy in "conventional" vaccinations as vaccine candidates. They fused these antigens to an enzyme (GBSS) in a starch granule from the green algae, *Chlamydomonas reinhardtii*. This enzyme has the particularity of functioning inside the starch granule and of being protected, along with the antigens grafted to it, against degradation by other enzymes. In this way, the researchers were able to produce several murine and human antigens of *Plasmodium* within starch grains. These grains were then ingested by mice inoculated with the parasite. The researchers demonstrated that the mice were vaccinated by the starch grains, which significantly protected them against infection.

Starch is the insoluble and semi-crystalline polysaccharide (2) that is the most commonly found in photosynthetic organisms. A starch grain can easily be produced from a plant extract and purified, in large quantities. It has a very stable structure and can be stored for months with no particular precaution, even if it undergoes temperature variations. It is easily assimilated through digestion and has a major ecological and financial interest, with very low production costs.

The starch of edible plants could be transformed in the same way as that of the algae *Chlamydomonas reinhardtii*. Researchers are thus looking at the possibility of using starch from multi-cellular algae used in Africa as a food supplement, but also from maize and potatoes. Administered to children under 3 years of age, who are at high-risk of malaria-related mortality, such plants could be both a food source and a vaccine. This strategy would allow simple vaccination, avoid storage problems and syringes, and thus eliminate potential HIV contamination.

The vaccine strategy based on the ingestion of genetically modified starch is protected by a patent. The researchers now plan to test the efficacy of various *Plasmodium* antigens and determine whether such strategy can be applied to humans by verifying it has no side effects.

(1) Teams headed by Stanislas Tomavo of the Centre d'Infection et d'Immunité de Lille (CNRS/Inserm/Institut Pasteur de Lille/Universités Lille 1 et 2) and Steven Ball of the Unité de Glycobiologie Structurale et Fonctionnelle (CNRS/Université Lille 1).

(2) Polysaccharides are polymeric carbohydrate structures composed of a succession of glucose molecules.

Malaria parasites

Jet lag key to tackling malaria parasites: study The Tribune: 12.1.2011)

London: A new research has suggested that the malaria-causing parasite is poor at spreading the disease if it is jet-lagged. Researchers at the University of Edinburgh “jet-lagged” the parasites by inserting them into mice whose body clocks were different to their own 24-hour cycle. They found that malaria was only half as effective at causing infection and spreading disease in mice, which had a different routine to the parasite. The study is likely to improve the understanding of when malaria parasites are at their most harmful and when they are vulnerable, and may be a useful aid in developing treatments to tackle the disease. “Our findings suggest that parasites have developed some clever tricks to get their timing right and cause an infection,” the BBC quoted lead author Sarah Reece of Edinburgh University’s school of biological sciences as saying.

Drug-resistant malaria

Drug-resistant malaria strain is new threat from the East (The Times of India: 14.1.2011)

India is keeping a very close watch on a strain of malaria that has become resistant to Artemisinin — the best drug available to fight the disease.

This major threat emerged in the villages on the Thailand-Cambodia border in 2007. Now, scientists and the WHO fear that it could spread across the world in no time putting millions of children at risk.

Speaking to TOI, National Vector Borne Disease Control Programme chief Dr A Dhariwal said the National Institute of Malaria Research is monitoring Artemisinin resistance in 15 sites, mainly in the northeastern states and Jharkhand, Chhattisgarh, Madhya Pradesh and Orissa. “Chances of resistance is high in monotherapy. That’s why we banned it. We’re now using Artemisinin Combination Therapy (ACT). The threat of a resistant strain is very high,” Dr Dhariwal said.

Union health minister Ghulam Nabi Azad told TOI, “Diseases have no borders and they spread at an alarming rate. See the case of swine flu. It came to India from the US in no time.”

According to WHO director-general Margaret Chan, “ACTs are the gold standard. They are the most effective treatment for falciparum malaria, the most deadly form of malaria. The consequences of widespread resistance to Artemisinin would be catastrophic. Resistance to previous generations of anti-malarial drugs such as chloroquine spread from the same Mekong region to India and then Africa, killing millions.”

India records 1.5 million cases of malaria every year, 50% of which are caused by the falciparum malaria. An estimated 18,000 die of the disease in the country. ACT kills malaria parasite in a human bloodstream within 24 to 36 hours. But with the drug-resistant strain, ACT needs up to 120 hours to kill the parasite.

Smallpox virus

Smallpox virus

Let us Keep the Virus (The Indian express: 7.1.2011)

The disease has been eradicated, but eliminating the last few samples of smallpox virus is a bad idea. Continuing research on smallpox will further develop the tools to detect, defend and respond to an attack. Research on the live virus is ongoing. It includes the genetic sequencing of the many strains of virus, and the creation of new and safer vaccines.

HAVE you ever seen a person with smallpox? We rejoice that probably you haven't. In 1977 the disease was eradicated. Only two known research collections of smallpox virus remain, in laboratories in Russia and the United States. This month, the World Health Organisation is debating whether to set a date for destroying these remaining research samples. Elimination of the virus collections is a bad idea.

Smallpox, the most infamous infectious disease in history, killed 300 million to 500 million people in the 20th century alone -more than three times the number killed by wars. Its eradication was the culmination of an 11-year global campaign that stands as a milestone in cooperative international action.

So why not exterminate the last lab specimens? The reasons are born of 21st century changes in global security, technology, politics and, particularly, the threat of bioterrorism. Smallpox is a potential weapon because of the disease's high fatality rate (30 to 40 per cent), its ability to pass from person to person, and the fact that over 40 per cent of the world's population has no immunity because civilian vaccination was stopped over 30 years ago.

In 1980, nearly three years after the last natural cases of smallpox occurred, WHO urged countries to destroy all remaining virus samples or transfer them to the secure Russian or American repositories. However, there was no attempt to verify that labs or governments complied with this request. As a result, it has long been suspected that there are infectious smallpox samples held by other labs in a number of countries -either clandestine specimens or samples unknowingly retained in large virus collections in lab freezers.

In addition, modern biology has created methods that can retrieve virus intact from frozen corpses, old lab specimens, or other materials. And advances in molecular biology make it possible to synthesise smallpox DNA from published information and then use the DNA to rebuild the smallpox virus.

In this light, destruction of the two known virus collections will not eradicate the possibility of smallpox on earth. It will, however, eradicate much of our ongoing public health research with the virus. We think that is very undesirable.

The United States has stockpiled over 300 million doses of an effective smallpox vaccine -enough for every American. But this low-tech vaccine is not ideal for all people and can itself cause deaths. More over, most other countries have little or no smallpox vaccine of any kind, and there are no drugs or effective and safer high-tech vaccines licensed to treat the disease should it occur in the unvaccinated. Under these conditions, most of the world's population could be held hostage to terrorists wielding the virus.

Continuing research on smallpox will further develop the tools to detect, defend and respond to an attack. Research on the live virus is ongoing and includes the genetic sequencing of the many strains of virus, development of new methods for rapid field diagnosis, creation of new and safer vaccines, and early development of first-ever drug treatments for smallpox. Recently, the Institute of Medicine and two expert committees at the WHO have reported on continuing public health advances that are being developed with research on live smallpox virus.

If we were to exterminate the remaining research virus now, we could potentially rebuild it from genetic material should we need it to develop additional drugs or vaccines. But that would put us on a course to undercut an international norm, which we support, that prohibits synthesis or genetic manipulation of smallpox virus. This proposition has been accepted by all 193 WHO member governments, including the United States. Terrorists, however, have no such constraints against synthetic biology, for example by changing an animal pox virus into human smallpox. Alternatively, we could wait until after an attack to restart this research, but that would leave us without adequate preparation or expertise.

Some argue that the greatest threat from smallpox would come from the misuse or theft of the strains in the Russian and US repositories. But that is a very remote possibility, because of the extremely tight security at both labs, and because WHO oversees all research with these samples. We believe that it is better to accept this tiny risk of terrorist theft or researcher malfeasance than to deny ourselves capabilities to defend against smallpox recurring from any source.

Smallpox, the naturally occurring disease, is gone. But let us be sure that when we eventually destroy the last of the legitimate research samples, we have adequate defences to deal with any recurrence of smallpox, from clandestine sources or from virus created in a terrorist's laboratory.

We have an obligation to ensure that our children's children never have to worry about seeing this ancient scourge kill yet again. Destroying the remaining research specimens of smallpox at this time will prevent us from fulfilling this obligation.

Thyroid

Thyroid tests

Stress on thyroid tests during pregnancy (The Hindu: 17.1.2011)

A study conducted at the All-India Institute of Medical Sciences, New Delhi, and King George Medical University, Lucknow, has found thyroid disorders are among one of the most common endocrine problems faced by Indian women during pregnancy.

The purpose of the study, which involved 633 women in their second trimester of pregnancy, was to determine the prevalence of clinical and subclinical thyroid disorders among pregnant Indian women. The women underwent routine obstetrical investigations along with thyroid-stimulating hormone tests. The results showed subclinical hypothyroidism in 6.47 per cent and overt hypothyroidism in 4.58 p.c. women.

According to experts, prompt diagnosis and treatment of the condition are of paramount importance in preventing maternal and foetal morbidity and mortality.

Film actor and mother of two, Kajol, also supports creating awareness about thyroid dysfunction in pregnant women. Speaking during the “Think Thyroid Month”, she said: “During both my pregnancies I made sure that I got my thyroid tests done, however, busy my schedule may have been. The prevalence of thyroid dysfunction in pregnant Indian women at 6.47 per cent is an alarming figure. I urge all expectant mothers to set aside time to go for thyroid tests. This is for the safety of their babies.” “Most expectant mothers pay more attention to their diet, blood pressure, exercise and regular check-ups than they do to a thyroid test. I would urge pregnant women in India to also go for a mandatory thyroid test to ensure a healthy life for their unborn child,” said The Indian Thyroid Society president Professor R. V. Jayakumar.

Drugs and Medicine

Mild painkillers

Mild painkillers in pregnancy cause poor quality semen, cancer in sons: Study (World Newspaper: 30.12.2010)

A new study has suggested that use of mild painkillers during pregnancy may be a reason for the increase in male reproductive disorders in recent decades.

The new research has shown that women who took a combination of more than one mild analgesic during pregnancy, or who took the painkillers during the second trimester of pregnancy, had an increased risk of giving birth to sons with undescended testicles (cryptorchidism).

It is a condition that is known to be a risk factor for poor semen quality and testicular germ cell cancer in later life.

The researchers from Denmark, Finland and France found that women, who used more than one painkiller simultaneously like paracetamol and ibuprofen, had a seven-fold increased risk of giving birth to sons with some form of cryptorchidism compared to women who took nothing.

The second trimester appeared to be a particularly sensitive time. Any analgesic use at this point in the pregnancy more than doubled the risk of cryptorchidism.

Of the individual painkillers, ibuprofen and aspirin approximately quadrupled the risk of cryptorchidism, while a doubling of the risk was found for paracetamol.

Simultaneous use of more than one painkiller during this time increased the risk 16-fold.

Ulla Hass at the Technical University of Denmark and Bernard Jegou from INSERM (Institut National de la Sante et de la Recherche Medicale) found that analgesics disrupted androgen production, leading to insufficient supplies of the male hormone testosterone during the crucial early period of gestation when the male organs were forming.

The researchers also found that mild analgesics reduced levels of testosterone in the rat foetal testis by approximately 50%.

Tackling Drug

Tackling drug fraud (The Financial Express: 27-12-2010)

Incidents of counterfeit medicines are on an increase, particularly in developing countries due to the insufficient anti-counterfeiting resources available. COUNTERFEITING IS A LOW RISK HIGH RETURNS BUSINESS MAKING IT LUCRATIVE FOR UNSCRUPULOUS PEOPLE ALL OVER THE WORLD

WITH increasing R&D costs and marketing expenses, fraud in the pharmaceutical industry seems to have become an inevitable ingredient in the industry. Developing markets are becoming more prone to the three ills of corporate governance-fakes, fraud and forgery. A preventive check mechanism for creating an antifraud environment and proactively addressing the risks is the need of the hour even, while there are increasing regulations for global pharmaceutical companies in the developed markets.

The Foreign Corrupt Practices Act (FCPA) has become an enforcement priority for regulators and major compliance issue for the US companies. There are increased investigations by the Securities and Exchange Commission (SEC) and the Department of Justice (DOJ) for prosecuting business corruption raising financial risks to companies. Pharmaceutical companies in the developing countries have to maximise the generic opportunity as a large number of drugs are expected to lose patents.

These drugs represent \$80 billion in innovator sales between the years 2011 and 2013. Developing countries are coming together for an anti-fraud mechanism which can prevent patent infringement. This can also stop the allegations made by a few global pharmaceutical companies which have apprehensions to outsource to developing countries like India.

A KPMG report says that with the rapid growth of online pharmacies, with the potential to bypass safeguards, together with increasingly sophisticated technologies enabling the production of convincing fakes, fraud and counterfeiting is no longer just a problem in developing countries and requires innovative technical solutions to overcome.

Fraud management has different facets such as bribery investigations, counterfeits, conducting due diligence activities in high-risk countries, etc wherein compliance becomes mandatory by the companies for adherence. A report released by the Organisation for Economic Co-operation and Development (OECD) says that 75% of fake drugs supplied worldwide have some origins in India, followed by 7% from Egypt and 6% from China. A data on counterfeit medicines are difficult to obtain by virtue of its very nature, a recent WHO report estimates the prevalence to be around 1% of sales in developed countries to over 10% in some developing countries.

Fraud incidences occur in countries where access to medicines is poor. A study by the WHO's International Medical Products Anti-Counterfeiting Taskforce (IMPACT) indicated in 2006 that in countries like the US, EU, Japan, Australia, Canada and New Zealand, the incidence of spurious/counterfeit drugs is less than 1%. On the other hand, in parts of Asia, Latin America and Africa, more than 30% of the medicines are counterfeits.

As Ranjit Shahani, president of Organisation of Pharmaceutical Producers of India (OPPI) puts it: "It is a rather arduous task to estimate the true penetration of counterfeit drugs. It is certain that the problem persists in both the developed and developing worlds and is a growing threat to public health.

Counterfeiting is a low risk high returns business making it lucrative for unscrupulous people all over the world." The industry has looked at various measures to prevent counterfeiting including innovative packaging, bar coding and RFID.

Says Ted Acosta, global life sciences leader, fraud investigation and dispute services, Ernst & Young, "Companies must take preventive steps by tightening their own internal controls and punishing employees and agents that engage in inappropriate behaviour to mitigate the fraud risks in the pharmaceutical industry. The current level of fraud in India vis-a-vis other Asian regions is very difficult to establish without a careful empirical study, if such a conclusion can be reached at all."

According to healthcare analysts, the government regulations must be accompanied by enforcement, whether in the form of implementing checks and balances to prevent corrupt persons from succeeding in their efforts or in the form of prosecutions of both the offerers and the recipients of corruptive payments. One of the recent and perhaps a first check mechanism is an SMS-based technology by Unichem Labs and PharmaSecure to protect consumers and pharmaceutical manufacturers from threats of counterfeiting and diversion. Unichem has purchased 70 million of PharmaSecure's codes to be used for protecting its products and consumers from counterfeiting and diversion.

Perhaps this is the only technology currently in use in the Indian market that empowers consumers themselves to check the authenticity of their medicines. Companies are being demanded to do business more openly and transparently, which includes sharing information with other business partners and even submitting themselves to external audits. The US and European MNCs are more actively engaging in deliberate efforts to ascertain the trustworthiness of agents and other third parties they engage locally, particularly in emerging markets, summarises Ted Acosta.

Emerging Drug

Emerging Drug May Help Improve Red Blood Cell Production in Anemic Patients(Medindia: 27-12-2010)

By determining how corticosteroids act to promote red blood cell progenitor formation, Whitehead Institute researchers have identified a class of drugs that may be beneficial in anemias, including those resulting from trauma, sepsis, malaria, kidney dialysis, and chemotherapy.

Anemia occurs due to a breakdown in erythropoiesis, the multi-step process that creates red blood cells. Some common anemias can be treated with a recombinant form of the hormone erythropoietin (EPO), which normally stimulates red blood-cell production at a fairly early stage of erythropoiesis.

However, certain anemias fail to respond to EPO, creating a large unmet medical need. In the case of Diamond Blackfan anemia (DBA), patients lack a sufficient number of EPO-responsive cells. Instead, corticosteroids such as prednisone or prednisolone are used to treat DBA, although it has been unclear exactly how these agents affect erythropoiesis.

To see how corticosteroids are able to increase red blood cell counts, Johan Flygare, a postdoctoral researcher in the lab of Whitehead Institute Founding Member Harvey Lodish, purified two progenitors of red blood cells, called burst forming unit-erythroids (BFU-Es) and colony forming unit-erythroids (CFU-Es), from mouse fetal liver cells. During erythropoiesis, BFU-Es produce CFU-Es, which are then stimulated by EPO to generate the pro-erythroblasts that eventually become red blood cells. By dividing numerous times before maturing, both BFU-Es and CFU-Es have a limited ability to self-renew. When Flygare exposed BFU-Es and CFU-Es in vitro to a corticosteroid, only the BFU-Es responded--dividing 13 times instead of the usual 9 times before maturing into CFU-Es. These additional cell divisions ultimately led to a 13-fold increase in red blood-cell production.

Pills

Clues to Ancient Medicine Expected From Pills Discovered in a 2,000-Yr-Old (Medindia: 24-12-2010)

Scientists had discovered pills in a 2,000-year-old shipwreck around 21 years ago.

Now they are trying to unravel the mystery of whether the pills were, in fact, created and used as effective plant-based medicines.

Around 130 B.C., a ship, identified as the Relitto del Pozzino, sank off Tuscany, Italy. Among the artifacts found on board in 1989 were glass cups, a pitcher and ceramics.

Its cargo also included a chest that contained various items related to the medical profession: a copper bleeding cup and 136 boxwood vials and tin containers, reports AOL News.

Inside one of the tin vessels, archaeologists found several circular tablets, many still completely dry.

Using DNA sequencing, Robert Fleischer, an evolutionary geneticist with the Smithsonian's Center for Conservation and Evolutionary Genetics in Washington, D.C., has identified some of the plant components in the tablets - carrot, radish, parsley, celery, wild onion, cabbage, alfalfa, oak and hibiscus.

This is similar to the recent archaeological discovery in China of a 2,400-year-old pot of soup in which the broth was found inside a sealed cauldron.

But the discovery of these tablets in the shipwreck marks the first time ever that archaeological remains of ancient medicines have been found and the first time DNA analysis has been used in the research.

Drug

Emerging Drug Class May Enhance Red Blood Cell Production in Anemic Patients (Science daily: 24-12-2010)

ScienceDaily (Dec. 24, 2010) — By determining how corticosteroids act to promote red blood cell progenitor formation, Whitehead Institute researchers have identified a class of drugs that may be beneficial in anemias, including those resulting from trauma, sepsis, malaria, kidney dialysis, and chemotherapy.

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responsive cells. Instead, corticosteroids such as prednisone or prednisolone are used to treat DBA, although it has been unclear exactly how these agents affect erythropoiesis.

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Flygare identified 83 genes in BFU-Es that are stimulated by the corticosteroid, and he examined the promoters that facilitate those genes' transcription. The promoters appeared to have binding sites for a transcription factor, called hypoxia-induced factor 1-alpha (HIF1-alpha), that is activated when an organism is deprived of oxygen. To prolong the 83 genes' promotion by HIF1-alpha, Flygare used a class of drugs known as prolyl hydroxylase inhibitors (PHIs), which extends HIF1-alpha's effectiveness. PHIs have also been used in early-stage clinical trials to increase EPO production.

When Flygare added both a corticosteroid and a PHI to BFU-Es in culture, the cells produced 300 times more red blood cells than did cells without exposure to the drugs. Flygare repeated the experiment with adult human BFU-Es, and found that a corticosteroid plus a PHI generated 10 times more red blood cells than BFU-Es exposed to a corticosteroid alone.

Flygare hopes this research eventually leads to improved treatment for DBA patients who currently suffer from a host of corticosteroid-induced side effects, including decreased bone density, immunosuppression, stunted growth, and cataracts.

"If you could lower the dose of steroids so DBA patients would get just a little bit, and then add on this kind of drug, like a PHI, that would boost the effect, maybe you could get around the steroids' side effects," says Flygare. "That would be good."

This new approach to increasing erythropoiesis by extending the self-renewal of BFU-Es -- resulting in creation of more EPO-responsive cells -- could lead to novel therapies for other anemias.

"There are a number of anemias that are much more prevalent than DBA and that cannot be treated with EPO, either, such as anemias from trauma, sepsis, malaria, and anemia in kidney dialysis patients," says Lodish, who is also a professor of biology and bioengineering at MIT. "Whether these treatments will work in those conditions remains to be seen."

This research was supported by the Diamond Blackfan Anemia Foundation, the Swedish Research Council, Maja och Hjalmar Leanders Stiftelse, The Sweden-America Foundation, and the National Institutes of Health (NIH).

Medicine

When allopathy fails, homoeopathy begins: Experts (The Tribune: 3.1.2011)

When allopathy fails in providing long-term relief, the role of homoeopathy begins and this notion seems to be holding ground in people's belief at large as a gradual shift from allopathic to homoeopathy medication is seen, be it common influenza, H1N1 or any chronic ailment.

If experts of the traditional medicine system, the second oldest after ayurveda, are to be believed an increase of 30 per cent in patients resorting to homoeopathic advice has been seen.

While doctors attribute the rise to several factors, including the cost-effectiveness of homoeopathy and side effects of allopathic drugs, several national-level trials and studies are underway to assess the efficacy of homoeopathic medication in controlling the complications arising in several diseases.

In this regard, two prominent centers begin a multi-centric study on influenza in many regions, including Noida and another on influenza-like illnesses, including H1N1 in Kerala. "The council has started control trials - one for influenza-like illnesses, in which two lakh people in Kerala have been administered a drug, arsenicum album, as a part of a study, done after H1N1 outbreak gripped many states in 2009.

The results are under final analysis and we are now compiling the data for release," said Director General of Central Council for Research in Homoeopathy Dr Chaturbhuja Nayak.

According to Dr Nayak, homoeopathy surely takes an edge when it comes to viral ailments, like chikungunya, viral conjunctivitis, chickenpox, etc. and it also ensures better management of chronic as well as incurable diseases, including cancers, HIV/AIDS and TB by preventing complications and facilitating palliative care.

"The tendency to catch cold and cough if not treated from the roots, may aggravate to become tonsillitis leading to chronic bronchitis or asthma due to suppression by allopathic drugs, antihistamines, antibiotics and steroids. This is when the role of homoeopathy begins and these days, it is becoming popular due to the side effects of allopathic drugs, which may only suppress the symptoms. Take for example, pain killers

like voveran and brufen in case of arthritis these actually decalcify the bones and make the person weak. However, this would not happen with the homoeopathic drugs," said Dr SPS Bakshi, president of the Homoeopathic Medical Association of India.

While homoeopathic drugs are milder in comparison to allopathic medicines. These treat the cause while the allopathy only destroys the symptoms. So, the merits of traditional system in managing allergies and chronic disorders cannot be ruled out, say homoeopaths.

"The homoeopathic treatment is simple and cost-effective as well as safe and harmless," stressed Dr Nayak. Homoeopathy works very well in case of genetic, hereditary and chronic problems and allopathy is effective in acute cases like heart attacks, fractures, etc., he added.

Drug

Supplements To Improve Male Erections Recalled Because Of Undeclared Drug Ingredient(Medical News Today:3.1.2011

Undeclared Sulfoildenafil, an analogue of Sildenafil was found in Drive Total Energy products Rock Hard Extreme and Passion Coffee dietary supplements by the FDA (Food and Drug Administration). Sildenafil is an FDA-approved drug for erectile dysfunction treatment - it is the active ingredient of Viagra.

The FDA says the undeclared Sulfoildenafil can interact with some prescription medications, such as nitroglycerin, and dangerously bring down an individual's blood pressure. The active ingredient also interacts with other medications, especially those taken by patients with heart disease, high cholesterol, hypertension (high blood pressure) and diabetes. A high percentage of males with these conditions suffer from erectile dysfunction and may be seeking out these products.

Drive Total Energy has told the FDA it has not received any reports of adverse events linked to the two products. In a communiqué, the company wrote:

"Out of an abundance of caution and concern for the health and welfare of our customers, Drive Total Energy is voluntarily notifying our customers of the FDA's findings.

Drive Total Energy takes this recall very seriously and recommits to the diligent work required in ensuring its products remain free of any potentially unapproved chemicals.

We take the utmost pride in our products' quality control without compromising our customer's health."

The two products, Rock Hard Extreme and Passion Coffee are sold on web sites, online marketplaces and retail outlets. They are presented in single packets, blister packs, and 10-count capsule Rock Hard Extreme single pack Lot # 1152010, expiration date Jan. 15, 2013; Rock Hard Extreme Bottle Lot # 1152010, expiration date Jan. 15, 2013; Passion Coffee UPC 7 97882 00001 2.

Purchasers of these products should cease using them immediately, the FDA urges. They should be returned to where they were bought for a full refund.

Customer-queries should be addressed to Tel. 1-619-825-9422 during Pacific Coast Time office hours, Monday to Friday.

Drive Total Energy says it did not knowingly or intentionally break the law when selling these products.

Patients and health care professionals are encouraged to report any side effects or adverse reactions related to these products to the MedWatch Adverse Event Reporting Program. What is erectile dysfunction?

Erectile Dysfunction, also known as ED or Male Impotence, is a common problem that affects nearly half of all men over 40 years of age at some stage. The problem becomes more common as the man gets older.

HIV Drug

Abbott's HIV drug patent plea rejected for lack of novelty (Business Standard: 4.1.2010)

India has rejected an HIV drug patent application filed by US-based Abbott Laboratories, as it lacked "novelty" under domestic laws. The denial of patent will help domestic drug-makers to produce and market low-cost versions of this drug in the developing world.

The rejection of Abbott's patent application over a combination of lopinavir and ritonavir, sold under the brand name Aluvia, ended the four-year long intellectual property battle between the company and four pre-grant opponents.

In its order on December 30, Mumbai patent office said the drug lacked novelty and did not have any innovative production steps to qualify for patent protection under domestic

laws. The Indian Patent Act does not permit patenting of incremental innovations of known substances.

Hailing the verdict, civil society groups said it sets an important precedent to stop pharmaceutical companies from “gaming” the patent system.

“New formulations of Kaletra (another brand name) have provided physicians and patients with real improvements in its use, dosing and convenience. The heat stable solves specific convenience limitations of Abbott's earlier version, which required refrigeration and had to be taken with food. These challenges have been resolved with the new tablet, and there is significant benefit for patients in developing countries and resource limited settings. Abbott is reviewing this decision and determining its next steps,” wrote Scott Stoffel, spokesperson of Abbott in an e-mail response.

The pre-grant opposition against Abbott’s patent application was filed by a non-profit organisation, Initiative for Medicines, Access & Knowledge (I-MAK) and domestic pharmaceutical companies Cipla, Okasa and Matrix. According to I-MAK, the combination of lopinavir and ritonavir is considered to be the front line of defense for HIV positive patients who have failed to stay healthy with the first round of medicines available today.

“India, the world’s leading supplier of affordable medicines, can now supply this drug to patients across the globe who are desperately waiting for treatment,” a statement from I-MAK said.

The Clinton Health Access Initiative had recently negotiated a price of \$440 (about Rs20,000) per patient per year for generic versions of this drug from four suppliers.

According to I-MAK, Abbott holds at least 75 patents on this particular combination drug. The verdict can be challenged in the appellate body, the Intellectual Property Appellate Board. It is not clear whether Abbott would do so.

Anti-smoking drugs

How anti-smoking drugs may curb cravings (New Kerala: 4.1.2011)

Experts have suggested that two drugs that help smokers kick the butt - bupropion and varenicline - may be associated with changes in the way the brain reacts to smoking cues, making it easier for patients to resist cravings

"Environmental cues associated with nicotine reinforcement induce cigarette craving, which propagates smoking habits in smokers and relapse in abstinent individuals," the authors wrote in one of the articles.

Bupropion, originally marketed as an antidepressant, is prescribed around the world to help people resist smoking cues. But the mechanism for doing so has not been clear.

In one study, Christopher S. Culbertson of the University of California, Los Angeles and his team measured the changes in the brain activity of 30 smokers who were randomly told to take either bupropion or a placebo for a period of eight weeks.

Within a week of joining the study and again after it ended, the participants underwent brain scans. During both the scans, they were shown 45-second videos of actors smoking in various settings as well as clips in which no one was smoking.

They were asked to press buttons on a box indicating how strongly they craved cigarettes immediately after watching each video.

The smokers who took bupropion said they craved cigarettes less even while watching others smoking than those who took the placebo. Those on the drug also showed a decrease in the activation of areas of the brain responsible for cravings.

"These results demonstrate that treatment with bupropion is associated with an improved ability to resist cue-induced craving and a reduction in cue-induced activation of limbic and prefrontal brain regions," the researchers concluded.

In a second study, Teresa Franklin of the University of Pennsylvania and her team looked at how the brain reacted to varenicline, which reduces the symptoms of withdrawal and reinforcement smokers get from nicotine.

In a second study, Teresa Franklin of the University of Pennsylvania and her team used brain scans to study how the brains of 22 smokers reacted when they took the drug varenicline or a placebo during a three-week randomized trial.

The participants also watched 10-minute videos, with either non-smoking or smoking cues, and had to report on the levels of their cravings.

The findings were similar to those of the other study. Smoking cues activated regions of the brain linked to drug motivation and triggered craving feelings. But those who took the drug reported reduced cravings and showed a reduction in brain activity in those areas, said the researchers.

"The results of our study reveal a distinctive new action that likely contributes to its clinical efficacy," they concluded.

"Unsuccessful smoking cessation is more prevalent in individuals with psychiatric illness, suggesting that they have greater difficulty quitting. Varenicline and other medications that can reduce both withdrawal and cue reactivity may be of special benefit to these subgroups who may also be more vulnerable to relapse in the presence of smoking cues," they said.

Antibiotics

Millions of Kids Affected by Misuse of Antibiotics: Experts (Med India: 6.1.2011)

More than a million Chinese kids have been made deaf by misuse of the antibiotic streptomycin, say medical experts.

Yang Zhiyin of the Chinese Medical Association said that of the 1.8 million deaf children on the mainland, 60 percent lost their hearing because of improper drug use, largely related to streptomycin, reports the China Daily.

Each year on the mainland about 200,000 people die from adverse drug events and 40 percent of the deaths are related to the abuse of antibiotics, Yang told the Beijing-based Health News.

Many Chinese households habitually stock antibiotics at home and most people have taken antibiotics without a doctor's guidance, said experts.

"Drug abuse, particularly the overuse of antibiotics, is widespread on the mainland, which is more than a purely medical problem. It's a complicated social issue," said Huang Liuyu, of the Institute for Disease Prevention and Control of the People's Liberation Army.

But he also added that doctors should be the first to be blamed for the situation.

"Some doctors tend to prescribe the most advanced antibiotics for patients who could be cured with commonly used ones. Some do this to achieve the quickest and best result, while others do it to receive kickbacks from drug companies," he said.

Yang said that each Chinese consumes an average of 138 grams of antibiotics a year, more than 10 times that taken by a person in the United States

Splitting tablets

Splitting tablets a potentially dangerous practice: Study (New Kerala: 7.1.2011)

Belgium researchers have warned that splitting pills is a potentially dangerous practice.

Their study points out that the practice could have 'serious consequences' for patients, especially with tablets that have a narrow margin between therapeutic and toxic doses.

Researchers from Ghent University asked five volunteers to split eight different-sized tablets using three techniques commonly used in nursing homes.

The participants split tablets into 3,600 separate quarters or halves using a splitting device, scissors and a kitchen knife. The eight different tablets were different shapes and sizes.

They found that 31 percent of the tablet fragments deviated from their theoretical weight by at least 15 percent, while 14 percent of the fragments deviated by more than 25 percent. Even the most accurate method produced error margins of up to 21 percent.

"Tablet-splitting is widespread in all healthcare sectors and a primary care study in Germany found that just under a quarter of all drugs were split," said lead researcher Dr. Charlotte Verrue.

"It is done for a number of reasons: To increase dose flexibility, to make tablets easier to swallow and to save money for both patients and healthcare providers. However, the split tablets are often unequal sizes and a substantial amount of the tablet can be lost during splitting," she added.

The study involved drugs prescribed for Parkinson's disease, congestive heart failure, thrombosis and arthritis, among others.

The study is calling on pharmaceutical manufacturers to offer different dose options and liquid alternatives for patients to avoid tablet splitting.

The study also said people who are put in charge of splitting tablets should be given proper training on how to split it as accurately as possible.

Omega-3 fatty acids

Omega-3 fatty acids could help prevent traumatic brain injury (New Kerala: 10.1.2011)

Taking the omega-3 fatty acid docosahexanoic acid (DHA) might offer a new way of protecting against traumatic brain injury (TBI), suggest animal experiments.

Although only preliminary, the results raise the "intriguing" possibility of preventive treatment with DHA in groups at high risk of TBI, such as military personnel and athletes

in contact sports-including football players. The lead author is Dr. Julian E. Bailes of West Virginia University, Morgantown.

In the experiment, rats were treated with DHA at varying doses, equivalent to those used in humans taking DHA supplements. After one month of treatment, tissue and behavioral responses to induced TBI were compared between groups of treated animals.

The tissue damage caused by TBI was significantly reduced in rats taking the highest dose of DHA: 40 milligrams per kilogram of body weight. Cellular findings included a significant reduction in expression of a protein (beta amyloid protein) that has been implicated in the development of Alzheimer's disease.

Animals receiving the highest dose of DHA before TBI also had reduced expression of key indicators of brain cell death (caspase 3 and macrophages). The DHA-treated rats also performed better on a test of spatial memory, indicating less behavioral impairment.

Recent research has suggested that treatment with omega-3 fatty acids could help to improve the outcomes of TBI. Docosahexanoic acid is one of the main fatty acids found in the brain, where it may play a number of "neuroprotective" roles.

The new study adds to recent evidence suggesting that DHA may be the first treatment of any type to reduce brain tissue damage caused by TBI.

This omega-3 fatty acid is widely available from an algae or fish oil source.

The study appears in the February issue of Neurosurgery, official journal of the Congress of Neurological Surgeons.

Drugs

AIDS Drugs

Patents for 2 AIDS drugs rejected (The Financial Express: 11.1.2011)

The Indian Patent Office has rejected patent applications related to two AIDS medicines – lopinavir/ritonavir and atazanavir on the basis that they did not merit patents under India's patents law.

"The decisions mark a major victory for public health, and keep the door open for the production of more affordable generics that health providers such as

Médecins Sans Frontières (MSF) rely on to treat patients across the developing world," MSF stated.

“This news comes as great relief for AIDS treatment programmes and the growing numbers of people who have become resistant to their first combination of AIDS medicines and need ‘second-line’ therapy,” said Dr. Tido von Schoen-Angerer, Executive Director of MSF’s Campaign for Access to Essential Medicines.

Atazanavir (ATV) and lopinavir/ritonavir (LPV/r) are recommended by the World Health Organization for second-line AIDS therapy.

LPV/r is also sometimes used as first-line therapy for infants born with HIV. The patent for atazanavir bisulphate, filed by Bristol-Myers Squibb, was rejected because it ‘lacked inventive ingenuity’ and the patent for lopinavir/ritonavir tablet, filed by Abbott Laboratories, was rejected because it did not involve an ‘inventive step.’

New Anti-cocaine drug

New Anti-cocaine drug result positive on mice (The Asian Age: 11.1.2011)

A VACCINE formulated by combining harmless bits of the common cold virus and a cocaine-like compound has been tested positively for anti-cocaine results in mice. This vaccine creates an immune reaction as a result of which subsequent cocaine dosage is met with a rush of antibodies, which gobble up cocaine molecules before they reach the brain. "Our very dramatic data shows that we can protect mice against the effects of cocaine, and we think this approach could be very promising in fighting addiction in humans," says the study's lead investigator, Ronald G. Crystal from Weill Cornell Medical College.

In mice, the vaccine effect lasted for at least 13 weeks, the longest time point evaluated in such a method. The results of the study were published in the online edition of a journal by Nature called Molecular Therapy.

Mr Crystal and other researchers involved hope that this novel viral concoction can offer a simple way to break and reverse cocaine and crack addictions around the world. They are now trying to ensure the safety of the vaccine for its suitability to human trials; this move is expected to be completed in about two years.

Prof. Kim Janda, coauthor of the study explained that immunotherapy is a unique way to tackle addiction problems and is considered safer as the vaccine does not interfere with the neurological targets of the drug, but instead block cocaine from ever reaching the brain in the first place.

"(This approach) might provide the added boost to keep a person from a major relapse, as after immunisation a slip will not produce a drug effect," he added.

If successful, this approach can also be used to treat other addictions such as nicotine, heroine and methamphetamine.

While the path to a commercially available drug is a long one, the vaccine still needs to be tested in more animal models and then extensively in humans.

Molecular Medicine

Molecular Medicine Could Avert and Restore Vision Loss (Med India: 11.1.2011)

Molecular medicine can be used to prevent and restore lost vision when the issues of age-related vision loss of catastrophic proportions is rising from 17 million patients in recent times to 55 million by the year 2050.

These are the words of Stuart Richer, OD, PhD, speaking at the 10th annual meeting and International Conference on Recent Trends in Therapeutic Advancement of Free Radical Science, in Chennai, India today.

Dr. Richer says modern medicine is just beginning to evaluate data from the first cases where conventional medical and surgical efforts to restore lost vision had been exhausted and a molecular medicine approach was employed under compassionate use. Even other nutritional therapies including antioxidants were ineffective. Molecular medicine, where small molecules are utilized that can pass through the blood-retinal barrier and which can influence the genetic machinery inside living cells, appears to be very promising, says Dr. Richer.

While this therapy is still unproven, early data indicates larger trials are warranted. The first cases treated under a molecular medicine protocol provide evidence that not only can visual loss in the later years of life be preserved, but lost vision can be restored, particularly among the most severe cases of retinal disease or what is called advanced macular degeneration, says Dr. Richer.

"While I must qualify what I am saying by noting that the severity of retinal disease may improve on its own, I have now documented three consecutive cases where molecular medicine appears to have restored the normal architecture of the human retina and measurably improved visual function that could not be accomplished with conventional care. In one of these cases, vision improved when the patient took an oral mineral-

chelating antioxidant (Longevinex) and deteriorated when the patient ceased taking the antioxidant cocktail, which suggests cause and effect," he says.

Antibiotics

The Antibiotics Crisis: How Did We Get Here and Where Do We Go Next (Medical News Today: 11.1.2011)

In recent years there has been a lot of news about the impending antibiotics crisis, brought to a head by renewed awareness that we are running out of drugs to treat evolving superbugs, and with the startling revelation following the NDM-1 discovery, that microorganisms are also capable of sharing bits of themselves with each other to thwart even our most powerful last-line antibiotics.

Is this the beginning of the end of antibiotics, as some scientists are predicting, are we about to return to a pre-penicillin world where a common bacterial infection could be a death sentence? Or are we just at the cusp of a new wave of inventions that will spur a new generation of drugs that will keep us ahead of the evolutionary race against harmful microorganisms?

This article does not answer these questions, but attempts to present a digest of key facts and recent developments to illuminate the issues around them.

It starts with a summary of what we mean by antibiotics and what they can and cannot treat. It then goes on to explain how antibiotic resistance arises, including the problem of multiple drug resistance, and why many experts say widespread and misguided use is to blame for the accelerated rate at which resistance has become a global problem, as has the dearth in new drug developments. It then describes some of the things researchers and organizations say we can do to slow down the development of superbugs, and ends with a round up of some surprising new directions that could offer alternative solutions.

Antibiotics and Microorganisms

Antibiotics are drugs that kill microorganisms like bacteria, fungi and parasites. They do not work against viruses because viruses are not microorganisms. When the press and media talk about antibiotics they generally mean drugs that kill bacteria, because most of the stories that have been hitting the headlines in recent years are about antibiotic-resistant bacteria or "superbugs" like the Methicillin-resistant *Staphylococcus aureus* (MRSA).

Bacteria are very small creatures of usually only one cell, comprising internal cell structures but no distinct nucleus, surrounded by a cell wall. They can make their own proteins and reproduce themselves as long as they have a source of food.

As far as humans are concerned, some bacteria are friendly and essential to wellbeing, they do helpful things like break down food in our gut, while others are dangerous because they attack our tissue and cells to make their food, or they produce toxins that poison and kill.

Some bacteria cause no harm while they live in one part of the body, but then become potentially deadly once they enter the bloodstream. A good example is *Escherichia coli* (*E. coli*), which lives in the human gut and helps break down food, but if it enters the bloodstream (eg through a perforation in the intestines), it can cause severe cramping, diarrhea, and even death from peritonitis if not treated promptly.

Another example is *Staphylococcus*, which lives harmlessly on human skin or even in our nostrils, but if it enters the bloodstream, it can lead to potentially fatal conditions like toxic shock syndrome.

Our immune system has special cells that recognize bacteria as foreign agents and mobilize existing counter-agents or antibodies, or trigger the production of new antibodies, to attack and destroy the bacteria before they get a chance to seize a foothold and start replicating inside us. However, sometimes we lose the fight and succumb to infection, and in some cases, without treatment, the consequences can be very severe and even deadly.

Antibiotics have made a big difference to mankind's fight against infectious microorganisms and have vastly improved the conditions and chances of success in many fields of medicine all over the world.

They work because they block a life-sustaining function in the unwelcome microorganism. Some stop the microorganism from being able to make or maintain a cell wall, while others target a particular protein that is vital for survival or replication.

An example of the former is penicillin, the first commercially available antibiotic that Alexander Flemming discovered in 1929. Penicillin stops bacteria like *Strep* (*Streptococcus*, a bacterium that is commonly found on skin or in the throat) from making strong cell walls. Before the introduction of penicillin in World War II, soldiers were more likely to die of bacterial infections than from their wounds.

Viruses are not microorganisms, and although capable of self-replicating, do not appear to be "alive" at all: they are particles consisting of DNA or RNA, some long molecules, and a protein coat. They are much smaller than bacteria, have none of their internal cell machinery, and no cell wall. To replicate they have to get inside host cells and hijack their resources.

And here lies a clue as to why we have a global problem with antibiotics and antibiotic resistance: too many doctors and healthcare professionals, often encouraged by patient demand, have been prescribing antibiotics to treat viral infections. This leads to

imprudent use of antibiotics and greater opportunity for bacteria to mutate into resistant forms.

Ayurvedic medicine

MCD dispensaries run short of Ayurvedic medicine (Hindustan Times: 12.1.2011)

From April 1 to November 30, 2010, 13 school buildings were completed.

JAGDISH MAMGAIN, chairman, MCD works committee

More than 50 dispensaries running under the Municipal Corporation of Delhi (MCD) are running dry of alternate medicines, especially the Ayurvedic medicines. The civic department blames it on lack of funds.

Since last two years, most of these dispensaries have not been able to replenish the exhausted stock, as they do not have the requisite money.

“We have been particularly falling short of medicines used in the panchkarma therapy. There is no money to buy medicines,” said an attendant in one of the dispensaries, who did not wish to be named.

Ayurvedic physicians use panchkarma as a treatment of a wide variety of health conditions including some chronic ailments, and also as a preventative measure.

Most of the funds under the non-plan head gets exhausted in making payments to the civic agency employees and very little is left to be spent on other projects and purchases.

In a meeting of the key panel on Tuesday, chairmen of health and education committees and the also the department of environment management services presented their budgets -the minimum amount required to meet the expenses.

On Tuesday, the MCD, which was rapped by the Delhi High Court for running many of its schools in tents, claimed it has built 60 classrooms in eight months since April and work is on to construct 2,433 more.

“From April 1 to November 30, 2010, 13 school buildings were completed and 60 classrooms constructed. Work is in progress in 154 schools with 2433 new classrooms,” said Jagdish Mamgain, chairman of MCD's works committee.

Low Cost Drugs

Low-cost drugs key to health for all (Hindustan Times: 12.1.2011)

Setting up a national network of pharmacies to produce generic low-cost drugs and establishing a mechanism of bulk purchase of patented drugs to make them affordable are some ways to make healthcare accessible to all, recommend the country's top public health experts in The Lancet: India Series Special released on Monday.

Health costs push 39 million of India's 1.2 billion people below the poverty line each year, with out-of-pocket spending accounting for 78.1% of total spending on health. Insurance and the public sector account for a very small proportion of the burden, unlike in the West where 80% of the spending is by governments.

“To create a health system that works for all, public spending on health should be gradually raised from the current 1.1 % to 6% and 15% of tax revenues -including new taxes on tobacco, alcohol and unhealthy foods -should be earmarked for health,” said Dr K Srinath Reddy, president of the Public Foundation of India and Indian editor of the series that a wideranging review of India's underresourced health system.

The special issue gives an overview of the most critical challenges facing healthcare delivery: health financing, human resources for health, infectious diseases, reproductive health, chronic diseases and injuries and health care and equity.

“India's continued economic growth will be at risk if adequate steps are not taken quickly to invest in the health of its citizens,” said Richard Horton, editor, The Lancet, which has published similar series on Mexico, South Africa and China.

More than one in five Indians has a chronic disease such as heart diseases, diabetes or cancer, while over one in 10 has more than one disease, said the paper on chronic diseases.

Painkillers

Study Warns Heart Attack Risk From Common Painkillers (MedIndia: 12.1.2011)

Over-the-counter painkillers, used for treating inflammation, can increase the risk of heart attacks and strokes, according to an analysis of the evidence published on bmj.com today.

The drugs include traditional non-steroidal anti-inflammatory drugs (NSAIDS) as well as new generation anti-inflammatory drugs, known as COX-2 inhibitors.

The researchers say that doctors and patients need to be aware that prescription of any anti-inflammatory drug needs to take cardiovascular risk into account.

NSAIDs have been the cornerstone of managing pain in patients with osteoarthritis and other painful conditions. In 2004, the COX-2 inhibitor rofecoxib was withdrawn from the market after a trial found that the drug increased the risk of cardiovascular disease. Since then, there has been much debate about the cardiovascular safety of COX-2 inhibitors and traditional NSAIDs, which several studies have not been able to resolve.

So researchers in Switzerland performed a comprehensive analysis of all randomised controlled trials comparing any NSAID with other NSAIDs or placebo.

They included 31 trials and 116,429 patients taking seven different drugs (naproxen, ibuprofen, diclofenac, celecoxib, etoricoxib, rofecoxib, lumiracoxib) or placebo to provide a more reliable estimate of the cardiovascular risks of these drugs than previous studies.

Overall, the number of harmful outcomes that could be compared for placebo versus treatment was low. In 29 trials there was a total of 554 heart attacks; in 26 trials there were 377 strokes, and in 28 trials there were 676 deaths. So the absolute risk of cardiovascular problems among people taking painkillers was low, but the researchers did find that, relative to placebo, the drugs carried important risks.

Anti-epileptic drugs

Anti-epileptic drugs increase risk of fracture in older adults (World Newspaper: 12.1.2011)

A new study has found that most anti-epileptic drugs are associated with an increased risk of non-traumatic fracture in individuals 50 years of age and older.

Nathalie Jetté, of the University of Calgary, Foothills Hospital, Alberta, Canada, and colleagues studied medical records of 15,792 individuals who experienced non-traumatic fractures between April 1996 and March 2004. Each person was matched with up to three controls, persons without a history of fracture, for a total of 47,289 controls.

The individual anti-epileptic drugs studied included carbamazepine, clonazepam, ethosuximide, gabapentin, phenobarbital, phenytoin and valproic acid. Additional anti-epileptic drugs with fewer numbers of users were included together under "other anti-epileptic drugs."

The likelihood of fractures was highest for persons taking phenytoin followed by carbamazepine, other, phenobarbital, gabapentin and clonazepam. The only anti-epileptic drug not associated with an increased likelihood of fracture was valproic acid.

Similar results were found when testing for the use of anti-epileptic drugs in monotherapy (individuals taking only one anti-epileptic drug) and in polytherapy (individuals taking more than one anti-epileptic drug). All anti-epileptic drugs used in monotherapy were associated with a significantly increased risk of fracture except for valproic acid, phenobarbital and "other anti-epileptic drugs." The greatest risk of fracture was found in individuals in the polytherapy subgroups.

"In conclusion, our study showed that most anti-epileptic drugs except for valproic acid are associated with an increased likelihood of non-traumatic fracture in individuals aged 50 years or older," the authors write

Antibodies

Swine flu survivors developed super flu antibodies (The Business Standard: 12.1.2011)

A study of antibodies from people infected with H1N1 swine flu adds proof that scientists are closing in on a “universal” flu shot that could neutralise many types of flu strains, including H1N1 swine flu and H5N1 bird flu, said US researchers.

They said people who were infected in the H1N1 pandemic developed an unusual immune response, making antibodies that could protect them from all the seasonal H1N1 flu strains from the last decade, the deadly “Spanish flu” strain from 1918 and even a strain of the H5N1 avian flu.

“It says that a universal influenza vaccine is really possible,” said Patrick Wilson of the University of Chicago, who worked on the paper published in the Journal of Experimental Medicine.

Many teams are working on a “universal” flu shot that could protect people from all flu strains for decades or even life.

US officials say an effective universal flu vaccine would have enormous ramifications for the control of influenza, which kills anywhere from 3,300 to 49,000 people in the United States each year.

Wilson’s team started making the antibodies in 2009 from nine people who had been infected in the first wave of the H1N1 swine flu pandemic before an H1N1 vaccine had been produced. The hope was to develop a way to protect healthcare personnel.

Working with researchers from Emory University School of Medicine, the team produced 86 antibodies that reacted with the H1N1 virus, and tested them on different flu strains.

Of these, five were crossprotective, meaning they could interfere with many strains of flu including the 1918 “Spanish flu” and a strain of H5N1 or avian flu.

Tests of these antibodies in mice showed they were fully protected from an otherwise lethal dose of flu.

And some of these crossprotective antibodies were similar in structure to those discovered by other teams as having potential for a universal flu vaccine. “It demonstrates how to make a single vaccine that could potentially provide permanent immunity to all influenza,” Wilson said in a telephone interview.

Pill

New pill helps obese shed 2 pounds a week without changing their diets (New Kerala: 12.1.2011)

A new fat-busting pill could help obese people shed two pounds a week - without changing their diets.

Start-up U.S drugs company Zafgen have announced the results of a promising human trial of a drug called ZGN-433, reports the Daily Mail.

The double-blind placebo-controlled study found 24 obese women lost an average of a week over one month - which is the maximum safe recommended amount.

The women also reported feeling fewer hunger pangs over the 26 days.

The New Scientist described the results as "stunning" considering that the women continued to eat normally and were not given exercise advice.

The drug, which was initially developed for the treatment of solid tumours, works by increasing the breakdown of fat.

Scientists at Zafgen believe ZGN-433 blocks an enzyme, which prevents several genes from functioning properly. This means they no longer activate other genes that stop insulin from working effectively.

The drugs company said the pill could potentially help individuals to lose 20 to 40 per cent of their body weight over nine months.

The data will be presented at the Keystone Symposia on Obesity in Colorado.

Drug

New drugs show promise in treating dangerous blood clots (New Kerala: 13.1.2011)

Scientists have suggested that two new drugs - Apixaban and Rivaroxaban - might be more effective and easier to use than commonly used medicines in preventing dangerous blood clots after hip replacement surgery.

The results reveal a better way to prevent the formation of blood clots in the deep veins of the legs - a condition known as deep vein thrombosis (DVT).

The blood clots become life-threatening pulmonary embolisms (PE) when they break free and travel to the lungs.

The study compared the drug Apixaban, given orally twice a day, to the current standard medicine Enoxaparin, given twice daily by injection under the skin.

The randomized, double-blind trial involved more than 5,000 patients and showed Apixaban reduced the risk of blood clots, without increasing bleeding side effects.

"Each year, about 750,000 Americans undergo hip or knee replacement surgery and that number is growing rapidly. This is a major stride forward as we work toward better prevention of life-threatening blood clots in these patients," said Gary Raskob, dean of University of Oklahoma College of Public Health.

He said that the development of new oral anticoagulant agents, like Apixaban, has raised hope of a standard of care for DVT prevention that is as effective as or more effective than current standard approaches as well as being equally safe and more convenient for patients.

Raskob also was a primary author in another study published in the same issue of The New England Journal of Medicine focusing on the treatment of patients with established deep vein thrombosis.

"Despite the best current prevention efforts, blood clots still occur. So, it is important to continue to work toward better treatments as well as better ways to prevent blood clots," he said.

The second clinical trial, which included patients at the University of Oklahoma Health Sciences Centre, found that the medication Rivaroxaban provided a simple, effective, single-drug approach for both short-term and continued long-term treatment of patients with deep vein thrombosis.

Rivaroxaban is given orally in a fixed dose without the need for laboratory blood testing to monitor the anti-clotting effect.

Current treatment methods, on the other hand, use two drugs, one given by injections under the skin once or twice a day for 5 to 10 days, followed by an oral medication that requires careful monitoring and dose adjustment based on results of regular blood tests.

Scientists at OU and their colleagues worldwide are working diligently to find better and more practical tools to prevent and treat blood clots in the legs and lungs.

Drugs

Drugs for exports must carry barcode (The Economic Times: 13.1.2011)

Move To Put An End To Allegations From Some Countries That A Few Firms Ship Out Counterfeit Medicines

THE government has made it mandatory for drugmakers to carry a barcode on every product exported out of the country to put an end to allegations overseas that some local firms ship out counterfeit medicines.

The new norms will be applicable from July 1, directorate general of foreign trade (DGFT), a commerce ministry arm said on Monday. Industry experts say the new rules will increase the cost of exports for Indian medicines and will impose a cumbersome compliance process.

A barcode is a machine-readable data, which contains information about the product including details about the manufacturer. It will allow authorities to track each and every medicine exported out of the country.

The drug control authorities at the ports can also retain a sample of the drug for its reference and tracking. The barcode will also check the practice of some Chinese companies selling fake drugs with 'Made in India' tag in few African countries like Nigeria.

About 3,500 Indian drugmakers exports medicines worth \$10 billion each year to over 100 countries. India is considered the global pharmacy since local drugmakers are leaders in selling low-cost version of off-patented drugs.

Local drugmakers say such allegations of counterfeit drugs are attempts by international drugmakers to scuttle competition from generic companies.

Camel Milk (Treat Cancer)

Camel milk, urine to treat cancer? (The Times of India: 13.1.2011)

New Drug Developed By Arab Experts Proves 100% Successful In Mice

A group of Arab researchers is claiming to have developed a medical formula for treating cancer by using camel's milk and urine.

Researchers at Arab Biotechnology Company (ABC) have said experiments conducted on mice have proved to be 100 % successful. They found the camel's immune system was rejuvenating itself every time they took samples of milk and urine, making it one of the strongest immune systems.

The lab mice that have been injected with the new drug since six months are still live and their behavior natural like the healthy ones. The new remedy carries smart cells that can attack poisonous substance in the cancerous cells without producing any side effects, they added.

“The medicine, a combination of camel's milk and urine, has been tested on experimental mice and will be tested on human being,” Abdalla Alnajjar, President of Arab Science and Technology Foundation said.

He added that the experiments had started at Sharjah University and completed at the cancer institute in Baghdad.

Cancer kills 6 million persons every year in the world. According to the Arab Cancer Control Association, cancer is the second cause of death in the Arab World after heart and communicable diseases.

Infection has reached alarming rates with 100-150 cases per 100,000 people, an increase of 213% per annum. He said the researcher had reprogrammed the immune system to accept certain chain of foods and the results were amazing.

According to him, the formula treats Leukemia (blood cancer) and can be developed to cure other types of cancer infecting lung, liver and breast.

STURDY SOURCE: Camel's immune system constantly rejuvenates itself, making it disease resistant

Nimesulide (Medicine)

Paediatric Nimesulide Cisapride, PPA face ban (The Financial Express: 14.1.2011)

Within two weeks from now, four drugs—analgesic Nimesulide suspension for paediatric use, heartburn drug used in gastroesophageal reflux disease, Cisapride, decongestant used in cold and cough phenylpropanolamine (PPA) and human placenta extract would be banned in India. A blanket ban on Nimesulide, however, is not coming so soon. The Drug Controller General of India has forwarded a proposal to the health ministry recommending imposition of ban on the sale of these drugs in the Indian market. The drug regulator has taken the step, based on the final recommendation of a sub-committee of Drug Technical Advisory Board (DTAB), which was constituted to form a view on imposing a ban on these drugs. These drugs have been already banned in most regulated markets such as Europe and US, in most cases between 2000 to 2004. While confirming the development, Drug Controller General of India, Surinder Singh said that the notification on the same is expected soon.

Singh added that although Nimesulide for adult usage, has been kept out of the ban for now, it would be put under surveillance in the pharmacovigilance system (that provides data on adverse effect of drugs) that is being streamlined now in the country, and as data starts pouring in the next two years, a final call would be taken.

on the drug. The DTAB sub-committee, for now has recommended a ban only on the paediatric version of the analgesic drug basing its observation only on global experiences, since adverse drug effect data from India is almost non-existent, Singh added.

However, data shows that among the most major companies, barring Panacea Biotec have either exited or are in the process of exiting the paediatric Nimesulide market, which now forms a very small segment of the Rs 300 crore Nimesulide market. While Panacea earns close to Rs 3 crore from its paediatric brand of Nimulid, Dr Reddy's Lab, the market leader in the overall Nimesulide market, earned only Rs 2 lakh in 2010 from its paediatric brand, Nise. Dr Reddy's revenues in the specialised segment has seen a year-on-year negative growth of 99% since 2009, leading experts to believe that the firm could be already in the process of exiting the Nimesulide suspension market. Dr Reddy's total annual revenues from Nimesulide remained around Rs 62 crore in 2010, down from Rs 70 crore in 2009.

Panacea's earnings in the paediatric formulation segment has largely stagnated around Rs 3 crore for last four years, while its overall sale in the segment (inclusive of Nimesulide adult) stands at Rs 15 crore, down from Rs 20 crore in 2006. Unichem, which markets paediatric syrup under brand name Pronim earned a meagre Rs 44 lakh from the brand last year.

Calcium abuse

Doctor's caution against calcium abuse (The Hindu: 17.1.2011)

Increases risk of myocardial infection: Report

“Changing to calcium-rich foods may be better instead of going heavy on oral supplements”

“While a single article isn't conclusive, it makes us aware of risk associated with calcium abuse”

Doctors in the Capital have cautioned calcium supplement users against its abuse, with a leading medical journal publishing a report linking calcium overdose to increased risk of myocardial infection — the destruction of heart tissue resulting from the obstruction of blood supply to the heart muscle.

“The published study indicates that the risk of myocardial infection with calcium supplements tends to be greater. However doctors should tell patients that for older people, the risks of calcium supplements outweigh the benefits. Changing to calcium-rich foods may be appropriate instead of going heavy on oral supplements. Normally, accumulation of calcium in the arterial wall leading to reduced compliance would be expected to take years, but the increased risk of myocardial infection seems to occur early after calcium supplementation,” said cardiologist K.K. Aggarwal.

Fortis-Escort Heart Institute (Cardiac Sciences) chairman Ashok Seth noted: “While a single article isn't conclusive, it certainly makes us aware of the risk associated with calcium abuse. The findings are very important, and we are now issuing warning to the people that they should not overdose with pure calcium supplements. Given along with vitamin D supplements, calcium has, so far, not reported any adverse reaction, but we are withdrawing calcium use among patients who don't really require it.”

Dr. Seth added that patients were now also being informed about the added risk.

The study noted that the use of calcium supplements without co-administered vitamin D is associated with an increased risk of myocardial infection.

Cautioning against going by one article alone, All-India Institute of Medical Sciences orthopaedic surgeon Chandra Shekhar Yadav said: “We have to take into account the fact that the Indian population, especially after the age of 40 years, have calcium deficiency,

and a combination of vitamin D and inexpensive calcium supplement goes a long way in benefiting the overall well-being.

“Also, unless a person is suffering from some hormonal imbalance, excess calcium is simply not absorbed by the body. It only takes the calcium it needs, so there is very little chance of overdose in the normal course. Of course, caution is required when dealing with a possibility of mineral overdose, however, there is really no need to panic in most cases.”

Hypertension drug

Glenmark tanks 6% after US jury ruling on hypertension drug (Business Standard: 18.1.2011)

Drug maker Glenmark Pharmaceuticals today tanked more than six per cent on the Bombay Stock Exchange (BSE) after a US jury directed it to stop selling a copy of Abbott Laboratories' hypertension drug, 'Tarka', in the country.

A five-member federal jury in Newark, New Jersey, on Friday rejected Glenmark's challenge to the validity of the Tarka patent that expires in February 2015. The jury also directed Glenmark to pay about \$16 million (`70 crore) in damages to Abbott for selling the drug 'at risk'.

Glenmark shares closed 6.46 per cent down at `325 on the BSE.

Patent experts said Glenmark had the option of appealing against the decision with the US District Court of New Jersey.

A spokesperson at Glenmark declined to comment, saying the issue was legal.

Glenmark, which has a 180day exclusive sales opportunity in the US upon patent expiry of this drug, was expecting to get \$5-7 million every quarter in the coming few years from Tarka sale. Tarka has annual sales of about \$60 million in the US and Glenmark is believed to be the first to challenge its patent with a generic version.

Glenmark had launched a copy of Tarka in June last year after a US court overruled an Abbott petition seeking a preliminary injunction to prevent the Indian company from selling the drug in the US. The US Food and Drug Administration had approved Glenmark's generic version in May. The original patent on Tarka was held by French drug maker Sanofi-Aventis and was later sold to Abbott.

Sources said Abbott was seeking about \$25 million in damages from Glenmark for launching the drug 'at risk'. Glenmark has been selling the generic version even as the court is yet to take a final decision on the patent issue. Glenmark could be liable to pay more to patent holders if it loses the case.

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HIV drug

ViiV seeks partners for HIV drug in India (The Economic Times: 18.1.2011)

GLOBAL drugmaker ViiV Healthcare is evaluating local partnerships to launch its patented HIV medicine maraviroc in India and is open to a deal with Natco Pharma that has sought voluntary licence to make a low-cost version of the drug.

Hyderabad-based Natco Pharma has sought voluntary licence for maraviroc, taking an initial step that could lead to the first case of compulsory drug licence for domestic market. The controversial provision under which the government can allow a generic drugmaker to make a low-cost version of a patented drug by paying a fee is opposed by foreign drugmakers, but is allowed under local laws. Viiv Healthcare is the joint venture that houses HIV/AIDS drug business of GlaxoSmith-Kline Pharmaceuticals and Pfizer Inc.

Rebecca Hunt, spokeswoman for London-based Viiv Healthcare, said the local partners could be either for manufacturing or marketing. "It is too early and we are not ruling out either. Natco's offer is one of the many options we will consider," she said.

Majority-owned by GlaxoSmithKline, ViiV Healthcare plans to launch the antiretroviral drug sold globally under the brand Celsentri, in India this year, at a 'competitive price' as part of its tiered pricing strategy in middle income countries such as India, Hunt said.

Natco spokesman declined comment but a person close to the company said its next move will depend on the terms of any offer from Viiv Healthcare.

Natco Pharma had earlier said Celsentri's price in Indian currency translates to about . 66,000 for a month's dosage which is too expensive for patients and its own low-cost version will cost just one-fifth. If Pfizer does not accept Natco's application for a voluntary licence by May, the Indian company plans to seek a compulsory licence that will allow it to sell a low priced version of the patented drugs in India.

This will be a big test case for compulsory licensing in India and set the precedent on its use to make drugs affordable for masses. Global innovator companies are jittery over the use of this provision since it breaks their monopoly and pricing power for the product.

Drug (For Cataracts)

Scientific Evidence Supports Effectiveness of Chinese Drug for Cataracts (Science daily: 19.1.2011)

Scientists are reporting a scientific basis for the long-standing belief that a widely used non-prescription drug in China and certain other countries can prevent and treat cataracts, a clouding of the lens of the eye that is a leading cause of vision loss worldwide.

In the study, Tzu-Hua Wu, Fu-Yung Huang, Shih-Hsiung Wu and colleagues note that eye drops containing pirenoxine, or PRX, have been reputed as a cataract remedy for almost 60 years. Currently, the only treatment for cataracts in Western medicine is surgical replacement of the lens, the clear disc-like structure inside the eye that focuses light onto the nerve tissue in the back of the eye. Despite the wide use of pirenoxine, there have been few scientific studies on its actual effects, the scientists note.

To fill that gap, the scientists tested pirenoxine on cloudy solutions that mimic the chemical composition of the eye lens of cataract patients. The solutions contained crystallin -- a common lens protein -- combined with either calcium or selenite, two minerals whose increased levels appear to play key roles in the development of cataracts. Presence of PRX reduced the cloudiness of the lens solution containing calcium by 38 percent and reduced the cloudiness of the selenite solution by 11 percent. "These results may provide a rationale for using PRX as an anti-cataract agent and warrant further biological studies," the article notes.

Antibiotics and B P Drug

Mixing Common Antibiotics And Blood Pressure Drugs Can Be Dangerous For Older Patients (Medical News today: 19.1.2011)

Taking commonly prescribed antibiotics and blood pressure drugs together could cause blood pressure to fall dangerously low and cause shock in older patients so they end up in hospital, according to a new study from Canada.

Senior author Dr David Juurlink, scientist at the Sunnybrook Research Institute and the Institute for Clinical Evaluative Sciences in Toronto, Ontario, and colleagues, wrote about their findings in the 17 January online issue of the CMAJ, Canadian Medical Association Journal.

They found that older patients taking calcium-channel blockers, a class of drug used to treat high blood pressure, who also took either of two commonly prescribed macrolide antibiotics, erythromycin or clarithromycin, were at higher risk of being admitted to hospital with hypotension or very low blood pressure.

A third commonly prescribed macrolide antibiotic, azithromycin, appeared not to induce such a reaction, and Juurlink and colleagues recommended that:

"When clinically appropriate, it [azithromycin] should be used preferentially in patients receiving a calcium channel blocker."

In their background information, the authors wrote that macrolide antibiotics (erythromycin, clarithromycin and azithromycin) "are among the most widely prescribed antibiotics", and in Canada alone, millions of prescriptions are made out for these every year.

The drugs are generally well tolerated, they noted, but they were aware of "several important drug interactions", including the suggestion that "clarithromycin and erythromycin may potentiate calcium-channel blockers by inhibiting cytochrome P450 isoenzyme 3A4", however, this interaction is poorly understood.

Juurlink told Medscape's heartwire that although the interaction is "perfectly predictable based upon the pharmacology of the drugs, it has been previously documented in only about five case reports."

To find out more about it, and assess the clinical consequences of this interaction, Juurlink and colleagues decided to investigate the risk of hypotension (very low blood pressure) or shock that resulted in patients being admitted to hospital in cases where they had been taking calcium-channel blockers and macrolide antibiotics at the same time.

They designed their study as a "population-based, nested, case-crossover study", and searched the medical records of around a million Ontarians for patients over 65 years of age who had received prescriptions for calcium-channel blockers in the fifteen years between 1 April 1994 and 31 March 2009 and who had been admitted to hospital for the treatment of hypotension or shock.

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A case-crossover study is where participants are their own controls, and the researchers compare what happens to them over two different time periods, the "risk" interval and the "control" interval.

In this case, the researchers used a "pair-matched analytic" approach to estimate the risk of hypotension or shock associated with taking a calcium blocker to contrast each patient's exposure to to each macrolide antibiotic (erythromycin, clarithromycin or azithromycin) over the seven days just before admission (the "risk" interval), and another seven day period a month earlier (the "control" interval).

The results showed that:

Over the fifteen years, a total of 7,100 patients were admitted to hospital because of hypotension while receiving a calcium-channel blocker.

Of these, 176 had been prescribed a macrolide antibiotic during either the risk or control intervals.

Erythromycin, the strongest inhibitor of cytochrome P450 3A4, was found to increase the risk of low blood pressure almost 6-fold, followed by clarithromycin, which increased the risk almost 4-fold (based on odds ratio).

In contrast, azithromycin, which does not inhibit cytochrome P450 3A4, was not linked with increased risk of hypotension.

The researchers noted that they found similar results in a "stratified analysis of patients who received only dihydropyridine calcium-channel blockers".

They concluded that these findings show that older patients on calcium-channel blockers who also use either erythromycin or clarithromycin are at increased risk of ending up in hospital due to hypotension or shock, but that "the related drug azithromycin appears safe".

"Preferential use of azithromycin should be considered when a macrolide antibiotic is required for patients already receiving a calcium-channel blocker," they added.

"The risk of hypotension following co-prescription of macrolide antibiotics and calcium-channel blockers."

Antibiotics, blood pressure drugs can be a risky mix (The Times of India: 19.1.2011)

Older adults on blood pressure drugs known as calcium channel blockers could suffer dangerous drops in blood pressure if they are given certain antibiotics, according to a study.

Researchers found that patients on calcium channel blockers who were given the antibiotics erythromycin or clarithromycin were at increased risk of being hospitalized for dangerously low blood pressure.

A third antibiotic in the same class — azithromycin — was not linked to the risk. And the researchers say it should be chosen over the other two antibiotics for people on calcium channel blockers. For their part, calcium channel blockers are among the most commonly used long-term medications. The problem with erythromycin and clarithromycin is that they inhibit an enzyme vital to metabolizing calcium channel blockers, explained Juurlink, of the Institute for Clinical Evaluative Sciences in Toronto.

As a result, blood levels of the calcium channel blocker spike, leading to sometimes severe drops in blood pressure. Azithromycin, in contrast, does not block that same enzyme.

Researchers have known about these drug actions, but until now there had been no large study looking at the risk of severe low blood pressure among patients on calcium channel blockers and macrolides.

Pill

Don't Swallow This Pill (The Times of India: 19.1.2011)

India needs to resist the European trade agenda on medicines

Are the European Union and its multinational pharmaceutical companies now pressuring the Indian prime minister's office? In recent months, as negotiators from India and Europe have been thrashing out the details of a free trade agreement to be signed within months, people living with HIV have been hitting the streets. From New Delhi to Nairobi and Brussels to Bangkok, they have been protesting against the very real threat

posed to India's ability to supply life-saving generic medicines to people across the developing world.

Publicly, both sides have assured that the trade deal will not harm access to the affordable generic medicines, and reiterate, as if by rote, the primacy of people's health over economic interests. But the Indian press now reports that the PMO, under pressure to conclude the deal, has asked the concerned government department to reconsider intellectual property (IP) provisions it had earlier rejected.

What is at stake? India became the 'pharmacy of the developing world' because its generic manufacturers are able to produce medicines that are patented elsewhere. This has made it a safe haven for affordable medicines. Médecins Sans Frontières now purchases more than 80% of the medicines it uses to treat 1,60,000 people living with HIV/AIDS around the world from producers in India. But this safe haven has been under constant attack.

Six years ago, the first attack came when India was obliged under international trade rules to introduce patents on medicines. Already, patents have been granted on cancer, AIDS and hepatitis medicines. But crucially, India's parliamentarians sought to balance patents with public health, and designed a strict patent law that would stand up to trade rules and protect access to affordable generic medicines.

One core provision of the law stops pharmaceutical companies from abusing the patents system. Section 3d says no patent shall be granted for a minor

change to an existing medicine, if it shows no significant therapeutic efficacy over one which already exists. This prevents "evergreening", when companies seek monopolies to block out generic competition for as long as possible, simply by making minor changes to a drug.

This has irked multinational pharmaceutical companies, which launched a second attack on the pharmacy of the developing world. As patent applications for several big-ticket drugs – oseltamivir for avian and swine flu, imatinib for leukaemia and, very recently, lopinavir/ritonavir and atazanavir for AIDS – failed to pass the patentability test in India, companies sought to overturn the law, or empty it of any substance. Novartis notoriously took the government of India to court in 2006, but lost. Other companies like Bayer have taken a stab, but have yet to succeed.

Enter the free trade agreement negotiations, as the European trade agenda becomes the latest mouthpiece for the multinational pharmaceutical companies. Until now, much of the debate on generic production in India has focussed on patents. Now, the EU has changed track and is pushing hard for India to sign up to another means of blocking off generic production: data exclusivity.

With data exclusivity, India would be agreeing to grant a period of exclusivity over the clinical trial data submitted by a pharmaceutical company. This in turn would prevent the

Drugs Controller General of India – the body responsible for approving medicines for market – from registering a generic medicine until that time was over. The multinational pharmaceutical industry has asked for that time to be 10 years.

Data exclusivity is a backdoor to monopoly protection. It also sweeps away the attempts by India's parliamentarians to balance health and profits. It makes a mockery of India's patent offices' work to apply rigorous standards and ensure only innovative medicines are granted a monopoly. Now, a pharmaceutical company would merely have to submit clinical trial data to obtain several years of monopoly, whether the drug was patented or not, whether it was old or new, whether it showed inventive step or not, or gave added therapeutic benefits or not.

The effect on access to affordable medicines is clear. India can learn from the countries that have preceded it down this path. Jordan brought in data exclusivity as part of a trade deal with the US. A study by Oxfam found that of 103 medicines registered and launched since 2001 that had no patent protection in Jordan, at least 79% had no competition from a generic equivalent as a consequence of data exclusivity. The study also found that prices of these medicines under data exclusivity were up to 800% higher than in neighbouring Egypt.

India should not repeat others' mistakes, or the effect would be felt far beyond India's borders. The country is the source of the vast majority of drugs used to treat AIDS in developing countries. Affordable medicines produced in India have played a major part in reaching the more than five million people receiving HIV/AIDS treatment across the developing world today.

In 2000, treating one HIV positive person for a year cost more than Rs 4,00,000. Thanks to competition among generics from India, this same treatment today costs Rs 3,000. Any measure in the free trade agreement that would have the effect of blocking competition would effectively be turning the clock back on access to medicines. India needs to stand strong and resist European demands.

The writer is international president, Médecins Sans Frontières.

Pills

Soon, a pill that would help women fight 'monthly blues'
(The Tribune: 19.1.2011)

Dreadful mood swings and late-night cravings for chocolate in women with pre-menstrual tension may soon become a thing of the past as scientists come a step closer to making a pill that would reduce the symptoms of PMT (pre-menstrual syndrome). The research found that the capsule, which contains fatty acids, reduced the emotional and physical symptoms in millions of British women, reports The Daily Express. Women

who took the supplement over six months reported 'far milder' symptoms. Common symptoms of PMT include irritability, mood swings, depression and angry outbursts as well as abdominal cramps, bloating and headaches. Scientists at Brazil's Federal University of Pernambuco said in some cases the symptoms are so severe that it can lead to women suffering serious mental problems and even attempting to take their lives. —

Novel Antibiotic

Novel Antibiotic Combinations Fight Resistance Genes (Science Daily; 20.1.2011)

The combination the antibiotic ceftazidime plus the compound NXL104 is active against bacterial pathogens containing genes that confer resistance to multiple carbapenems, according to two papers published in the January 2011 issue of the journal *Antimicrobial Agents and Chemotherapy*.

Carbapenems are the most powerful penicillin-related antibiotics, often used against difficult bacterial infections that have become resistant to other drugs. The spread of bacteria with carbapenem resistance -- now throughout the world -- is a grave concern, says David Livermore of the Health Protection Agency, London, UK, the principal investigator for one of the papers. There are a variety of genes encoding very different carbapenem-destroying enzymes. Two of the most important of these are KPC -- which is now widespread in the US -- and NDM, which is rapidly spreading internationally from India and Pakistan.

Livermore showed that NLX104 plus ceftazidime is effective in vitro against *Klebsiella pneumoniae* carrying the resistance gene that codes for carbapenemase, but not those with NDM; but that the antibiotic combination NXL104 plus aztreonam is active against all carbapenemase producers, including those with NDM.

"What was most impressive was the ability of the inhibitor combination [NXL104 plus ceftazidime] to treat bacteria that produced three or four beta-lactamases," says Karen Bush of Indiana University, Bloomington, who was not involved in the research.

In the other paper, Andrea Endiamiani and Robert Bonomo of the Louse Stokes Cleveland VA Medical Center and Case Western Reserve University show in animal models that ceftazidime plus NXL104 is active against *Klebsiella pneumoniae* carrying carbapenemase, and expressing high levels of resistance to imipenem and ceftazidime. Additionally, adding NXL104 to ceftazidime significantly increased survival of mice with otherwise lethal infection.

"To our knowledge, these are the first studies that show that NXL104 is effective when combined with ceftazidime in animal models," says Bonomo of his research. "This opens the door for more in-depth investigations into this, as well as novel derivatives."

These new antibiotic combinations are critical because the resistance they fight is spreading worldwide. The NDM resistance genes are believed to have originated in India, but they have been found in the United States, in much of Europe, Israel, Hong Kong, Japan, and Kenya, and victims include medical tourists to India and Pakistan, says Livermore. The major carriers of NDM-1, one of the resistance genes, are *Klebsiella pneumoniae* and *E. coli*, but *Acinetobacter* species are additional hosts, which Livermore says reflects the ease with which plasmids carrying the resistance genes can spread among different bacterial species.

Livermore warns that the combination in India of highly developed medical facilities serving both locals and medical tourists, largely unregulated use of antibiotics, a huge population, and a "creaky infrastructure" that allows circulation of gut bacteria between the sewers and the drinking water creates a "frightening" potential for local spread and international dissemination.

Pill (For skin cancer)

Pill to combat skin cancer just a yr away (The Times of India:21.1.2011)

In what could revolutionise the treatment for malignant melanoma, scientists have developed a new pill which they say significantly improves survival rates of patients suffering from the deadliest form of skin cancer.

Researchers behind the drug, known as RG7204, claimed that it was found to reduce the size of tumours by 80% in patients who participated in a trial held at the Memorial Sloan-Kettering Cancer Centre in New York. And the side effects such as rashes and photosensitivity were all classified as mild, the researchers from the Royal Marsden NHS Trust in London said, adding that the drug could be available as early as 2012.

The breakthrough, according to them, was made following the full decoding of human DNA, which pinpointed a genetic flaw in about half of cases of malignant melanoma. The flaw drives the cancer cells to grow and spread, but RG7204 seeks out and blocks the mutated gene, called BRAF, causing tumours to shrink.

The scientists believe the drug will have a dramatic effect on treatment for those patients whose cancer has the BRAF mutation.

James Larkin, who led the research, said, “This is an incredibly exciting breakthrough. With a growing incidence of melanoma in younger people, the results of this trial are very encouraging. The drug shows a dramatic degree of activity in this disease. I hope it will become available to patients as quickly as possible, perhaps later this year or early in 2012.”

Interim results from a trial of 700 patients at the Marsden and other international centres have not yet been released, but earlier reports suggested patients in late stages of the disease using the drug might enjoy up to seven extra months of life.

Richard Marais, part of the team that helped link the gene to skin cancer, said: “These results represent a paradigm shift in melanoma treatment and will change how we approach treatment of this disease.”

In a first, malaria attack filmed

Scientists claim to have for the first time caught malaria parasites in the act of invading red blood cells, a major breakthrough which could pave the way for developing more effective treatments for the disease. An international team has used new image and cell technologies to obtain the images of how malaria parasites attack red blood cells, the ‘Cell Host & Microbe’ journal reported.

Kala-azar combination drugs

Kala-azar combination drugs effective, safer, says study(The Indian Express: 24.1.2011)

COMPARED to the standard treatment of visceral leishmaniasis, commonly known as Kala-azar, combination treatments are “efficacious” and “safe”, says a new study in the online edition of The Lancet.

The study in the medical journal says “combination treatments for visceral leishmaniasis decrease the duration of therapy, thereby encouraging adherence and reducing emergence of drug-resistant parasites”.

Researchers compared standard treatment of amphotericin-b infusion with the three drug combinations in

two hospital sites in Bihar. In the study conducted between June 2008 and July 2009 about 630 patients aged 5—60 years with parasitologically confirmed visceral leishmaniasis were enrolled. They were randomly assigned one of the four treatments by the trial statistician by use of a computer-generated list. Clinical assessments were done at the end of treatment.

It was found that all combinations were non-inferior to the standard treatment.

Also, “the patients in the combination groups had fewer adverse events than did those assigned standard treatment,” says the study.

Overall, there were more male than female participants and more adults than children in the study. Compared to the standard treatment, the researchers also found that all three combination treatments were “less toxic” and better tolerated than was the standard treatment with amphotericin-b.

According to Dr A C Dhariwal, Director, National Vector Borne Disease Control Programme (NVBDCP), they are happy with the treatment which is given now.

“However these are just observations. The standard treatment is oral and easy to be administered,” he said.

Natco (cancer drug)

Natco may seek compulsory licence for Bayer’s cancer drug (The Economic Times :24.1.2011)

NATCO Pharma plans to seek a compulsory licence from the government to make Bayer AG's Nexavar in India, invoking a provision in local laws that allows generic drugmakers to make and sell patented drugs cheaply if the medicine is unaffordable.

The development, a test case for such licensing in India, is being watched by local and global innovator companies as it could be the first instance where a foreign drugmaker would be forced to grant a licence. A generic drugmaker can invoke the compulsory licensing provision once the patent completes three years and the patent holder is given a six-month notice to consider a voluntary licence offer.

Global innovator companies are jittery over the use of this provision since it breaks their monopoly and pricing power while local drugmakers and health activists are pushing for liberal use of this provision, saying that innovator companies charge an exorbitantly high price for their medicines. German drugmaker Bayer last month rejected Natco's plea to seek a voluntary licence to make the drug in the country. Nexavar's dosage for a month costs . 2.8 lakh while Natco says it can sell its brand at less than . 10,000. India has an estimated 5 lakh cancer patients.

Natco will approach a commerce ministry arm monitoring patent related issues seeking compulsory licence for sorafenib tosylate (sold under the brand Nexavar) after March, when Bayer's patent for the drug completes three years, a person familiar with the development said.

Natco has also sought a similar voluntary licence from Viiv Healthcare, the joint venture company that houses HIV/ AIDS drug business of GlaxoSmithKline Pharmaceuticals and Pfizer Inc. Viiv says it will consider Natco's request to make a low-price version of its HIV medicine, Celsentri.

An Indian patent allows a drugmaker 20-year exclusive marketing rights to make and sell its medicine in the country. But under the local patent laws, the government can allow generic drugmakers to legally make and sell low-cost version of patented drugs under certain conditions such as if the medicine is unaffordable for patients by paying royalty to the patent owner.

Antibiotics

Antibiotics may get costlier (The Economic Times: 25.1.2011)

Duty Proposed On Penicillin G Potassium & 6 APA Imported From China, Mexico

THE government may levy duty on two important drug ingredients imported from China and Mexico to protect local suppliers. The move could increase prices of popular antibiotics for consumers besides threatening business of about two dozen small drugmakers.

The commerce ministry has recommended anti-dumping duty on Penicillin G Potassium and 6 APA, after Indian suppliers complained Chinese and Mexican firms are shipping it at a low price to kill competition from Indian manufacturers.

Although a provisional suggestion for the duty was earlier rejected by the finance ministry, authorities dealing with anti-dumping measures to protect local industry have said that such concerns need to be addressed separately. The finance ministry has to take the final call on the proposed import tax.

Local drugmakers say this could increase retail prices of antibiotics that uses these ingredients, such as Ranbaxy's Mox, GSK's Augmentin and Cipla's Novamox, by up to 25%. The proposed duty will also hit 20-30 local bulk drugmakers who source the ingredients from Chinese companies to make active pharmaceutical ingredient (API), the key input used to make the final medicine.

"Local formulation makers will buy API from China at a much lower price as our manufacturing cost will increase by about 20%," a senior executive at Bulk Drug Manufacturer's Association (BDMA) told ET.

Directorate General of Anti-Dumping & Allied Duties, the nodal investigating agency of the commerce ministry, recommended the dumping duty acting on complaints by Vadodara-based Alembic and Southern Petrochemical Industries Corporation.

It has recommended duty of up to \$2.5 per billion of units of Penicillin-G Potassium imported from China and Mexico and up to \$9.28 per kg on 6-APA imported from China. At present, local companies buy penicillin and 6APA at \$9.3 per kg and \$29 per billions of units respectively, an executive from a bulk drugmaker said.

Another industry official familiar with the development said that the government has assured bulk drugmakers that they will look into their concerns once they felt the adverse impact. But it cannot allow local suppliers of the products to suffer pre-judging the impact of the duty.

Daara Patel, president of the Indian Drug Manufacturer's Association, which represents both branded drugmakers and bulk drugmakers, said it is too early to comment on the impact. But earlier, the industry body had suggested mandatory purchase of certain percentage of APIs from local bulk drugmakers as a compromise formula.

Local suppliers of the basic chemicals say Chinese exporters lowered their price whenever Indian firms tried to revive their manufacturing plants, thus hurting viability of making the products in India. But the Chinese firms increased prices when Indian companies put off their plans to produce locally.

BDMA has alleged local drugmakers who manufactures the two ingredients can meet only 10-15% of the country's demand, leading to a shortage of the product in the country. This is countered by Indian suppliers who say they can meet the entire demand in India if the state-owned Hindustan Antibiotics revives its manufacturing.

Diabetes drug

Takeda sues Cadila over diabetes drug(The Financial Express : 25.1.2011)

Moves US court alleging Cadila would be violating patent norms by manufacturing Actos in the country

The largest drug firm of Japan, Takeda Pharmaceuticals has filed a suit against Ahmedabad headquartered Cadila Healthcare at a US district court alleging that the latter would be infringing the former's patent coverage by attempting to manufacture and market diabetes drug Actos (pioglitazone hydrochloride) in the US market. Actos, which is used to improve glycemic control in type

II diabetes patients, is a blockbuster drug that clocked revenues worth \$3.4 billion only in the US market for the year ending December 31, 2009, according to data of market research firm IMS. The product is among the largest selling diabetic drugs globally and the eighth largest selling prescription drug in any therapeutic segment in the US market. Takeda has already resolved patent litigation with eleven generic companies chasing the diabetes drug opportunity in

the US market early this year.

These included settlements with at least five Indian players such as Gurgaon-based Ranbaxy Labs which is owned by Takeda's rival at home Daiichi Sankyo, Torrent Pharmaceuticals, Dr Reddy's Lab, Wockhardt and Aurobindo Pharma.

The other companies which entered into the agreement with Takeda to resolve the patent litigation over Actos, Actoplus met (pioglitazone HCl and metformin HCl), and Duetact (pioglitazone HCl and glimepiride) are Mylan Pharmaceuticals, Watson Pharmaceuticals, Alkermes, Sandoz, Teva Pharma among others.

According to the terms of agreement, Takeda has allowed Ranbaxy along with generic firms Mylan and Watson to market a low-cost generic version of Actos in the US

starting August 17, 2012 — almost 19 months after the basic patent over Actos expires in the US on January 17, 2011.

Ranbaxy, Mylan and Watson were the first-filers of Abbreviated New Drug Applications at the US Food and Drug Administration. In its out of court settlement with other generic firms, the Japanese firm has consented to allow marketing of the generic version 180 days after August 17, 2012. The global anti-diabetic market has crossed \$25 billion.

ACTOS, WHICH IS USED TO IMPROVE GLYCEMIC CONTROL IN TYPE-II DIABETES PATIENTS, IS A BLOCKBUSTER DRUG THAT CLOCKED REVENUES WORTH \$3.4 B ONLY IN THE US MARKET FOR THE YEAR ENDING DECEMBER 31, 2009. THE PRODUCT IS AMONG THE LARGEST SELLING DIABETIC DRUGS GLOBALLY

MNC-Led Indian drug

Corex takes the crown in MNC-Led Indian drug mart (The Financial Express: 27.1.2011)

First the good news: the year 2010 saw for the first time the Rs 52,271 crore Indian drug market throw up a Rs 200-crore plus brand. However, this comes with a bitter pill – none of the top five Indian drug makers have a single brand in the top five in India, whose market size is over Rs 930 crore.

US drug major Pfizer's cough syrup Corex is the first to become the Rs 200-crore drug brand in India by clocking sales of Rs 210 crore in the 2010 calendar year. Interestingly, Corex was also the first drug brand in India to cross the Rs 100-crore mark in 2002.

Corex's 2010 achievement was achieved by beating an

other cough syrup brand – Phensydyl – which was the leading brand in 2009. Phensydyl is marketed by Piramal Healthcare (which had not been acquired by US drug firm Abbott Labs then).

Compared to 2008 when India had only one drug brand with sales over Rs 150 crore, the domestic market now has five brands boasting a market size of over Rs 150 crore, according to the data from pharma market research firm, All Indian Origin Chemists and Distributors.

However, all the top five brands with the exception of one, are being marketed by MNCs like Pfizer (Corex), Danish firm Novo Nordisk (Insulin Human Mixtard distributed by Abbott in India),

Swiss firm Novartis (painkiller Voveran) and UK-headquartered GlaxoSmithKline Pharma (antibiotic Augmentin).

The top six Indian drug makers by market share in India —CIPLA, Sun Pharma, Cadila Healthcare, Alkem Labs, Lupin, Mankind Pharma — all of which market

branded generics are conspicuous by their absence in the list of top five brands. The only brand from an Indian drug maker which has made the cut is Monocef from unlisted drug firm AristoPharma.

Since 2008, the Indian pharma market has grown 36% to cross the Rs 50,000-crore mark in 2010. On a year-on-year basis, the domestic market has grown 16.9% since 2009. Also, while India had only one Rs 100-crore drug brand till 2001, today all the top 10 brands have sales of over Rs 100 crore.

While multinationals have historically dominated top drug brands in the country, it is the larger transformation in the pharma space

with increasing market share of foreign drug makers that is troubling certain quarters of the government.

Vishal Gandhi, vice-president, life sciences and technology, Yes Bank said: "We expect MNCs to hold close to 50% market share in the Indian drug market by the end of 2012-2013." Compare this with the situation that prevailed in 2007, when only 15% market share was in the hands of multinational pharma firms. Today, three of the top five drug firms in the country are either of foreign origin or are domestic firms which have been acquired by MNCs in the last two years.

Concerned that such 'MNCisation' of the pharma space could eventually lead to a rise in drug prices, the ministry of health has been insisting on capping the FDI limit in the Indian pharma sector.

Currently, 100% FDI is allowed in the pharma space.

Among the top ten drug brands, Ranbaxy's vitamin supplement Revital has seen the highest annual growth (27%) in value terms.

This drug contributed almost double to Ranbaxy's kitty (Rs 138 crore) in 2010 viz-aviz the amount it contributed two years back. Piramal Healthcare's cough syrup has seen a year-on-year negative growth rate of 24.7%. Among the top 10 drug brands, three products witnessed an annual growth of over 20%, while eight drugs recorded growth in double digits in 2010.

Vitamin D pills

Vitamin D pills advised for under-fives to avoid rickets (New Kerala:28.1.2011)

London, Jan 27 : All children aged between six months and five years should be given vitamin D supplements to prevent rickets, especially during winter.

Such children are at risk of developing the condition because of their couch potato lifestyles, said Sally Davies, director general of research and development in the UK.

Rickets causes the bones to become soft and weak. In extreme cases it can lead to fractures and deformities such as bowed legs and curvature of the spine.

Her advice comes after figures revealed a dramatic increase in the crippling disease in children who aren't exposed to sunlight for long enough, because they stay indoors playing computer games or watching TV, the Daily Mail reported.

Davies said children should take seven micrograms of the sunshine vitamin every day.

A spokesperson said: "Vitamin D supplements are not recommended for the general population as most people get enough of the vitamin from their diet and from sunlight."

Nicholas Clarke, an orthopaedic surgeon, said: "Vitamin D is not easy to get but it is available in tablet form."

Humans receive 80 percent of vitamin D from a chemical process that happens when sunlight is absorbed by the skin. It is also found naturally in oily fish, egg yolk and liver.

Rickets was common 100 years ago during the Industrial Revolution when diets were poor and many cities were surrounded by thick smog, which limited sunlight.

Unsafe Drugs

Unsafe Drugs- nimesulide, Cisapride, Phenylpropanolamine Banned (Med India: 28.1.2011)

After several years of debate regarding the safety of nimesulide, cisapride and phenylpropanolamine (PPA) the Drug Controller General of India (DCGI) Dr. Surinder Singh has finally decided to ban these three unsafe drugs. Since the adverse effects of these drugs outweigh the benefits the Drugs Technical Advisory Board (DTAB) that had been examining the safety of the three drugs for several years has now recommended their withdrawal from the market.

Nimesulide was the most controversial among the three drugs. Many developed countries like US, Britain, Canada, Sweden, Denmark, Australia, New Zealand, Japan and other 168 countries had already banned these drugs. However it is freely sold in India by prominent pharmaceutical companies like Dr Reddy's, Panacea Biotech and several others. Cisapride, another unsafe drug was found to increase upper gastrointestinal tract motility. Due to its side effects even this drug is banned in many countries. The drug continued to remain in the market even though the possible dangerous side effects of the drug had been brought to the notice of the DCGI 10years back. PPA used in cold and cough remedies like D'Cold, Vicks Action-500, Wincold etc. is freely available in India. However it was banned in North America and Western Europe some years ago. The DTAB is now reviewing the use of Gatifloxacin, tegaserod and deanxit which have been banned in some of the developed countries. In the past diabetes drug Rosiglitazone and anti-obesity drug Rimonabant have been banned from the Indian markets.

This shows the need for stricter evaluation of safety and efficacy of any new drug before introducing it in the market.

Caffeine Boosts

Caffeine Boosts Virus Production (Med India: 28.1.2011)

In a recent study it has been highlighted that when caffeine is given to cells that are engineered to produce virus, there was an increase in virus production.

This simple and inexpensive strategy for increasing lentivirus production was developed by Brian Ellis, Patrick Ryan Potts, and Matthew Porteus, University of Texas Southwestern Medical Center, Dallas.

The researchers emphasize that the timing of caffeine addition to standard lentiviral production protocols is important for achieving higher virus titers.

Caffeine concentration is also critical, as too much caffeine was toxic to the cells and did not increase virus production.

Lentivirus vectors are commonly used for transferring genes into cells for both research applications in the laboratory and, increasingly, for gene therapy procedures in clinical testing.

The addition of caffeine "should significantly decrease the cost of lentiviral production for research and clinical uses," concluded the authors.

"It is ironic that the ingredient in beverages like colas and coffees that helps keep us awake and alert is also useful in jazzing up cells to produce more gene therapy vectors. An increase in vector production of 5-fold may prove critical in establishing the commercial viability of lentiviral based products," said James M. Wilson of the University of Pennsylvania School of Medicine, Philadelphia.

Regenerative Medicine

Regenerative Medicine Advance: New 'Cocktails' Support Long-Term Maintenance of Human Embryonic Stem Cells (Science Daily: 31.1.2011)

In regenerative medicine, large supplies of safe and reliable human embryonic stem (hES) cells are needed for implantation into patients, but the field has faced challenges in developing cultures that can consistently grow and maintain clinical-grade stem cells. Standard culture systems use mouse "feeder" cells and media containing bovine sera to cultivate and maintain hES cells, but such animal product-based media can contaminate the cells. And because of difficulties in precise quality control, each batch of the medium can introduce new and unwanted variations.

Now, a team of stem cell biologists and engineers from UCLA has identified an optimal combination and concentration of small-molecule inhibitors to support the long-term quality and maintenance of hES cells in feeder-free and serum-free conditions. The researchers used a feedback system control (FSC) scheme to innovatively and efficiently select the small-molecule inhibitors from a very large pool of possibilities.

The research findings, published in the journal *Nature Communications*, represent a major advance in the quest to broadly transition regenerative medicine from the benchtop to the clinic.

"What is significant about this work is that we've been able to very rapidly develop a chemically defined culture medium to replace serum and feeders for cultivating clinical-grade hES cells, thereby removing a major roadblock in the area of regenerative medicine," said Chih-Ming Ho, the Ben Rich-Lockheed Martin Professor at the UCLA Henry Samueli School of Engineering and Applied Science and a member of the National Academy of Engineering.

Unlike current animal product-based media, the new medium is a "defined" culture medium -- one in which every component is known and traceable. This is important for clinical applications and as drugs or cells enter the world of regulatory affairs, including good manufacturing practice compliance and Food and Drug Administration supervision.

"It is also the first defined medium to allow for long term single-cell passage," said the paper's senior author, Hong Wu, the David Geffen Professor of Molecular and Medical Pharmacology at the David Geffen School of Medicine at UCLA and a researcher with UCLA's Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research.

Single-cell passaging -- a process in which hES cells are dissociated into single cells and subcultured through single-cell-derived colonies -- is important in overcoming the massive cell death associated with hES cell dissociation during routine passage, and it allows for genetic manipulation at the clonal level.

"Although other studies have demonstrated growth of hES cells under defined media formulations and/or on defined surfaces, to the best of our knowledge, this is the first study that combines defined cultures with routine single-cell passaging, which plays an important role in supplying a large mass of clinically applicable cells," said Hideaki Tsutsui, a UCLA postdoctoral scholar and lead author of the study. "Thus, our hES cell culture system, guided by the FSC technique, will bring hES cells one step closer to clinical therapies."

Initially, the very large number of small molecules in the culture medium and their unknown synergistic effects made it difficult for researchers to assess the proper concentration of each for achieving long-term expansion of hES cells. The major challenge was to find the best way to sort out those molecules and rapidly determine the best combinatorial concentrations.

The breakthrough, ultimately, was the product of a close interdisciplinary collaboration.

Tsutsui, then a UCLA Engineering graduate student, and Bahram Valamehr, then a graduate student at the Geffen School of Medicine, started working on the project two years ago. Armed with biological readouts and analyses of stem cells mastered in Hong

Wu's laboratory through the lab's extensive accomplishments in stem cell research, Tsutsui and Valamehr used the FSC scheme -- developed previously by Ho's group to search for optimal drug combinations for viral infection inhibition and cancer eradication -- to facilitate the rapid screening of a very large number of possibilities.

Working together, the team was able to discover a unique combination of three small-molecule inhibitors that supports long-term maintenance of hES cell cultures through routine single-cell passaging.

"There are certain research projects biologists can dream about, and we know we can eventually get there, but we don't have the capacity to achieve them in a timely manner, especially in a study like this," Wu said. "It would have taken 10 graduate students another 10 years to test all the possible combinations of molecules. Having an opportunity to collaborate with the engineering school has been invaluable in making this dream a reality."

"This is the best example of demonstrating the strength and potential of interdisciplinary collaborations," said Ho, who is also director of the Center for Cell Control at UCLA Engineering and a senior author of the paper. "Engineers and biologists working side by side can accomplish a mission impossible."

Other authors of the study included Antreas Hindoyan, Rong Qiao, Xianting Ding, Shuling Guo, Owen N. Witte and Xin Liu.

The project received major funding from the National Institutes of Health Roadmap for Medical Research through the UCLA Center for Cell Control and a seed grant from the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research.

Dietary Omega-3

Deficiency of Dietary Omega-3 May Explain Depressive Behaviors (Science Daily: 31.1.2011)

How maternal essential fatty acid deficiency impact on its progeny is poorly understood. Dietary insufficiency in omega-3 fatty acid has been implicated in many disorders. Researchers from Inserm and INRA and their collaborators in Spain collaboration, have studied mice fed on a diet low in omega-3 fatty acid. They discovered that reduced levels of omega-3 had deleterious consequences on synaptic functions and emotional behaviours.

Details of this work are available in the online version of the journal *Nature Neuroscience*.

In industrialized nations, diets have been impoverished in essential fatty acids since the beginning of the 20th century. The dietary ratio between omega-6 polyunsaturated fatty acid and omega-3 polyunsaturated fatty acid omega-3 increased continuously over the course of the 20th century. These fatty acids are "essential" lipids because the body cannot synthesize them from new. They must therefore be provided through food and their dietary balance is essential to maintain optimal brain functions.

Olivier Manzoni (Head of Research Inserm Unit 862, "Neurocentre Magendie," in Bordeaux and Unit 901 "Institut de Neurobiologie de la Méditerranée" in Marseille), and Sophie Layé (Head of Research at INRA Unit 1286, "Nutrition et Neurobiologie Intégrative" in Bordeaux) and their co-workers hypothesized that chronic malnutrition during intra-uterine development, may later influence synaptic activity involved in emotional behaviour (e.g. depression, anxiety) in adulthood.

To verify their hypotheses, the researchers studied mice fed a life-long diet imbalanced in omega-3 and omega-6 fatty acids. They found that omega-3 deficiency disturbed neuronal communication specifically. The researchers observed that only the cannabinoid receptors, which play a strategic role in neurotransmission, suffer a complete loss of function. This neuronal dysfunction was accompanied by depressive behaviours among the malnourished mice.

Among omega-3 deficient mice, the usual effects produced by cannabinoid receptor activation, on both the synaptic and behavioural levels, no longer appear. Thus, the CB1R receptors lose their synaptic activity and the antioxidant effect of the cannabinoids disappears.

Consequently, the researchers discovered that among mice subjected to an omega-3 deficient dietary regime, synaptic plasticity, which is dependent on the CB1R cannabinoid receptors, is disturbed in at least two structures involved with reward, motivation and emotional regulation: the prefrontal cortex and the nucleus accumbens. These parts of the brain contain a large number of CB1R cannabinoid receptors and have important functional connections with each other.

"Our results can now corroborate clinical and epidemiological studies which have revealed associations between an omega-3/omega-6 imbalance and mood disorders," explain Olivier Manzoni and Sophie Layé. "To determine if the omega-3 deficiency is responsible for these neuropsychiatric disorders additional studies are, of course, required."

In conclusion, the authors estimate that their results provide the first biological components of an explanation for the observed correlation between omega-3 poor diets, which are very widespread in the industrialized world, and mood disorders such as depression.

Vitamin D

Lung Structure and Function Altered by Vitamin D Deficiency (Med India: 31.1.2011)

A new study in mice has revealed that vitamin D deficiency alters lung structure and function.

The new study, conducted by researchers in Australia, offers the first concrete evidence linking vitamin D deficiency with deficits in lung function and altered lung structure.

"The results of this study clearly demonstrate that vitamin D deficiency alters lung growth, resulting in lower lung volume and decrements in lung function," said Graeme Zosky, a research fellow at the Telethon Institute for Child Health Research in Subiaco, Australia.

"This is the first direct mechanistic evidence showing that vitamin D deficiency alters lung development, which may explain the association between obstructive lung disease and levels of vitamin D."

To conduct their study, the researchers used a mouse model of vitamin D deficiency and evaluated lung responses of two-week-old mice, comparing them to control mice without vitamin D deficiency to determine what, if any, effects the deficiency may have caused in the growth, structure or function of the lungs.

Lung volume and lung function were evaluated using a plethysmograph, an instrument used to measure the amount of air in the lung, and via forced oscillation, a technique used to measure the resistance to air flow in the lungs. Microscopic lung tissue samples were also evaluated to assess changes in lung structure.

"The aim of this study was to determine if vitamin D deficiency results in altered lung function and/or structure as a potential explanation for the association between vitamin D and chronic respiratory disease," said Dr. Zosky, who is also an adjunct senior lecturer at the University of Western Australia's Centre for Child Health Research. "Specifically, we aimed to determine if vitamin D deficiency has an influence on lung growth as indicated by a decrease in lung volume. We also wanted to determine if the deficiency alters the mechanical properties of the lung tissue due to changes in the structure of the lung."

Anti-estrogen medication

Anti-estrogen medication 'cuts risk of dying from lung cancer' New Kerala; 24.1.2011)

Tamoxifen, an anti-estrogen breast cancer medication, may reduce an individual's risk of death from lung cancer, says a new study.

The research supports the hypothesis that there is a hormonal influence on lung cancer and that estrogen levels play a role in lung cancer patients' prognosis.

Led by Elisabetta Rapiti of the Geneva Cancer Registry, the study compared lung cancer incidence and mortality among breast cancer patients who were and were not treated with anti-estrogen therapy.

The study included all 6,655 women diagnosed with breast cancer between 1980 and 2003 and registered at the Geneva Cancer Registry.

Among these women, 46 percent received anti-estrogens. All women were followed for occurrence and death from lung cancer until December 2007.

The investigators found that 40 women in the study developed lung cancer.

Incidences of lung cancer was not significantly different between breast cancer patients who were and were not treated with anti-estrogens compared with the general population; however, fewer women taking anti-estrogens died from lung cancer than expected.

Specifically, there were 87 percent fewer cases of death due to lung cancer in the anti-estrogen group than in the general population.

The study has been published online in *Cancer*, a peer-reviewed journal of the American Cancer Society.

Breast cancer drug

Breast cancer drug shields lungs too (The Times of India: 25.1.2011)

A drug commonly used to treat breast cancer may also help reduce the risk of lung cancer deaths, a new Swiss study has claimed.

Researchers at the University of Geneva found women who were given “Tamoxifen” to treat their breast cancer had a very low death rate from lung cancer. The scientists said that their research, if backed up, could have substantial implications for clinical practice, the BBC reported. Tamoxifen, which cancels out the sex hormone oestrogen, was first used to fight breast cancer more than 40 years ago.

Elisabetta Rapiti, who lead the study at the Geneva Cancer Registry, said: “Our results support the hypothesis that there is a hormonal influence on lung cancer, which has been suggested by findings such as the presence of oestrogen and progesterone receptors in a substantial proportion of lung cancers.

Environmental Health

Tackling Bio-Medical Waste

Pollution control board to hold camps for pvt hospitals (The Tribune: 22-12-2010)

Responding to a wake up call given by the Central Pollution Control Board for the strict implementation of the bio-medical waste (management and handling) rules in the state, the Punjab Pollution Control Board (PPCB) has scheduled special camps to grant and renew authorisation to private hospitals and nursing homes.

The PPCB, in its advertisement dated December 17 in a section of the media, had categorically mentioned that some of the hospitals/ healthcare facilities were operating without a valid authorisation as required under the rules, which is punishable under the provisions of the Environment Protection Act, 1986.

It further reads that the PPCB in order to give the last chance to the erring hospitals/healthcare facilities was organising special camps for an on-the-spot processing and grant of authorisation applications.

The special camps for authorisation will be held on December 23 at Patiala, Ludhiana, Khanna, Jalandhar, Amritsar, Bathinda, Sangrur, Faridkot, Hoshairpur, Mandi Gobindgarh, and Mohali.

The regional offices of the PPCB will grant new authorisation to private hospitals and renew the expired authorisations under bio-medical waste (management and handling) rules.

The hospitals have also been asked to come with all documents, including a valid agreement with the common bio-medical waste treatment facility; self-declaration of bed capacity; a demand draft according to the prescribed fee as per the bed capacity, partnership/proprietor certificate/list of directors and annual report containing the details of the generation of bio- medical waste.

Interestingly, the PPCB was oblivious to the violations of the BMW rules for years, as no action had been initiated against the government or private healthcare facilities.

The rules were implemented in 1998.

Family planning

Oral Contraception,

Injectable and Oral Birth Control Do Not Harm Glucose and Insulin Levels (Med India: 22-12-2010)

Fasting glucose and insulin levels remain within normal range for women using injectable or oral contraception, with only slight increases among women using depot medroxyprogesterone acetate (DMPA), commonly known as the birth control shot, according to new research from the University of Texas Medical Branch (UTMB Health) in Galveston.

The study, published in the January 2011 issue of Obstetrics and Gynecology and conducted over three years, is the largest to measure fasting glucose and insulin levels among women using DMPA, oral (desogestrel) contraception and non-hormonal (bilateral tubal ligation, condom or abstinence) methods. Researchers found that DMPA users' glucose levels increased steadily during the first 30 months of use, with the greatest increase occurring during the first six months. The observed increases, which were less than those reported in previous studies, were not significant enough to cause concern.

There are 62 million women of reproductive age in the United States. More than two million American women use DMPA, including approximately 400,000 teens, and more than 11 million use oral contraception.

"Previous studies were limited in scope and offered conflicting results, which led physicians to question whether hormonal contraception could lead to diabetes," says lead author Dr. Abbey Berenson, professor, Department of Obstetrics and Gynecology and director of the Center for Interdisciplinary Research in Women's Health. "Further studies are needed to determine how women with diabetes are affected by DMPA and oral contraception, but these results are reassuring for non-diabetic women already receiving the shot or on the pill."

Family planning strategy

Reposition family planning strategy (The Tribune: 20.1.2011)

We really need to reposition our family planning strategy to reach our population stabilization goals. The fact is there's a huge unmet need for contraception in India.

There's a huge demand and 18 per cent fertility is due to this unmet need. There's no reason why a woman should have a child just because she does not have access to contraceptives. Access must be improved. Another major contributor to population is the population momentum caused by couple in reproductive age having children. This can't be fully controlled. So we need to help such couples delay the first child birth and space children better. For that to happen, temporary methods have to be made available to advance fertility. To address the third issue of wanted fertility, we need better healthcare facilities so that newborns survive. In 2011, let us also remember that literacy is the best contraception and work towards the goal of literacy.

Fertility and Infertility

Infertility

Rising infertility problem due to low sperm count (World Newspaper: 11.1.2011)

Kirti and Gaurav Shah have been married for four years. But Kirti's inability to conceive had started taking a toll on their relationship.

However, a visit to a fertility expert came as a shocker for those pointing fingers at Kirti - Gaurav's semen analysis test showed that he suffered from oligospermia (low sperm count).

He was advised to go in for either Assisted Reproductive Technology (ART) or Intra Cytoplasmic Sperm Injection (ICSI). According to city doctors, there has been a rise in percentage of male infertility cases in the city. "Fifty per cent of the cases coming to us with conceiving issues have the male infertility problem. It used to be 20-30%," said Dr Nandita Palshetkar, infertility expert, Lilavati Hospital.

Dr Duru Shah, infertility expert and consulting Obstetrician and Gynaecologist for Jaslok and Breach Candy hospitals, said, "Nearly one in five healthy men between 18 and 25 have an abnormal sperm count. Male infertility problem may start before birth, due to environmental issues. Sperm counts are declining and there is mounting evidence that the problem starts even before birth."

A fall in the sperm count of men during their reproductive years is now a serious global problem. And the crisis is equally acute in India. According to doctors, the sperm count of a normal adult male in India has plunged to around 20 million per ml, one-third of what it was three decades ago.

There are also many suffering from azoospermia — no sperm at all in the semen sample, despite a normal and healthy libido and seemingly normal semen.

Shah said, "Infertility is affecting 20% per cent of couples attempting pregnancy and, in over 60% cases, it's due to low sperm count. One of the reasons could be that we continue to see more and more infertility and probably younger people come into our fertility centre seeking assistance. But it could also be an epidemiological trend that the qualitative and quantitative measurements of sperm are deteriorating, or because people are coming out of the closet and seeking assistance."

Studies have come up with alarming facts. In the last half century, mean sperm counts in normal men have dropped by 40-50%.

The threat appears to be from environmental factors. Many studies offer substantial evidence that industrial pollutants may be interfering with the hormones, thus contributing to birth defects, problems of sexual development, breast cancer, prostate cancer, and even mental problems like attention deficit disorder, diminished IQ, and violent behavior.

The other factors are wearing tight underwear or trousers, bathing in very hot water, sitting for long hours, pesticide exposure and being overweight (fat layers sag on the testicles). Laptops too affect fertility, as they are positioned close to the scrotum.

Fertility problems

Antioxidants lead to fertility problems in females (World newspaper: 20.1.2011)

New research has revealed a possible unexpected side effect of antioxidants: They might cause fertility problems in females.

Antioxidants are sold over the counter everywhere. They are added to food, drink and face cream. But according to Prof Nava Dekel of the Biological Regulation Department, we still don't have a complete understanding of how they act in our bodies.

Common antioxidants include vitamins C and E. These work by eliminating molecules called reactive oxygen species that are produced naturally in the body. Stress can cause these chemically active molecules to be overproduced; in large amounts they damage cells indiscriminately.

By neutralising these potentially harmful substances, antioxidants may, theoretically, improve health and slow down the aging process.

But when Dekel and her research team including her former and present PhD students Dr Ketty Shkolnik and Ari Tadmor applied antioxidants to the ovaries of female mice, the results were surprising: ovulation levels dropped precipitously.

That is, very few eggs were released from the ovarian follicles to reach the site of fertilisation, compared to those in untreated ovaries.

To understand what lies behind these initial findings, the team asked whether it is possible that the process of ovulation might rely on the very 'harmful' substances destroyed by antioxidants - reactive oxygen species.

Further testing in mice showed that this is, indeed, the case. In one experiment, for instance, Dekel and her team treated some ovarian follicles with luteinising hormone, the physiological trigger for ovulation, and others with hydrogen peroxide, a reactive oxygen species.

The results showed hydrogen peroxide fully mimicked the effect of the ovulation-inducing hormone. This implies that reactive oxygen species that are produced in response to luteinising hormone serve, in turn, as mediators for this physiological stimulus leading to ovulation.

Among other things, these results help fill in a picture that has begun to emerge in recent years of fertility and conception, in which it appears that these processes share a number of common mechanisms with inflammation.

It makes sense, says Dekel, that substances which prevent inflammation in other parts of the body might also get in the way of normal ovulation, and so more caution should be taken when administering such substances.

Much of Dekel's research has focused on fertility - her previous results are already helping some women become pregnant. Ironically, the new study has implications for those seeking the opposite effect. Dekel: 'On the one hand, these findings could prove useful to women who are having trouble getting pregnant. On the other, further studies might show that certain antioxidants might be effective means of birth control that could be safer than today's hormone-based prevention.'

Food and Nutrition

Eating habits

Eating habits that ensure a longer life (New Kerala: 23-12-2010)

A new study has found that the leading causes of death are no more infectious diseases but chronic diseases such as cardiovascular disease and cancer - which may be affected by food habits

Researchers investigated eating patterns of over 2500 adults between the ages of 70 and 79 over a ten-year period and found that certain diets were associated with reduced mortality.

By determining the consumption frequency of 108 different food items, researchers were able to group the participants into six different groups as per their food choices:

Healthy foods- 374 participants

High-fat dairy products- 332

Meat, fried foods, and alcohol- 693

Breakfast cereal-386

Refined grains-458

Sweets and desserts-339

'Healthy foods' group ate more low-fat dairy products, fruit, whole grains, poultry, fish, and vegetables, and lower consumption of meat, fried foods, sweets, high-calorie drinks, and added fat.

'High-fat dairy products' group had higher intake of foods such as ice cream, cheese, and 2 percent and whole milk and yoghurt, and lower intake of poultry, low-fat dairy products, rice, and pasta.

End results indicated that 'High-fat dairy products' group had a 40 percent higher risk of mortality than the Healthy foods cluster and the 'Sweets and desserts' group had a 37percent higher risk.

No significant differences in risk of mortality were seen between the 'Healthy foods' cluster and the 'Breakfast cereal' or 'Refined grains' clusters.

The "results of this study suggest that older adults who follow a dietary pattern consistent with current guidelines to consume relatively high amounts of vegetables, fruit, whole grains, low-fat dairy products, poultry and fish, may have a lower risk of mortality," said Amy L. Anderson at Department of Nutrition and Food Science, University of Maryland.

"Because a substantial percentage of older adults in this study followed the "Healthy foods" dietary pattern, adherence to such a diet appears a feasible and realistic recommendation for potentially improved survival and quality of life in the growing older adult population."

The study will be published in the January 2011 issue of the Journal of the American Dietetic Association.

Eating Healthier

Live Longer By Simply Eating Healthier (Med India: 23-12-2010)

The leading causes of death have shifted from infectious diseases to chronic diseases such as cardiovascular disease and cancer. These illnesses may be affected by diet. In a study published in the January 2011 issue of the Journal of the American Dietetic Association, researchers investigated empirical data regarding the associations of dietary patterns with mortality through analysis of the eating patterns of over 2500 adults between the ages of 70 and 79 over a ten-year period. They found that diets favoring certain foods were associated with reduced mortality.

By 2030, an estimated 973 million adults will be aged 65 or older worldwide. The objective of this study was to determine the dietary patterns of a large and diverse group of older adults, and to explore associations of these dietary patterns with survival over a 10-year period. A secondary goal was to evaluate participants' quality of life and nutritional status according to their dietary patterns.

By determining the consumption frequency of 108 different food items, researchers were able to group the participants into six different clusters according to predominant food choices:

- "Healthy foods" (374 participants)
- "High-fat dairy products" (332)
- "Meat, fried foods, and alcohol" (693)
- "Breakfast cereal" (386)
- "Refined grains" (458)
- "Sweets and desserts" (339).

The "Healthy foods" cluster was characterized by relatively higher intake of low-fat dairy products, fruit, whole grains, poultry, fish, and vegetables, and lower consumption of meat, fried foods, sweets, high-calorie drinks, and added fat. The "High fat dairy products" cluster had higher intake of foods such as ice cream, cheese, and 2% and whole milk and yogurt, and lower intake of poultry, low-fat dairy products, rice, and pas

Food

U.N. Food Official Highlights Food Security Challenges In World's Most Populous Nation(Medical News Today: 27-12-2010)

U.N. Special Rapporteur on the right to food Olivier De Schutter said Thursday that recent food price spikes in China, "in the world's most populous nation," underscore the country's food security challenges resulting from decreasing amounts of arable land, Agence France-Presse reports. Significant land degradation is also hindering China's agricultural output, De Schutter said as he wrapped up a visit to China. "The recent food price hikes in China are a harbinger of what may be lying ahead," he said in a statement. "This situation should encourage China to move towards more sustainable types of farming," De Schutter added (12/23).

In an interview with the Guardian, De Schutter highlighted declining soil quality - caused by the excessive use of fertilisers, pollution and drought - as a major concern. "He noted that 37% of the nation's territory was degraded and 8.2m hectares (20.7m acres) of arable land has been lost since 1997 to cities, industrial parks, natural disasters and forestry programmes. Further pressure has come from an increasingly carnivorous diet, which has meant more grain is needed to feed livestock. The combination of these factors is driving up food inflation," the Guardian writes. "This is not a one-off event. The causes are structural," De Schutter said. He said the "widening gap between rural and urban" populations is an "important challenge to the right to food of the Chinese population" (Watts, 12/23).

But De Schutter also praised China's "remarkable progress" in expanding its ability to feed its people over the last few decades, the Associated Press reports. "China shifted from a food aid recipient to a international food donor in 2005, a sign of its "significant success" in coordinating and helping small-scale farmers boost productivity, said Olivier De Schutter," the news service writes. "It is quite remarkable that this country, despite the restraints it is facing, is able to feed itself and has achieved such a high level of self sufficiency in grain production," he said (12/23).

De Schutter also expressed concern over China's treatment of whistle-blowers that highlight food safety issues, the BBC reports. He "said the state's actions had 'a chilling effect' on others worried about violations. He said the Chinese authorities seemed to underestimate the contribution that free expression and association could make to the right to adequate food," the news service writes (12/23). "His preliminary report [.pdf] summarizing his observations and recommendations encouraged China to boost transparency and access to information to help combat its food safety problems," the AP reports. "His report also urged less use of chemical fertilizers and pesticides that are polluting the environment and that legal protections for small farmers be stronger. Small

farms in China sometimes are taken away by corrupt officials and land developers," according to the news service (12/23).

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Diet

Vegetarian Diet Helps Kidney Patients Keep Toxic Phosphorous In Check((Medical News Today: 27-12-2010)

A grain-based vegetarian diet helps chronic kidney disease patients avoid accumulating toxic levels of phosphorous in their bodies, according to new research from the US.

Dr Sharon Moe, of the Indiana University School of Medicine and Roudebush Veterans' Affairs Medical Center in Indianapolis, and colleagues, write about their findings in a study due to be published this week in the Clinical Journal of the American Society of Nephrology.

If your body can't get rid of phosphorous, it builds up and causes heart disease and eventually death. Healthy kidneys filter toxic minerals like phosphorous so they don't build up toxic levels in the bloodstream. This blood cleaning process doesn't work so well in people with chronic kidney disease (CKD) who have to find other ways to compensate.

One way is to follow medical guidelines that recommend low phosphorous diets for people with CKD, but since food labels don't list phosphorous content, that is easier said than done, so Moe and colleagues decided to compare a vegetarian diet against a meat diet to see how they affected phosphorous levels in patients with CKD.

They recruited nine volunteers with CKD and got them to follow a vegetarian or meat-based diet for a week, and then two to four weeks later, got them to follow the opposite diet. The volunteers gave blood and urine samples at the end of each week on both diets.

Moe and colleagues found that despite the two diets offering equivalent protein and phosphorous concentrations, when they were on the vegetarian diet, the patients had significantly lower levels of phosphorous in their blood and urine samples, than when they were on the meat-based diet.

Although the study was not designed to examine the reason for this difference, we already know that a grain-based diet has a lower ratio of phosphate to proteins and much of it comes from phytate, which is not absorbed in the human body.

Moe and colleagues concluded that these findings show that where protein comes from in a diet has a significant effect on phosphorous levels in CKD patients.

If these findings are confirmed by larger studies, then it provides a good reason for recommending that patients with CKD follow a diet where most of the protein comes from grain-based vegetarian sources of protein, they added.

Such a diet "would allow increased protein intake without adversely affecting phosphorus levels," they wrote.

They also recommended that when patients with CKD receive counselling about food and diets, they should be told about phosphorous and its effects and the sources of protein from which it derives.

Nutrients Drinks

Nutrients Drinks Are Nothing But 'Lolly Water', Slams Consumer Group(MedIndia: 11.1.2011)

Nutrient-enhanced water drinks, which claims to have rich health benefits, are just 'expensive lolly water', according to a new study.

A consumer group, Choice, said some of the drinks, with names such as Nutrient Water, Smart Water and Vitamin Water, contain enough sugar in a 500 millilitre bottle to provide the average woman with a third of her recommended daily intake.

It said many of the nutrient-enhanced drinks spruik "over-the-top health claims" touting "nature approved ingredients" and "natural flavours" that mean little.

Choice spokeswoman, Ingrid Just, said the labeling on several nutrient drinks created the impression they are healthy when often an apple and a glass of water is more beneficial.

"The marketing of these products is often quite tongue-in-cheek, and we are not against creative copy, but when it comes to possibly misleading consumers about the health benefits of these drinks ... that's when we start to get concerned," the Sydney Morning Herald quoted Just, as saying.

The Choice review highlighted Nutrient Water Cranberry Grapefruit Multi-Vitamin as an example of an exaggerated health claim, saying its label suggested the drink has the same benefits as eight hours' sleep, a bowl of steamed greens and pre-dawn power walks.

But Luke Marget, of Nutrient Water, said the Choice claims were baseless.

"We strongly believe that Nutrient Water has not made exaggerated health claims," he said.

Marget said claims that enhanced waters were nothing but "lolly water" were both damaging and misleading.

"We believe Nutrient Water provides consumers with a healthy alternative to water; it does contain sugar but it contains sugar for taste and for providing energy for active consumers," added Marget.

Slimming products

Slimming products may increase risk of heart attacks and strokes(World Newspaper: 11.1.2011)

Australian authorities have warned consumers about imported slimming products, citing the increased risk of heart attacks and strokes after consumption.

Slimming products like tea, coffee and chocolate, many of which are imported from China apparently contain the banned substance sibutramine.

"Everyone is full of good intentions as the year begins but generally if it sounds too good to be true, it probably is," the Courier Mail quoted Primary Industries Minister Steve Whan, as saying.

In clinical trials this prescription medicine has been found to increase the risk of heart attacks and strokes among overweight users and has been banned from sale.

The NSW Food Authority has seized 15,000 units of "slimming" foods and are investigating to ensure they comply with the safety standards.

Vitamin D

"Enjoy Sun Safely" New Vitamin D Advice From UK Experts (Medical News Today :21-12-2010)

Enjoy the sun safely", including a few "minutes around the middle of the day without sunscreen", is the cautious new advice from UK experts and organizations to provide clarity on vitamin D because while there are a number of known benefits, there are still too many unanswered questions about the vitamin.

Cancer Research UK, the British Association of Dermatologists, Diabetes UK, the Multiple Sclerosis Society, the National Heart Forum, the National Osteoporosis Society and the Primary Care Dermatology Society released a joint position statement on vitamin D on 16 December.

Ed Yong, head of health information and evidence at Cancer Research UK said the UK joint statement "brings together the latest evidence on vitamin D" and agrees with views of international organisations, such as the World Health Organisation and the US Institute of Medicine.

The statement stresses that "while vitamin D is essential for good bone health, the evidence which suggests it can protect against cancer, heart disease, diabetes, multiple sclerosis and other chronic diseases is still inconclusive".

While some foods contain small amounts of vitamin D, such as oily fish and eggs, as well as fortified foods like margarine, breakfast cereals and powdered milk, we get most of it from exposing our skin to sunlight.

Among the unanswered questions that experts are trying to resolve are what levels of the vitamin count as "sufficient" or "optimal", and what constitutes an appropriate "trade-off" between under and over exposure to the sun.

Under exposure to sunshine is linked to vitamin D deficiency which leads to bone conditions such as rickets in children and osteomalacia and osteoporosis in adults, whereas over exposure is linked to skin cancer, including melanoma, which causes 75 per cent of deaths from skin cancer and is the the fastest rising type of cancer in the UK.

While there is a consensus about what level constitutes deficiency in vitamin D, a standard definition of what constitutes an "optimal level" of vitamin D does not exist, said the statement, and there is no "one-size-fits-all" answer to the sun exposure question.

There have been proposals to raise the definition of deficiency to higher levels, but the statement suggests this would be inappropriate in the absence of randomized trials to show that raising such levels brings clear benefits without risks to health.

Food & Nutrition

Eating Vegetables Gives Skin a More Healthy Glow Than the Sun, Study Shows (Science Daily: 12.1,2011)

The research, which showed that instead of heading for the sun the best way to look good is to munch on carrots and tomatoes, has been published in the Journal Evolution and Human Behaviour.

Dr Ian Stephen, from the School of Psychology, University of Nottingham, Malaysia Campus, led the research as part of his PhD at the University of St Andrews and Bristol University. He said: "Most people think the best way to improve skin colour is to get a suntan, but our research shows that eating lots of fruit and vegetables is actually more effective.

Dr Stephen and his team in the Perception Lab found that people who eat more portions of fruit and vegetables per day have a more golden skin colour, thanks to substances called carotenoids. Carotenoids are antioxidants that help soak up damaging compounds produced by the stresses and strains of everyday living, especially when the body is combating disease. Responsible for the red colouring in fruit and vegetables such as carrots and tomatoes, carotenoids are important for our immune and reproductive systems.

Dr Stephen said: "We found that, given the choice between skin colour caused by suntan and skin colour caused by carotenoids, people preferred the carotenoid skin colour, so if you want a healthier and more attractive skin colour, you are better off eating a healthy diet with plenty of fruit and vegetables than lying in the sun."

Dr Stephen suggests that the study is important because evolution would favour individuals who choose to form alliances or mate with healthier individuals over unhealthy individuals.

Professor David Perrett, who heads the Perception Lab, said: "This is something we share with many other species. For example, the bright yellow beaks and feathers of many birds can be thought of as adverts showing how healthy a male bird is. What's more, females of these species prefer to mate with brighter, more coloured males. But this is the first study in which this has been demonstrated in humans."

While this study describes work in Caucasian faces, the paper also describes a study that suggests the effect may exist cross culturally, since similar preferences for skin yellowness were found in an African population.

The work was funded by the Biotechnology and Biological Sciences Research Council (BBSRC) and Unilever Research, and published with support from the Economic and Social Research Council (ESRC) and the British Academy and Wolfson Foundation.

Vitamin D

Decode Vitamin D (The Asian Age: 12.1.2011)

A deficiency of Vitamin D has been linked with a tendency to develop infections including tuberculosis, autoimmune diseases and cancer. A recent study by doctors in the United States revealed that several people abroad suffer from a lack of Vitamin D. The doctors abroad attributed the fact that several people in colder countries suffer from a Vitamin D deficiency owing to little or no exposure to the sun. However, despite the fact that Indians do get their fair share of exposure to the sun, the fact remains that several Indians too suffer from a Vitamin D deficiency.

The problem is extremely relevant to India. In several studies that were conducted observing toddlers, adults and the elderly in rural and urban India and across all sections of society, revealed a rampant deficiency of Vitamin D. In fact, in a study that observed around 60 healthy women in the age group of 25 to 30 years, it was found that more than 80 per cent of the women suffered from a lack of Vitamin D.

Despite the fact that most Indians are exposed to enough sunshine, Indians still suffer from a Vitamin D deficiency and listed below are reasons for the same: Vitamin D is the most important factor that facilitates the absorption of dietary calcium. This is significant as the absorbed calcium is deposited in the bones and strengthens the same. A deficiency of Vitamin D and the subsequent lowering of serum calcium causes an increase in the secretion of the parathyroid hormone (PTH) as a compensatory mechanism and the PTH mobilises calcium from the bone into the blood making the blood levels of calcium critical to several body processes. This leads to a weakening of the bone and can cause Rickets in children or osteomalacia in adults. In addition, a Vitamin D deficiency is associated with poor muscle strength, particularly in the muscles around the hip. This combined with weaker bones translates into a higher risk of falls and fractures particularly in the elderly. Studies from India have reported a younger age of the onset of fractures of the hip compared to the west. It is important to understand that diseases like Rickets, osteomalacia, muscle weakness and fractures occur in severe cases of Vitamin D deficiency. Even a milder deficiency of Vitamin D is extremely common and can often be asymptomatic or cause minor aches and pains.

More recently, a deficiency of Vitamin D has been linked with a tendency to develop infections including tuberculosis, autoimmune diseases and cancer.

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Dairy Products

Good Fat in Dairy Products Liked to Reduced Diabetes Risk(Med India: 4.1.2011)

A type of fatty acid called trans-palmitoleic acid may reduce the risk of type 2 diabetes, according to researchers at the Harvard School of Public Health.

This fat is found in dairy products such as milk, cheese, yogurt, and butter. The study by researchers into this topic involved 3,736 adults enrolled in a Cardiovascular Health Study. All participants were monitored for 20 years.

Researchers reported that those who consumed high amounts of trans-palmitoleic acid had higher "good" cholesterol levels and lower overall cholesterol levels. They also had lower levels of C-reactive protein, which is a marker for cardiovascular risk.

People who ate more dairy products also had lower insulin resistance, which means they had lower risk of developing type 2 diabetes in future.

'Food Angel'

New 'Food Angel' app scans food item bar-codes to help avoid allergies!(New Kerala: 5.1.2011)

Are you allergic to some substances but can't make out which food product you should avoid in a supermarket? A solution is in the offing now

People can now use cameras on their smart phones, such as an iPhone, to scan the bar code of more than 85,000 different food items. The Food Angel application takes product scanning to another level.

Users first of all need to type in details of their condition into a website, listing which foods or ingredients they want to be alerted to. This is then synched with the phone's app.

When you scan the product bar code the user will receive a red warning signal if they contain any of the problem ingredients. If it is clear, a green tick appears.

Called IsItInIt, the app was designed by a Norwich-based company called Food Angel, set up by Neil Betts along with his brother as a retirement project.

"As a sufferer myself, I think it could make a big difference to consumers. Many packs of food have so much information, especially the ready meals, that it's like trying to read a bible. This will make life so much easier," the Telegraph quoted Betts as saying.

However, the app is available, for now, only in conjunction with Sainsbury's. But the company is confident that other supermarkets will sign up to the system next year.

The app would be a blessing to those with severe allergies, people for whom even a mild allergic reaction can be fatal.

Food Angel said it would update all products each evening to ensure that the ingredients were kept continually up to date.

Food and Nutrition

Health benefits of organic onions, carrots overestimated: Study New Kerala: 6.1.2011)

Organically grown onions, carrots, and potatoes generally do not have higher levels of healthful antioxidants and related substances than vegetables grown with traditional fertilizers and pesticides, say scientists.

In the study, Pia Knuthsen and colleagues point out that there are many reasons to pay a premium for organic food products.

The most important reasons for the popularity of organic food products include improved animal welfare, environmental protection, better taste, and possible health benefits. However, the health benefits of organic food consumption are still controversial and not considered scientifically well documented.

The scientists describe experiments in which they analyzed antioxidants termed "polyphenols" from onions, carrots and potatoes grown using conventional and organic methods.

They found no differences in polyphenol content for organic vs. traditional methods of growth.

"On the basis of the present study carried out under well controlled conditions, it cannot be concluded that organically grown onions, carrots, and potatoes generally have higher contents of health-promoting secondary metabolites in comparison with the conventionally cultivated ones," the report states.

Green tea

Green tea 'fights dementia and cancer'

A new research by scientists at Newcastle University has suggested that regularly drinking green tea could protect the brain against developing Alzheimer's and other forms of dementia.

The study also suggested that this ancient Chinese remedy could play a vital role in protecting the body against cancer.

Led by Dr Ed Okello, the Newcastle team wanted to know if the protective properties of green tea - which have previously been shown to be present in the undigested, freshly brewed form of the drink - were still active once the tea had been digested.

Digestion is a vital process, which provides our bodies with the nutrients we need to survive. But, said Dr Okello, it also means that just because the food we put into our mouths is generally accepted to contain health-boosting properties, we can't assume these compounds will ever be absorbed by the body.

"What was really exciting about this study was that we found when green tea is digested by enzymes in the gut, the resulting chemicals are actually more effective against key triggers of Alzheimer's development than the undigested form of the tea," explained Dr Okello, based in the School of Agriculture, Food and Rural Development at Newcastle University.

"In addition to this, we also found the digested compounds had anti-cancer properties, significantly slowing down the growth of the tumour cells which we were using in our experiments."

Food-Allergic

How Much Are Food-Allergic Diners Worth?(Medical News Today: 7.1.2011)

For the past year, AllergyEats founder Paul Antico has encouraged restaurants to better accommodate food allergic and intolerant diners because it's the right thing to do. Now, the financial expert is demonstrating another benefit to catering to the food allergy community: it can significantly increase restaurants' profits.

Antico, a former stock fund manager with 17 years at Fidelity Investments, leveraged his financial analysis background to determine how much economic power the food allergy and Celiac disease community can influence.

"Millions of Americans - or roughly 5% of the general population - have known food allergies or gluten intolerance, and restaurateurs should recognize the tremendous spending power of this community," Antico explained.

Assuming that 20% of the food allergic population will never feel comfortable dining out, while another 20% will try to eat anywhere, that still leaves 9 million food allergic diners that can be won over by allergy-friendly restaurants. Yet this number dramatically underestimates the true economic value of serving the food-allergic population, given that most diners eat out with other people.

"A key factor for restaurants is the 'veto vote.' If one person in a party has food allergies, the entire group will likely go to a restaurant that can accommodate that one individual. The food allergic diner will 'veto' restaurants that won't cater to his or her specific needs," Antico explained.

"I've made a conservative assumption that the average party dining out includes only three people, two of whom do not have food allergies. This estimate is especially conservative given the greater prevalence of food allergies in children, who often eat out with a party of four or more. Therefore, the "winnable" food allergic diner community - 3% of the total US population - actually translates into a 9% or greater potential increase in business for an allergy-friendly restaurant," Antico continued.

As an example, the casual dining chain Chili's averages roughly \$3 million in sales per restaurant annually. On each sales dollar, Chili's earns about 15c in profit. Since restaurants have considerable fixed overhead (rent, staff salaries, etc.), it's reasonable to assume that every additional sales dollar generates 25c (or more) in profit.

Therefore, a 9% increase in sales at a typical Chili's would equate to approximately \$270,000 per year. That translates into an additional \$50,000 or more in annual profits for an "allergy-friendly" Chili's versus a similar but "allergy-unfriendly" restaurant. Even if a restaurant is already at or near capacity during weekend prime times, by becoming more allergy-friendly, they can still increase their profits by tens of thousands of dollars annually.

Savvy restaurateurs understand the financial benefits of providing an allergy-friendly environment. Many restaurant owners are wisely taking extra precautions to accommodate food allergic and intolerant guests, having their employees trained in allergy safety, creating gluten-free menu options, providing ingredient lists, and seeking industry certifications.

"As the father of food allergic children, I avoid restaurants that won't accommodate my sons' special dietary requirements. I'd rather take my family of seven to an allergy-

friendly establishment instead. Others within the food-allergy community feel similarly," Antico explained. "The feedback is clear - if a restaurant doesn't have food allergy protocols in place, these dining parties will take their business elsewhere."

"From a purely business perspective, it's in restaurants' best interests to accommodate the food allergy population, as it can lead to significantly higher profits," Antico continued. "The objective, peer-based feedback on AllergyEats makes it easier for the food allergy community to find allergy-friendly restaurants and avoid those that don't measure up."

Food-Allergies

Smartphone App That Scans Your Food for Possible Allergies (MedIndia:7.1.2011)

Are you allergic to some substances but can't make out which food product you should avoid in a supermarket? A solution is in the offing now.

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Vitamin D

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Diet

New study explains 'yo-yo effect' of slimming diets (World Newspaper: 14.1.2011)

A new study has found that the hormones related to appetite play an important role in the likelihood of regaining weight after dieting.

The study found that people with the highest levels of leptin and lowest levels of ghrelin are more likely to put on pounds again after dieting.

This is called the 'yo-yo' effect, and it is noted in some people who follow such weight-loss programmes.

"There are patients who are susceptible to and others who are resistant to the benefits of a diet," said Ana Belen Crujeiras, a doctor at the University Hospital Complex of Santiago (CHUS).

"It seems that the way each patient responds to treatment is predetermined by their own characteristics," she added.

After eight weeks of a hypocaloric diet in 104 overweight people, the team found that the group that had regained more than 10% of the weight lost was found to have higher levels of leptin and lower levels of ghrelin.

"Some obese or overweight patients who gain more weight following a diet could even be identified before they embark on their weight-loss therapy, just by looking at their plasma levels of these hormones," Crujeiras said.

The findings will pave way for more exhaustive studies on appetite-related hormones as tools for developing individually-tailored weight-loss programmes that would guarantee success for obese and overweight patients in keeping the weight lost off.

Organic Milk

Choosing Organic Milk Could Offset Effects of Climate Change (Science Daily: 17.1.2011)

Wetter, cooler summers can have a detrimental effect on the milk we drink, according to new research published by Newcastle University.

Researchers found milk collected during a particularly poor UK summer and the following winter had significantly higher saturated fat content and far less beneficial fatty acids than in a more 'normal' year.

But they also discovered that switching to organic milk could help overcome these problems. Organic supermarket milk showed higher levels of nutritionally beneficial fatty acids compared with 'ordinary' milk regardless of the time of year or weather conditions.

The study, which is published in this month's Journal of Dairy Science (January 2011), leads on from previous research undertaken nearly three years ago which looked at the difference between organic and conventional milk at its source -- on the farms.

"We wanted to check if what we found on farms also applies to milk available in the shops," said Gillian Butler, who led the study. "Surprisingly, the differences between organic and conventional milk were even more marked. Whereas on the farms the benefits of organic milk were proven in the summer but not the winter, in the supermarkets it is significantly better quality year round."

There was also greater consistency between organic suppliers, where the conventional milk brands were of variable quality.

"We were surprised to see obvious differences between the conventional brands, with the more expensive ones not necessarily better," said Mrs Butler. "Some brands -- which promote their suppliers as wholesome and grazing on fresh pastures -- actually sold milk that appeared to be from very intensive farms."

Low levels of omega-3 and polyunsaturated fatty acids were discovered in some of these brands, which are indicative of a diet low in fresh grass. These samples also showed

evidence of the cows being supplemented with a saturated fat product derived from palm oil.

Mrs Butler puts the differences down to a lower reliance on grazing and fertiliser suppressing clover on conventional farms. "The results suggest greater uniformity of feeding practice on farms supplying organic milk since there were no brands which differed consistently in fat composition," she said. "This implies a fairly uniform approach to feeding practised across these suppliers."

Organic dairying standards prescribe a reliance on forage, especially grazing, and, in the absence of nitrogen fertiliser, tend to encourage swards of red and white clover, which have been shown to alter the fatty acid intake and composition of milk.

While protein, antioxidants, vitamins, minerals and some mono and polyunsaturated fatty acids in milk are considered beneficial, saturated fatty acids are believed to have a negative effect on human health.

"We're always being told to cut down on the saturated fat we consume and switching to organic milk and dairy products provides a natural way to increase our intake of nutritionally desirable fatty acids, vitamins and antioxidants without increasing our intake of less desirable fatty acids," said Mrs Butler.

"By choosing organic milk you can cut saturated fats by 30-50 percent and still get the same intake of beneficial fatty acids, as the omega-3 levels are higher but omega-6 is not, which helps to improve the crucial ratio between the two."

While undertaking their research into the differences between organic and conventional milk, the researchers discovered the surprising link between milk quality and our changing climate. Their results suggest that if we continue to have wetter, cooler summers then farmers may have to rethink their current dairy practices.

There was a considerable difference between the milk bought in the first sampling period (July 2006 and January 2007) and corresponding times a year later. The second set of samples, following a particularly wet summer in 2007, was higher in saturated fat and lower in beneficial fatty acids.

"We didn't expect to find differences between the sampling periods," said Mrs Butler. "But this is likely to be down to the impact of the weather on availability and quality of forage."

In North East England, for example, the summer of 2007 was particularly wet, with approximately 30 per cent higher recorded rainfall and 12 per cent lower temperatures compared with 2006.

"These conditions may affect the cows' behaviour, reducing grazing intake and milk output," said Mrs Butler. "Farmers also often increase supplementation with concentrated feeds or conserved forage to maintain milk yields in these conditions."

During the region's main silage making period (late May until the end of July) rainfall in 2007 was three times higher than the previous year, which also made for poorer quality silage and therefore the need for greater supplementation to compensate in winter diets.

"If these weather patterns continue, both forage and dairy management will have to adapt to maintain current milk quality," said Mrs Butler. "The higher levels of beneficial fats in organic milk would more than compensate for the depression brought about by relatively poor weather conditions in the wet year."

The researchers, who are part of the University's Nafferton Ecological Farming Group and its Human Nutrition Centre, looked at the quality of milk in supermarkets across North East England at varying times of year over a two-year period.

They concluded that organic brands of milk available in supermarkets are higher in beneficial fatty acids such as CLA and omega-3 fatty acids in summer (as in their previous research) and winter (where previous research showed that the difference in the winter was not as noticeable).

Emma Hockridge, head of policy at the Soil Association, said: "This groundbreaking research proves for the first time that people buying organic milk will be benefitting from the higher levels of beneficial fatty acids in organic milk through the whole year."

Foods

Top Foods That Keeps You Healthy and Fit Revealed (Med India: 17.1.2011)

Are you health conscious and trying to incorporate more nutritious foods into your diet? Then here is the list of 14 foods that offer research-documented benefits to your health.

Whole Grains

1. Barley: 11 clinical trials spanning almost 20 years found that increased consumption of barley products can lower total and LDL cholesterol.
2. Quinoa and buckwheat: Research suggest that seeds and sprouts from both quinoa and buckwheat represent rich sources of polyphenol compounds for enhancing the nutrition value of foods such as gluten-free breads.

3. Brown rice: Substitution of brown rice for white rice may lower the risk of type 2 diabetes.

4. Rye: Rye is suggested to improve glycemic profiles and rye bread can be used to decrease hunger both before and after lunch when consumed at breakfast.

Nuts

5. Almonds: A 2007 study showed that 300 calories of almonds (sufficient to produce beneficial effects on cardiovascular risk factors) per day may be included in the diet with limited risk of weight gain. The study found that the fiber in the almonds blocked some of the fat calories from being absorbed.

6. Hazelnuts: Research shows that it is best to consume hazelnuts whole because many of its antioxidants are located in the hazelnut skin.

7. Pecans: A recent 2010 study suggested that the vitamin E in pecans may provide neurological protection by delaying progression of motor neuron degeneration.

8. Pistachios: Pistachios are suggested to have anti-inflammatory properties according to a recent study.

Soya Beans

Research Indicates Soya Beans Could Help to Fight Cancer (Med India: 17.1.2011)

Soya could boost the battle against two of the most dangerous cancers, says scientists.

Two new university studies have revealed that the bean can stop the spread of prostate cancer and guard against breast cancer, reports the Daily Express.

In one, researchers from Northwestern University, Chicago, found that one pill a day of genistein, a natural isoflavone chemical in soya, seemed to slow or stop the spread of prostate cancer.

Prof Raymond Bergan said that the results could lead to the first non-toxic treatment that prevents cancer cell movement.

"All therapies designed to stop cancer cell movement that have been tested to date in humans have basically failed because they have been ineffective or toxic," he said.

"If this drug can effectively stop prostate cancer from moving in the body, theoretically, a similar therapy could have the same effect on the cells of other cancers," he added.

In the second study of more than 1,200 women, researchers from the University at Buffalo, New York, found isoflavones from soya can reduce the risk of developing breast cancer.

Researcher Anne Weaver and her colleagues evaluated 683 women with breast cancer and compared them with 611 healthy women.

They found those with the highest isoflavone intake had a 30 percent lower risk of an invasive breast tumour and a 60 percent lower risk of a low-grade tumour.

Pre-menopausal women with the highest intake of isoflavones had a 30 percent decreased risk of Stage One disease, a 70 percent decreased risk of having a tumour larger than 2cm, and a 60 per cent decreased risk of Stage Two breast cancer.

14 foods

14 foods that deliver research-documented benefits to health (New Kerala: 17.1.2011)

Trying to incorporate more nutritious foods into your diet? An article in the January issue of a magazine has listed 14 foods that deliver research-documented benefits to health.

1. Barley: 11 clinical trials spanning almost 20 years found that increased consumption of barley products can lower total and LDL cholesterol.
2. Quinoa and buckwheat: Research suggest that seeds and sprouts from both quinoa and buckwheat represent rich sources of polyphenol compounds for enhancing the nutrition value of foods such as gluten-free breads.
3. Brown rice: Substitution of brown rice for white rice may lower the risk of type 2 diabetes.
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7. Pecans: A recent 2010 study suggested that the vitamin E in pecans may provide neurological protection by delaying progression of motor neuron degeneration.

8. Pistachios: Pistachios are suggested to have anti-inflammatory properties according to a recent study.

9. Walnuts: A walnut-enriched diet may reduce the risk of cardiovascular disease in those with type 2 diabetes.

Fruits and Vegetables

10. Black raspberries: A 2010 study found black raspberries were highly effective in preventing intestinal tumor development in mice.

11. Blueberries: Whole blueberry smoothies consumed daily improved insulin sensitivity in obese, non-diabetic, and insulin resistant patients in a six-week study.

12. Broccoli and cauliflower: A high intake of broccoli and cauliflower may be associated with reduced risk of aggressive prostate cancer.

13. Pomegranates: A preliminary study suggested that pomegranate juice can help prevent a number of complications in kidney disease patients on dialysis.

14. Tomatoes: A six-week study found that people with high-blood pressure who consumed two servings of canned tomato products daily experienced a significant decrease in blood pressure.

Blueberries

Blueberries help curb high blood pressure (World Newspaper: 17.1.2011)

Eating two handfuls of blueberries a week can slash the risk of developing high blood pressure, which leads to strokes and heart disease, a new research has found.

High blood pressure or hypertension affects at least 10 million people in Britain, reports express.co.uk.

The latest findings show that bio-active compounds in blueberries - called anthocyanins - offer protection against hypertension.

Compared with people who did not eat blueberries, those eating at least one serving a week - the equivalent of a couple of handfuls - reduced their risk of developing the condition by 10%.

The superfood has already been found to fight hardening of the arteries, which can cause a heart attack or stroke, as well as helping to guard against diseases such as cancer and Alzheimer's.

Anthocyanins belong to the family of compounds called flavonoids and are also found in blackcurrants, raspberries, aubergines and blood orange juice.

The research, carried out by the University of East Anglia and Harvard University, is the first large study to investigate the effect of different flavonoids on hypertension.

The scientists studied 134,000 women and 47,000 men over a period of 14 years. None of the participants had hypertension at the start of the study.

Subjects were asked to complete health questionnaires every two years and their dietary intake was assessed every four years. Incidence of newly diagnosed hypertension during the 14-year period was then related to consumption of various flavonoids.

During the study 35,000 participants developed hypertension.

The dietary information identified tea as the main contributor of flavonoids, with apples, orange juice, blueberries, red wine and strawberries also providing important amounts.

Aedin Cassidy of the University of East Anglia said, "Our findings are exciting and suggest that an achievable dietary intake of anthocyanins may contribute to the prevention of hypertension."

Diet and Nutrition

Do Big Breakfasts Mean Loss of Weight? (Med India: 18.1.2011)

German researchers at the Else-Kroner-Fresenius Center of Nutritional Medicine led by Volker Schusdziarra have reported in the journal Nutrition that a big breakfast does not mean a loss in weight.

For long, it was believed that a big breakfast made people eat less at the other mealtimes in the day. But that was not true, for people held to the same pattern of eating when it came to other meals. “The results of the study showed that people ate the same at lunch and dinner, regardless of what they had for breakfast,” said Schusdziarra. “I always tell my patients to start reducing calories from breakfast time.”

The study that has been reported in Nutrition, involved 300 people who were asked to record everything they ate and drank and the amount and portion sizes precisely. Big eaters and those who had small breakfasts consumed the same amount of calories at other meal times as they did at breakfast. Those who had a huge breakfast did not cut down on their lunches and dinners.

Cutting out breakfast altogether is swinging to the other side of the pendulum, and that is not a good idea too. As Sian Porter of the British Dietetic Association states, “Missing breakfast may lead you to snack on less healthy foods later on in the morning and you won't necessarily catch up nutritionally later in the day if you skip breakfast. Other benefits of breakfast include improved health, improved mental performance and concentration and better mood - something we all want in the morning.”

So, eat a healthy breakfast every morning. Just don't overdo it.

Diet and Nutrition

Foods That De-Stress (Med India: 18.1.2011)

Dietician Cynthia Sass, co-author of Cinch! Conquer Cravings, Drop Pounds and Lose Inches talked about food and their impact on stress and anxiety, on "The Early Show on Saturday Morning."

Sass focused on the value of different foods in different stress-producing situations.

1. Stress at the workplace – Raw vegetables with hummus and ice water. The vitamins, minerals and antioxidants offset the impact of stress.
2. Making a presentation – Tea; the levels of psychological stress go down significantly.

3. Disturbed sleep – Seaweed Salad, full of iodine and magnesium that can push back fatigue and depression and give you a good night's rest.
4. Watching a tension-filled sporting event – Puffed brown rice or whole grains as a crispy snack and oranges. They bring down the tension and keep you calm.
5. In-laws for dinner – Garden salad with fresh beets; it has folate that deals with mental fatigue, forgetfulness, confusion and insomnia.
6. Increasing holiday bills – Mushrooms in fajitas or burgers, they are rich in selenium and Vitamin D that helps you get rid of depression and that enhances your mood.

According to Sass, these foods make up an important part of a stress-relieving diet.

Diet

Add friendly bugs to your diet, lose weight (The Times of India: 18.1.2011) Diet

Here's some good news for those struggling to shed the flab — scientists have created friendly bacteria which they claim could help dieters lose excess body fat when added to yogurt.

A team from the Irish Agriculture and Food Development Authority and Cork University has found that it can alter the bacteria, which is found naturally in human gut and probiotic yogurts, to make it produce a type of molecule that has been shown to reduce levels of fat tissue in the body.

The scientists hope they will be able to produce new types of probiotic yogurts and drinks which can help to cut obesity, The Daily Telegraph reported.

In fact, in their research, the scientists created a strain of *Lactobacillus* bacteria, which is common in the human gut and aids digestion of food, by inserting a gene from another type of bacteria which naturally produces a polyunsaturated fatty acid called γ -linolenic acid (CLA). The researchers found the levels of γ -linolenic acid in the body fat of mice fed the engineered strain were four times greater than mice fed a control strain. They also found that concentrations of the molecule in the rats' livers were 2.5 times higher when they were fed the new bacterium.

Milk

Free milk at schools 'key to lower risk of bowel cancer' (New Kerala: 18.1.2011)

A study has found that those who drank free milk supplied at schools have a reduced risk of bowel cancer.

Associate Professor Brian Cox and Dr Mary Jane Sneyd at Otago University revealed that they found a 30 per cent reduced risk of bowel cancer for those who took part in school milk programmes.

They explained that calcium - a nutrient in milk more commonly associated with healthy bone development - may affect the growth of bowel adenomas, benign tumours that can become malignant.

"Although calcium supplementation in adults has been shown to reduce the risk of recurrent adenoma, the effect of childhood dietary calcium on their initial development is not known," the New Zealand Herald quoted the authors as writing.

Cox said, "The research team is currently planning further research which, if funding can be obtained, could confirm that the provision of milk at school can significantly reduce the risk of bowel cancer in future generations."

He added, "It's not clear how much changing your diet in adulthood would change your risk of bowel cancer."

Big Breakfast

Big Breakfast Not Tied To Fewer Daily Calories (Medical News Today: 19.1.2011)

Eating a big breakfast is not linked to consuming fewer daily calories as many might think, in fact researchers in Germany found people who ate a breakfast with 400 calories more than a small breakfast tended to eat 400 more calories per day.

Their findings suggest that the myth about eating a big breakfast helping to lose weight is not true, and may have come about from misinterpretation of research that was actually saying given a fixed number of calories per day, those people who consumed more of them at breakfast tended to eat less the rest of the day.

You can read how Dr Volker Schusdziarra, from the Else-Kröner-Fresenius Center of Nutritional Medicine at the Technical University Munich, and colleagues, conducted their study in the 17 January online issue of Nutrition Journal, a BioMed Central open access journal.

Schusdziarra and colleagues said the available information about the role of breakfast energy in total daily energy intake was confusing and contradictory: research that analyzed results across a population suggests eating a high calorie breakfast leads to greater overall intake, while other studies that analysed what individuals did suggest that when people eat a higher proportion of their calories at breakfast then they eat fewer calories per day.

So to evaluate these findings they decided to do their own investigation and apply both types of analysis to the same data.

For their study they recruited 280 obese and 100 normal weight volunteers and asked them to keep food diaries and record their food intake for up to 2 weeks. Some of the participants ate a big breakfast, some had a small one, and some skipped it altogether.

The results showed that:

Eating more calories at breakfast was linked to greater overall daily intake in both normal weight and obese participants.

When breakfast was a larger proportion of daily intake, this was linked to significant reduction in daily intake only on days when fewer calories were consumed the rest of the day.

Statistical tests of the factors influencing daily calorie intake (correlation and multiple regression) showed that the number of calories eaten at breakfast (absolute breakfast calories) had the strongest influence.

The researchers concluded that:

"Reduced breakfast energy intake is associated with lower total daily intake."

They wrote that overweight and obese people should consider cutting back on breakfast calories as a "simple option to improve their daily energy balance", because the "influence of the ratio of breakfast to overall energy intake largely depends on the post-breakfast rather than breakfast intake pattern".

Schusdziarra told the press that:

"The results of the study showed that people ate the same at lunch and dinner, regardless of what they had for breakfast."

He said they found that a big breakfast averaging about 400 kcal more than a small breakfast resulted in a total increase of about 400 kcal over the day.

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The only difference was, if someone ate a really big breakfast, they skipped a mid morning snack, but this was not enough to offset the extra calories they had already eaten.

In a statement, the researchers explained that earlier studies that suggest eating a big breakfast reduces overall daily calories are misleading. Those studies only looked at the ratio of breakfast calories to daily calories, and in this study Schusdziarra and colleagues found this ratio was more strongly affected by people eating less during the day, so their breakfast was proportionally but not absolutely, bigger.

So it would seem, according to the results of this study, that eating a big breakfast has to be followed by eating a lot less the rest of the day, to keep the calories in check if you are trying to lose weight.

Most authorities, such as the UK's NHS guidelines stress that sensible weight loss involves eating fewer calories while cutting down on saturated fats and sugar, and eating at least 5 portions of fruit and vegetables a day.

And experts still suggest breakfast is an important meal, in that it can influence the content of our diet.

A spokeswoman for the British Dietetic Association, Sian Porter, said there is evidence that people who eat breakfast tend to follow a more balanced diet than people who skip it. They are also less likely to be overweight, they are more successful at losing weight and they are less prone to certain diseases:

"Missing breakfast may lead you to snack on less healthy foods later on in the morning and you won't necessarily catch up nutritionally later in the day if you skip breakfast," Porter told the BBC.

"Impact of breakfast on daily energy intake - an analysis of absolute versus relative breakfast calories."

Diet

Western diet linked to increased risk of breast cancer(The Tribune: 19.1.2011)

Scientists have discovered that elevated fat and cholesterol levels found in a typical American-style diet play an important role in the growth and spread of breast cancer. Researchers at the Kimmel Cancer Center, Jefferson, examined the role of fat and cholesterol in breast cancer development using a mouse model. The results showed that the mice fed a Western diet and predisposed to develop mammary tumors can develop larger tumours that are faster growing and metastasise more easily, compared to animals eating a control diet. The incidence rate of this cancer is five times higher in Western countries than in other developed countries. Moreover, studies have shown an increase in breast cancer incidence in immigrant populations that relocate from a region with low incidence. “These facts suggest strong environmental influence on breast cancer development,” said Philippe G. Frank, Assistant Professor in the Department of Stem Cell Biology and Regenerative Medicine at Thomas Jefferson University. — ANI

Fat foods

Want a flat tummy? Don't rely on low-fat foods! (The Tribune: 19.1.2011)

Trying to lose weight by adopting a low-fat diet? Well, you may be committing the biggest mistake of your “weight loss regime,” says an Oz fitness expert. Celebrity trainer James Duigan, whose clients include model Elle Macpherson, said, “I see so many people trying their best and it's just not working because they don't understand that it's not fat that makes you fat. It's sugar and it's carbohydrates.”

“You need a healthy balanced diet with fish and chicken and meat and vegetables and berries and nuts and things like that. (Low-fat diets) just don't work — it's not sustainable. You need to look at how you can keep yourself happy and healthy throughout your life,” Stuff.co.nz quoted him as saying. Duigan, whose second book, “Clean & Lean: Flat Tummy Fast!”, is out, has suggested some small steps one can follow for a flattened stomach:

- 1 Don't overcook your food as you'll kill off or reduce the nutrient content. Try to make sure around 50 per cent of the food on your plate is raw. If you can stomach it, eat all your vegetables raw.
- 1 Don't eat foods that weaken your abdominal wall, as this will make it slack and lead to a protruding stomach. Foods that can weaken your abdominal wall often contain gluten.
- 1 Avoid sugar, in all its forms, as it fattens your mid-section.

1 Make sure that you eat enough fibre. A lack of fibre will lead to inflammation in the bowel. Eat plenty of vegetables (ideally raw) and drink at least two litres of still, room temperature water every day.

1 Duigan has suggested having the occasional “cheat” meal; so you can eat a piece of cake or a brownie and actually help your weight loss.

1 “Feed your soul because you can’t live your whole life in denial. And it helps the fat-burning process, it can boost your metabolism and get you leaner the next day. The key is to keep it to one meal,” he said.

1 Another factor for a healthy lifestyle is reducing stress, he added.

Fruit and Vegetables

More Fruit and Vegetables Recommended (Med India:20.1.2011)

A study into the diet and health of people from eight countries suggests that the recommended five servings of fruit and vegetables a day should increase to eight.

After studying 300,000 people, the research concluded that eight portions of fresh food a day meant a 22% decreased risk of dying from heart disease. It states that every extra portion meant more protection. One portion was calculated to be of 80 grams and could be a small banana, a medium apple or a small carrot.

Cardiovascular disease (CVD) is the leading cause of death in the world, especially in the UK, claiming a third of the deaths occurring each year in England.

Dr Francesca Crowe of Oxford University, who had been working on the research study states that people who ate a lot of vegetables were less likely to suffer from ischaemic heart disease.

Although antioxidants were believed to be a protection against heart problems, Crowe claims, “It is, however, worth noting that consuming antioxidant supplements is not the same as increasing the consumption of fruits and vegetables because there are many other components in fruits and vegetables that may confer a cardioprotective effect.”

Stephen Devries, MD, of Northwestern Memorial Hospital in Chicago says, “A possible mechanism is the impact of fruit and vegetables to lower inflammation, a known mechanism contributing to cardiovascular disease.”

The study does have its limitations; the biological mechanism by which fruits and vegetables may lower ischemic heart disease risk has not been explained clearly.

Soy Beats Milk

Soy Beats Milk In Reducing Cholesterol: Study (Med India:20.1.2011)

(Scientists have discovered that proteins from soy milk help in reducing the levels of cholesterol of a person, when compared to milk proteins.

"Non-HDL cholesterol has been shown to be a somewhat stronger predictor of cardiovascular disease and mortality risk than LDL cholesterol in population studies," said Elaine Krul, co-author of the study.

This randomized, controlled, parallel arm trial evaluated the effects of an insoluble fraction of soy protein, compared to total milk proteins with high calcium content, on the fasting lipid profile.

"The results of this study also showed that soy protein lowered non-HDL through a mechanism that does not involve increased bile acid excretion, but some yet to be determined mechanism," said Kevin Maki, lead author of the study.

Solae's soy protein that was used in this study was a relatively insoluble fraction of soy protein isolate that had been shown to lower plasma cholesterol and increase fecal bile acid excretion in animals.

The levels of isoflavones in the soy protein were lower than the average commercial soy protein isolate further supporting the notion that isoflavones do not play a role in the cholesterol lowering. The milk protein supplemented group also showed a modest cholesterol lowering.

Subjects for this study included men and women 18 to 79 years of age with elevated cholesterol, defined as fasting LDL-cholesterol concentrations of at least 100 mg/dL and less than 200 mg/dL while receiving no lipid altering therapy.

The study has been published in the Journal of Clinical Lipidology last month.

Snacking habits

Snacking habits impact health: Study (New Kerala: 21.1.2011)

Do you know that what you eat at 7pm may just impact your dinner habits and in turn your health?

Everybody enjoys a good snack in the evening. But not all snacks are healthy. Most snacks that we eat during the evening are usually unhealthy as they are mostly deep-fried food items. Not only are they unhealthy but at most time they also kill the appetite for dinner.

A new pan-India study of snacking by research agency AC Nielsen for Knorr Soups reveals that the highest intake of unhealthy foods takes place in the pre-dinner period. The 4 pm to 7 pm slot is what you need to watch out for.

The study surveyed 1,000 respondents from Mumbai, Delhi, Bangalore, Chennai and Kolkata. It covered homemakers, working women (mothers) in the age group of 26-40, belonging to middle and upper income households.

With dinner time shifting from 8.30 pm to 9.30 pm, a wide variety of unhealthy snacks such as samosa, pakodas, noodles, burger and chaat are consumed in the evening which are high in calories.

The study points out that the top five pre dinner snacks among the kids are biscuits, fruits, noodles, pastas, chips and sandwiches.

Mothers in general are worried with unhealthy snacks eaten in the evening that kills the appetite for dinner, and kid's nutrition; also they are concerned about their kids eating junk food and being fond of unhealthy snacks.

The healthy snack options that mothers can feed their kids are sandwiches, fruits, vegetable salads, sprouts, uttapa, poha, upma, idli, juices, shakes, biscuits, and soup.

The study reveals that the consumption of healthy snacks such as soup has increased over the last one year, with soup being consumed three times a week.

The study also reveals that four of every ten Indians have both packaged soups and freshly prepared soups.

Surprisingly, there has been a significant change in Mumbai's snacking habits. From being at number 10 last year, soup has become the number 1 choice for a pre dinner snack. In Delhi too, the preference for soup has gone up significantly from last year with its rank going up at number 2.

Renowned diet and nutrition consultant Sheela Krishnaswamy says, "Soups not only give nutrition but also the much-needed hydration for our bodies. Clear soups which have no fat or sodium can be consumed in place of a glass of water, in winter."

Quick Bites

- In India, mothers consider unhealthy snacks like pakoda, samosa, biscuits and chips although they would want to switch to other healthy and tasty options
- Fruits are considered to be the most healthy and tasty snack option
- After vegetables salads and sprouts mothers consider soup to have 100pc vegetables
- In India, mothers believe that an ideal snack should be nutritious, easy to digest, ideal for kids, low cal, healthy and tasty
- Mothers in Mumbai are most concerned about their kids eating a lot of junk food as compared to other cities
- More than 70pc mothers in Delhi and Chennai think that soup is the most delicious way of feeding vegetables.

Nutrition

Nutrition 'may have a role in development of asthma'(New Kerala: 24.1.2011)

Asthma affects as many as 300 million people and is one of the world's most common chronic diseases. Researchers estimate that by 2025, there could be an additional 100 million people with the disease.

The rapid increase is mostly due to changing environmental or lifestyle factors, and diet.

Two new studies have now suggested that nutrition may have a role in the development of asthma, but cautioned that further research is needed to confirm the link.

In the first study, investigators from the University of Aberdeen, UK, reviewed three dietary factors that have been thought to play a role in the increase in asthma - a changing antioxidant intake, an increasing ratio of n-6 to n-3 polyunsaturated fatty acid (PUFA) consumption, and changing vitamin D status.

They also reviewed a small number of studies that suggested modifying one's diet during pregnancy might reduce the incidence of childhood asthma.

"The generally weak observational and very limited intervention data suggest that whilst there are associations between diet and asthma, the nature of the associations (with PUFA, antioxidants, nutrients, food), the timing (antenatal, infancy, childhood, adulthood), and the therapeutic potential of the associations are far from clear," said Graham Devereux.

"Future studies should consider the use of dietary intervention to increase the intake of nutrients highlighted by birth cohorts (vitamin E, PUFA, vitamin D, zinc) in order to capture the complexity of dietary nutrient intake."

In the second study, a team of researchers from Greece examined the association between salty snack consumption along with TV or video game viewing and asthma symptoms in young adolescents.

In their study of 700 children aged 10-12 years, they found there was a 4.8-times higher risk of having asthma symptoms when salty snacks were consumed more than three times a week.

This link was even stronger in children who watched TV or played video games more than two hours a day.

The study also showed that children who consumed a 'Mediterranean diet' were less likely to have asthma symptoms.

The 'Mediterranean diet' consists of a high content of vegetables, fresh fruits, cereals and olive oil, with a high intake of beta-carotene; vitamins C and E; and other protective substances like selenium, flavonoids and polyphenols.

"Since the prevalence of asthma is quite high in industrialized populations, and has continued to increase during the past years, future interventions and public health messages should be focused on changing these behaviours from the early stages of life, by informing parents, guardians, teachers and any other person that could teach children a healthier lifestyle," said lead investigators Demosthenes Panagiotakos, Harokopio University, and Kostas Priftis, University of Athens.

The studies will be published in the February issue of the Journal of the American Dietetic Association.

Bread

Bread may actually be good for you (New Kerala: 28.1.2011)

Nutritionists have declared that bread, far from being something to avoid, is actually beneficial for your health.

It comes with vital nutrients, vitamins and minerals, especially if you choose wholegrain varieties with added nuts, seeds or dried fruits.

But even white sliced bread has some nutritional value, as it's a great source of calcium (essential if you've cut out that other modern dietary bogey, dairy).

Meanwhile, a new American diet book, "The Carb Lover's Diet", insists that bread, far from being fattening, actually helps to burn calories, the Daily Mail reports.

It says, wholegrain bread is rich in 'resistant starch', a type of carbohydrate that leaves you feeling fuller for longer because it's hard to digest.

"Studies show that resistant starch can help to curb cravings, control blood sugar levels and boost metabolism," say authors Ellen Kunes and Frances Largeman-Roth.

As it has only 80-100 calories a slice, bread can be a positive aid to weight loss rather than a diet-buster, as long as you don't slather it with prawn mayo.

What's more, although it has been fashionable in recent years to claim to be allergic to wheat, the number of people genuinely affected remains very small, between one-two percent of the population, according to Allergy UK.

And sufferers' symptoms go well beyond a bit of temporary bloating - they may get headaches, nausea, aches and pains or hay-fever-like symptoms.

If you do feel a little bloated after eating bread, nutritionists say that's probably related to the effects of eating fibre and is good for you.

Organic Foods

Organic Foods – ‘Natural products’ (Med India:28.1.2011)

Organic Foods are produced by the 'natural method', without the use of chemicals like pesticides, fertilizers or sewage sludge.

An organic farm, properly speaking, is not that which uses certain methods and substances and avoids others; it is a farm whose structure is formed in imitation of the structure of a natural system, that has the integrity, the independence and the benign dependance of an organism"

-Wendell Berry, 'Gift of Good Land'

The industrial revolution and modernization has been at the cost of Mother Nature. Modern man has contaminated both the soil and the atmosphere, giving rise to the 'greenhouse effect' that is hreatening to destroy our planet.

The current fad for organic food is more than just hype. Today it is a common practice for farmers to liberally make use of pesticide sprays and fertilisers in order to improve the crop yields. The effect of this 'chemical cocktail' has been held responsible, among other factors, for the increase in the global incidence of cancer.

A group of people, who felt very strongly, about the long- term effects of these tampered food, started to grow what is now called, “organic” food. Described as “wholesome goodness”, organic foods are produced by natural methods, and therefore considered nutritious and safe.

Organic food refers to crops grown, or products from animals reared, according to the legally-regulated standards of the country that they are sold in. Certification of organic food is required and non-certified farms cannot claim their products to be ‘organic’.

When crops are grown without the use of conventional pesticides, sewage sludge or unnatural fertilizers, and processed without the use of ionizing radiation or the addition of food additives, they are termed, ‘organic’.

Improving soil quality, or ‘feeding the soil to feed the plant’ is the bottom line of organic farming. This method of farming extracts the benefits of the cumulative effects of varied techniques. A variety of methods such as careful crop selection, use of mechanical controls, such as row covers and traps, using organic mulches and crop rotation are

employed in organic farming. The farmers who carry out organic farming, also avoid the use of plant growth regulators.

Organic farmers make use of green manure and compost, besides using certain processed fertilizers, such as seed meal, mineral powders and green sand, which is a naturally occurring form of potash. Pest control employs different methods, one of which also involves the introduction of beneficial organisms that stop the proliferation of pests.

‘Organic’ animals are those that are not genetically modified, and those that are fed on organic fodder and reared without using growth hormones.

Perhaps it is only apt to accept the saying:

“Doctor treats; Nature cures.” -Mme de Krudener

Food Bug

Common food bug ups risk of heart diseases (The Times of India: 28.1.2011)

Some variants of the common food bug, called *Listeria monocytogenes*, appear to have an enhanced ability to increase the risk of serious heart diseases, a new study has claimed.

Researchers at the University of Illinois, Chicago, found that some deadly strains of the bug are “uniquely adapted” to invade heart tissues of people with pre-existing heart problems, or who have had heart valve replacements. In a study on mice, the scientists discovered that the animals infected with the strains had up to 15 times more bacteria in their hearts than those exposed to other forms of *Listeria*.

The findings, the researchers said, could help develop new ways of identifying the strains and protect those most at risk, the Daily Mail reported. *Listeria monocytogenes* is widespread in the environment, living in soil and vegetation, and exists harmlessly in the guts of at least 5% of healthy people. According to the researchers, the bacteria has an unusual ability to grow in low temperatures and can be found in a wide range of foods including soft cheeses, cold meat products, raw vegetables, fish, salads and unpasteurised milk.

Listeria infections may cause nothing worse than flu-like symptoms and a upset stomach or lead to serious illness involving the blood and nervous system. Research showed some *Listeria* strains had modified surface proteins which helped them home in on the heart. The scientists are now working on developing diagnostic tests based on bacterial genetic markers.

Food allergies

Kids with food allergies may feel unsafe at school (New Kerala: 31.1.2011)

Young people who have experienced life-threatening anaphylactic shock from specific food exposures have significantly different views of the risks associated with their allergies based on their age and can benefit from discussing their perceptions of the safety of their school environment in improving their ability to cope, a new research by Canadian researchers suggests.

The study consulted directly with children about their experiences living with and managing a chronic medical condition that requires them to be keenly alert to their surroundings.

The study involved 20 children and teenagers and is considered exploratory by the authors, who caution against broader conclusions because of its limited sample size.

Ten children aged eight through twelve and ten teenagers, all of whom have potentially life-threatening food allergies, were selected from public schools in Ontario, Canada.

Their conditions are severe enough many have to carry an injectable form of adrenaline to treat episodes should they begin reacting to an unanticipated exposure to a food allergen.

Both age groups identified environmental and social barriers that contributed to feelings of isolation, exclusion or being teased. Missing out on school activities, camps, or time with friends was common.

Close friends provide key support to allergic kids but the subjects identified the greatest barrier to safety as stemming from uninformed or misinformed educators and others.

Young children relied more on parents and teachers to cope, whereas adolescents often anxiously fended for themselves by avoiding risky foods, educating others, navigating confusing food labels and quickly escaping from unsafe places.

Some felt disempowered and overburdened and even developed symptoms like constant hand washing or waiting to eat until an adult was present who was available to drive them to the hospital.

For teenagers, one successful coping strategy was redefining what is "normal" given their potentially life-threatening reactions to certain food exposures such as tree nuts and some seafood.

The study has been published in the journal Risk Analysis

Steamed Broccoli

Lightly Steamed Broccoli Has Powerful Anticancer Enzyme Myrosinase (Medical News Today: 31.1.2011)

Broccoli can significantly reduce your risk of developing cancers if you don't destroy the enzyme myrosinase - you can only do this effectively by steaming the vegetable lightly. Overcook it and the health benefits will be considerably undermined, researchers from the University of Illinois wrote in Nutrition and Cancer.

If you add broccoli sprouts to your dish you could be doubling its anticancer properties.

Researchers have long been writing about the health benefits of broccoli, particularly one of its ingredients - sulforaphane, which is thought to have anti-inflammatory and anti-cancer qualities. The authors warn that depending on broccoli powder supplements alone will not have anywhere near the same benefits, and neither will overcooking the vegetable.

The longer you cook broccoli the more you destroy myrosinase, a key enzyme in the formation of sulforaphane. Broccoli powder does not contain myrosinase.

Author Jenna Cramer said you can enhance the powder's effectiveness by adding broccoli sprouts. Cramer and team wondered whether sulforaphane formation and absorption could be enhanced if individuals consumed broccoli powder and sprouts together.

They asked four healthy males to eat four meals each. Each meal contained either:

Dry cereal and yogurt

Dry cereal, yogurt, and 2 grams of broccoli shoots

Dry cereal, yogurt, and 2 grams of broccoli powder

Dry cereal, yogurt, 2 grams of broccoli powder, plus 2 grams of broccoli shoots

After the meals, urine and blood samples were collected from each participant.

They found that levels of sulforaphane were nearly twice as high when the participants had eaten a meal containing both broccoli sprouts and powder together.

The authors reported that myrosinase, which is found naturally in the broccoli sprouts, formed sulforaphane from a sulforaphane precursor in the broccoli powder, as well as from the broccoli sprouts.

Scientists believe sulforaphane protects us from bacterial damage in the intestinal tract which can eventually lead to the development of stomach ulcers and cancer. Ingredients in broccoli are said to lower your risk of developing breast and (smoker's) lung cancers, as well as heart disease.

The authors concluded:

"Combining broccoli sprouts with the broccoli powder enhanced SF absorption from broccoli powder, offering the potential for development of foods that modify the health impact of broccoli products."

Vitamin D

Vitamin D deficiencies linked to onset of autoimmune lung disease! (New Kerala: 5.1.2011)

Vitamin D deficiency could be linked to the development and severity of certain autoimmune lung diseases, according to a new study.

Brent Kinder, MD, UC Health pulmonologist, director of the Interstitial Lung Disease Center at the University of Cincinnati and lead investigator on the study, says vitamin D deficiencies have been found to affect the development of other autoimmune diseases, like lupus and type 1 diabetes

"We wanted to see if lack of sufficient vitamin D would also be seen in patients who are diagnosed with an autoimmune interstitial lung disease (ILD) and whether it was associated with reduced lung function," he says.

Some ILD patients first discover they have an undifferentiated connective tissue disease, a chronic inflammatory autoimmune disease that affects multiple organ systems but is not developed enough for physicians to easily recognize and categorize.

Autoimmune diseases occur when the body produces abnormal cells that turn on the body and attack major organs and tissues. Connective tissue diseases include lupus, scleroderma, polymyositis, vasculitis, rheumatoid arthritis and Sjogren's syndrome.

"ILD is a group of diseases that mainly affect the tissues of the lungs instead of the airways, like asthma and emphysema do," says Kinder. "It causes scarring of the lungs, is more difficult to diagnosis and treat than other kinds of lung diseases and is often fatal.

"Since vitamin D deficiency has implications for other manifestations of autoimmune illnesses, we wanted to see it had an effect on the lungs of this patient population."

Researchers evaluated 118 patients from the UC ILD Center database-67 with connective tissue disease-related ILD and 51 with other causes of lung fibrosis-for serum 25-hydroxyvitamin D levels, which indicate levels of vitamin D in the body. Then, they evaluated associations between these serum levels and the patients' conditions.

Overall, those with connective tissue disease-related ILD were more likely to have vitamin D deficiency-52 percent versus 20 percent-and insufficiency-79 percent versus 31 percent-than other forms of ILD.

Among this same group of patients, reduced serum 25-hydroxyvitamin D levels were strongly associated with reduced lung function.

"These findings suggest that there is a high prevalence of vitamin D deficiency in patients with ILD, particularly those with connective tissue disease," Kinder says.

"Therefore, vitamin D may have a role in the development of connective tissue disease-related ILD and patients' worsening lung function.

"One of the next steps is to see if supplementation will improve lung function for these patients."

He adds that if these findings are confirmed and vitamin D supplementation is shown to be effective in clinical trials, this may also provide a more natural, inexpensive treatment for the illness.

"Vitamin D is known to be a critical dietary factor for bone and skin health," he says. "Now, we're learning that it could potentially be modified as a treatment to improve ILD as opposed to other, more toxic therapies."

These findings are being reported in the Jan. 4 edition of the journal *Chest*.

Health Care

Doctors

India tops with 56,000 migrant doctors in OECD countries (The Times of India: 24-12-2010)

India is the top country of origin of migrant doctors in OECD countries with over 56,000 Indian doctors in these countries, which include the UK, the US, Canada, and Australia.

India also figures at sixth place in the expatriation of nurses to OECD countries (about 23,000). In terms of percentages, however, these figures constitute just 8% and 3% respectively of the doctor and nurse population in India, comfortably low compared to some of the smaller countries severely affected by emigration of doctors such as Mozambique (75%) and Angola (70%).

These numbers, revealed by the recently released World Migration Report 2010, however, do not include the large number of Indian doctors and nurses working in the Gulf.

“It is estimated that at any given time there are over one lakh Indian nurses in the GCC (Gulf Coordination Council) countries. The poor working conditions in India coupled with low salary and the lack of respect at the work place are the top reasons for nurses migrating abroad,” said Sreelekha Nair, of the Centre for Women’s Development Studies at a recently organised seminar on Indian Nursing in the New Era of Healthcare.

The World Migration Report talks about the problem of “medical brain drain”, especially in African countries. According to the World Health Organisation (WHO), the number of physicians per 100,000 population for India is 70, which is at par with low-income countries, and for the public sector, the figure is a paltry 20. In the European Union, the figure is 310 physicians per 100,000 population and in the US 240 physicians per 100,000. Similarly, the number of nurses per 100,000 population in India is 80, while it is 330 for the world and 160 for low-income countries.

The WHO threshold for a ‘health workforce crisis’ is 230 health workers per 100,000 population. For example, India, an origin country, with only 190 health workers per 100,000 persons, is in a crisis state.

As destination countries, the United Kingdom and the United States have ratios of 750 and 1,250 health workers per 100,000 persons respectively, which are far above the benchmark. However, there is still a demand for doctors and nurses in these countries.

This was pointed out in a background paper, “The Future of Health Worker Migration”, by Professor Binod Khadria of the Zakir Hussain Centre for Educational Studies in JNU. In OECD countries, there is an increasing demand for health workers because of rising incomes, new technology, and an aging population.

In terms of nurses, the Philippines is the main country of origin for nurses, with over 110,000 Filipino nurses working in OECD countries, followed by the United Kingdom (just under 46,000), Germany (under 32,000). According to the OECD data of 2007, the top five countries in terms of emigration rates of nurses are all from the Caribbean — Haiti leads with an expatriation rate of 94%, followed by Jamaica (87.7%), Grenada (87.6%), St Vincent and the Grenadines (81.6%) and Guyana (81.1%).

“A lot of the data on migrating health workers could be outdated and also fluctuates a lot depending on the demand around the world. But it is a given that there is no stopping the migration of health workers. Migration for employment abroad is the basic human right of every health worker - or any skilled worker,” said professor Khadria

Blood bank

Dumping of blood bags: IMA backs blood bank (The Tribune: 27-12-2010)

Dr Ved Beniwal, patron of the state chapter of the IMA and chairman of Shiv Shakti Blood Bank, addresses mediapersons in Sirsa on Sunday. Photo: Amit Soni

Sirsa, December 26

The Indian Medical Association (IMA) has backed Shiv Shakti Blood Bank here following allegations that it dumped a large number of bags of blood near Panjuana village.

The doctors affiliated with the IMA have instead accused the Synergy Waste Management, a service provider under the Environment Protection Act, for dumping the expired blood units collected from the blood bank in the open instead of treating these as per the government rules.

The Director-General of Health Services, Haryana, has banned all blood donation camps organised by Shiv Shakti Blood Bank and the health authorities have lodged a complaint against its management.

The authorities had recovered 82 bags of expired blood and biomedical waste from a roadside near Panjuana village on Thursday.

Addressing mediapersons in IMA Bhawan here in the presence of over 10 senior doctors of the town today, the beleaguered chairman of the blood bank, Dr Ved Beniwal, who is also the patron of the state chapter of the IMA, denied having thrown the blood units in the open.

“When we have been paying for the disposal of biomedical waste to the service provider, why do we need to throw the expired blood in the open?” Beniwal asked.

He maintained that the service provider company had been collecting biomedical waste from all doctors of the town and it was the legal duty of the company to dispose off the waste as per the rules.

“However, the way some waste, including used syringes, swabs, empty bags of blood and bags meant for packing biomedical waste, has been recovered along with the blood units, it becomes clear that the waste has been dumped by the service provider company,” he alleged.

Dr Beniwal said his blood bank enjoyed the status of a charitable organisation that had been doing a yeoman service for the society by providing infection-free blood to patients.

Giving reasons for the expiry of such a large number of blood units in his blood bank, Dr Beniwal maintained that due to the increased demand of platelets for suspected dengue patients, relatively more units of blood were collected last month than the actual demand.

Senior members of the IMA and the Private Practitioners’ Association supported the claims of Dr Beniwal. They alleged that due to the monopoly of the service provider, the disposal of biomedical waste had been hit badly despite payment of heavy charges.

Meanwhile, Dr DS Jaspal, national vice-president of the IMA, has also flayed the action of the authorities against the Shiv Shakti Blood Bank and alleged that the service provider was at fault and action should be taken against it.

Neeraj Agarwal, Director of the Synergy Waste Management, however, reiterated his stand that the blood bank did not deliver the expired blood to his company.

“We have a record of everything delivered to us on daily basis with the signatures of the blood bank authorities. Let them belie the record and prove them right before the authorities,” Agarwal said.

He claimed that the Synergy Waste Management had been providing services to the blood bank free of cost.

Medical maladies

Medical maladies: (The Hindustan Times: 23-12-2010)

India needs a universal healthcare system based on public-private partnership

At its core, healthcare is essentially a public service. So its demand and supply cannot be left to the market and can't be limited to care rendered or financed by public expenditure, but must also include incentives and disincentives for care paid for by citizens.

India's healthcare challenges are aggravated by lack of overall coverage of health insurance services. Although the government and some private employers provide health protection, the schemes available to the public are basic and inaccessible to most people. Only about 12-13% of the population has some form of health insurance cover, apart from the 10% covered via government schemes.

What makes for a good healthcare system is universal and adequate access without excessive burden. But there is no one solution for providing such a coverage.

Among all nations, China is similar to India in size, scale and complexity. In selected aspects of disease load, demography and public expenditures on health, India's record may seem mixed compared to the better all round progress made by China.

This is due to various reasons: the Chinese government's sustained attention on health of the young, good public policy backed by resources and social mobilisation. However, India has a larger burden of disease compared to China, has to bear the transactional costs of a democracy and the burden of a population younger than China.

Public expenditure on health in China has been consistently higher than India's.

Still, it is not too unrealistic to expect that India should be able to reach at least three-fourth of the current level of performance of China in all key health indices soon. Let's examine the effectiveness of available instruments for delivery and financing public health action and how these can be stratified into different phases.

In the short run, India faces challenges that have to do with how we manage the fundamental issues of financing healthcare for consumers, government, providers and other stakeholders.

The current financing of healthcare is based on a tripod structure. First, there are schemes like Rashtriya Swasthya Bima Yojana and Arogyashri that are doing a great job and should be strengthened further. But the complete onus of running the programme lies on the State because the beneficiaries are the poor from rural areas.

In the long run, the State will need support from private providers and extend the coverage to the urban poor as well.

Second, we have schemes like Central Government Health Scheme and Employees State Insurance that cover the vast majority of our population but their pricing needs to be transparent and corrected for efficient delivery.

Third, there are the private health insurers who cater to the health insurance needs of the middle class. All these models need to be made sustainable and efficient with efficient private-public partnership.

India's healthcare need is growing every minute. But are we ready for tertiary growth that can support regular healthcare needs for all including the urban poor and also be ready for the calamatic needs?

The solution might lie in the creation of a universal healthcare access mechanism where everyone can participate. It may be prudent to create a fund (an insurance pool) for universal care and critical illnesses through efficient private-public partnership built on trust and transparency. This would not only enable universal access but also enhance our readiness to address the growing gap of healthcare demand and supply.

Shobana Kamineni is director, Apollo Munich Health Insurance and Apollo Hospitals
The views expressed by the author are personal

Blood Bank

Dumping of blood units: Service provider, blood bank gets notices (The Tribune: 3.1.2011)

Four agencies have been probing the case of dumping of blood units on the roadside near Panjuana village near here on December 23 last. While the health authorities at the district level have already completed their inquiry, the investigations by the state drugs control authorities, the Pollution Control Board and the police are yet to be completed.

The regional office of the State Pollution Control Board (SPCB) has served notices to the local Shiv Shakti Blood Bank, whose expired blood units were found dumped on the roadside, and the Synergy Waste Management, the service provider for the district, for the management of biomedical wastes.

DB Batra, regional officer of the SPCB, said notices under the biomedical waste rules of the Environment Protection Act have been served to the two parties and both have been asked to explain their position within 15 days.

Batra said the Shiv Shakti Blood Bank had also been asked to furnish a copy of the agreement they had with the service provider.

He said further action in this matter would be taken only after the receipt of replies from the two parties.

A team of drugs control authorities led by senior drugs control officer NK Ahuja inspected the blood bank after complaints regarding the dumping of blood bags.

Ahuja has submitted his report to the State Drugs Controller, who is also the licensing authority in case of blood banks.

The police, on the other hand, has registered a case under Section 269 (negligent act likely to spread disease dangerous to life) of the IPC.

Jitender Kumar, SHO of the Sadar police station, said investigations were in progress. However, the health authorities have already completed their probe and found the service provider company - Synergy Waste Management - guilty of the act.

Dr Viresh Bhushan, Deputy Civil Surgeon, Sirsa, said copies of the report had also been sent to the police, the State Pollution Control Board and the drugs control authorities.

The committee headed by Deputy Civil Surgeon Dr GS Somani, that conducted the probe, reached its conclusion on the basis of biomedical waste of some other doctors found at the same place, where blood units of the Shiv Shakti Blood Bank were found.

Out of the 82 blood bags - 77 filled and five empty - found from the roadside, 75 filled bags belonged to the blood bank, while seven others were allegedly delivered by three other doctors of the town to the service provider.

Besides these bags, some other biomedical waste like used blood transfusion sets, syringes, needles, used swabs and yellow bags used by the doctors for keeping the waste before delivering it to the service provider were found from the heap of waste.

Incidentally, it is not the first instance that the biomedical waste, considered perilous to human health, has been finding its way to the open fields instead of being disposed of as per the environmental rules.

The dangerous waste has been found dumped several times in the past three years in Sirsa and Fatehabad. The Synergy Waste Management, however, has been denying its negligence.

Director of the service provider company Neeraj Agarwal has maintained that the blood units were never handed over to his company.

Blood Test

Soon, a simple blood test to detect cancer (The Times of India: 4.1.2011)

Set To Ensure Quicker, Better Treatment

Boston: A blood test so sensitive it can spot a single cancer cell lurking among a billion healthy ones is moving a step closer to being available at your doctor's office, with potentially revolutionary medical implications.

Boston scientists who invented the test and health care giant Johnson & Johnson are joining forces to bring it to market. Four big cancer centres also will start studies using the experimental test this year.

Stray cancer cells in the blood mean that a tumor has spread or is likely to, many doctors believe. A test that can capture such cells has the potential to transform care for many types of cancer, especially breast, prostate, colon and lung.

Initially, doctors want to use the test to try to predict what treatments would be best for each patient's tumor and find out quickly if they are working.

"This is like a liquid biopsy that avoids painful tissue sampling and may give a better way to monitor patients than periodic imaging scans," said Daniel Haber, chief of Massachusetts General Hospital's cancer center and one of the test's inventors. Ultimately, the test may offer a way to screen for cancer besides mammograms, colonoscopies and other less-than-ideal methods used now.

"There's a lot of potential here, and that's why there's a lot of excitement," said Mark Kris, lung cancer chief at Memorial Sloan-Kettering Cancer Center in New York. Sloan-Kettering is one of the sites that will study it this year. AGENCIES
Test needs a few teaspoons of blood

Many people have their cancers diagnosed through needle biopsies. These often do not provide enough of a sample to determine what genes or pathways control a tumor's growth. Or the sample may no longer be available by the time the patient gets sent to a specialist to decide what treatment to prescribe.

"If you could find out quickly, 'this drug is working, stay on it,' or 'this drug is not working' that would be huge," Haber said.

Interest in trying to collect these cells soared in 2007, after Haber and his team published a study of Mass General's test. It is more powerful than CellSearch and traps cells intact. It requires only a couple of teaspoons of blood and can be done repeatedly to monitor treatment.

Healthy habits

Healthy habits in youth linked to better cholesterol levels in adulthood (New Kerala: 4.1.2010)

A new study has suggested that adopting healthy habits in youth is associated with more favourable cholesterol levels in adulthood.

Costan G. Magnussen, of University of Tasmania, Hobart, Australia, and University of Turku, Finland, and colleagues studied 539 young adults.

Participants had their cholesterol and triglyceride levels measured in 1985 when they were age 9, 12 or 15, and again at a follow-up between 2004 and 2006 (an average of 20 years later). High-risk levels were defined as a total cholesterol level of 240 milligrams per deciliter or higher, an LDL or "bad" cholesterol level of 160 milligrams per deciliter or higher, an HDL or "good" cholesterol level of less than 40 milligrams per deciliter or a triglyceride level of 200 milligrams per deciliter or higher.

In addition, their height, weight, waist circumference, skin-fold thickness, smoking behaviors, cardiorespiratory fitness and socioeconomic factors were recorded at both time points.

"Using established cut points, we found that substantial proportions of individuals with high-risk blood lipid and lipoprotein levels at baseline no longer had high-risk levels at follow-up," the authors write.

Those who did remain high-risk gained more body fat and were more likely to begin or continue smoking during the follow-up period.

Participants who had low-risk profiles in youth but became high-risk as adults also had greater increases in body fat, were less likely to improve their socioeconomic conditions and became less fit between measurements than did those who remained low-risk.

When looking only at high-density lipoprotein levels (HDL, or "good" cholesterol), the authors found that participants who did not improve any lifestyle factors between youth and adulthood had more than double the prevalence of low HDL levels than the study average (26.2 percent vs. 11.9 percent). Conversely, those who had improved at least two lifestyle factors had a prevalence of low HDL less than one-fourth that of the study average.

"Our findings are important for two reasons. First, they suggest that beneficial changes in modifiable risk factors (smoking and adiposity) in the time between youth and adulthood have the potential to shift those with high-risk blood lipid and lipoprotein levels in youth to low-risk levels in adulthood. Second, they emphasize that preventive programs aimed at those who do not have high-risk blood lipid and lipoprotein levels in youth are equally important.

Health Tourism

Haryana promote health tourism(The Financial Express: 5.1.2011)

The Haryana government has decided to promote health tourism and such projects involving an investment of Rs 100 crore or above would be given the status of industry for the purpose of incentives.

While stating this an official spokesman said that the Industrial and Investment Policy-2011 seeks private sector investment in health and healthcare sector to facilitate establishment of quality healthcare institutions within the framework of set standards and norms. He said Haryana holds great potential for development as centre of medical tourism. It also has potential for investment in the health sector through establishment of hospitals offering primary , secondary and tertiary level healthcare facilities and allied services like pharmacies, diagnostics, pathological labs, training and skill development for para-medical services.

He said the state government would work towards establishment of the facilities like common bio-medical waste treatment facilities for proper disposal of biomedical waste generated by hospitals, laboratories and research and development centres, effluent treatment plants for treatment of liquid effluent generated from government hospitals and liquid oxygen plants in hospitals with bed-strength of more than 100.

He said agencies like Haryana urban development authority , Haryana state industrial and infrastructure development corporation and the urban development bodies would endeavour to earmark separate clusters at appropriate locations for healthcare service providers. The non-nuisance professional consultancy services, which includes doctors without nursing homes are permissible in residential areas, as per the norms. The town and country planning department allows change of land use (CLU) permission for health facilities in the conforming zones of development plans that is residential and public and semi-public.

Apart from the above, hospitals are also permitted in the agriculture zone in relaxation of zoning regulations in the public interest by the government.

While referring to the pharmaceutical industry, he said that the pharmaceutical sector has a huge growth potential in the state and the state recognises the need for development of this sector on a sustainable basis.

Skin Care

Time for special care of your skin (The Tribune: 5.1.2011)

SKIN happens to be the reflection of how one is affected by changes in one's environment. For many people, the cold clear days of winter bring more than just a rosy glow to the cheeks. They also bring uncomfortable dryness to the skin of the face, hands and feet. For some people, the problem is worse than just a general tight, dry feeling. They get skin so dry that it results in flaking, cracking and even eczema and in which case the skin becomes inflamed.

Another important enemy in our city life is the wide range of pollutants that precipitate in what we call the winter smog. These pollutants not only darken our skin, the dirt particles also clog the skin pores and do not allow the skin to breathe. In the process, our skin shrinks and one looks older.

Dry skin is a very common problem and is often worse during winter when environmental humidity is low ("winter itch"). It can occur at all ages and in people with or without other skin problems.

The normally fine lines in the skin become more visible; the skin feels rough and appears dull and flaky.

Dry skin results when there is not enough water in the topmost skin layer "stratum corneum " for it to function properly. As the stratum corneum dries out, it shrinks and then small cracks can occur. This exposes the underlying living cells to irritating substances and germs in the environment.

By itself, dry skin isn't a medical worry, but serious cases can result in cracks and fissures that invite infection and inflammation.

Skin diseases that become worse in winter:

Psoriasis: Red plaques with silvery white scales over extensors, scalp.

Atopic dermatitis : Dry itchy skin lesions over flexural areas.

Cold induced lupus : Discoid lesions over face and exposed areas, butterfly rash over face, joint pains and other symptoms pertaining to lupus erythematosus.

Perniosis (chill blains) : Swelling, redness of fingers and toes.

Scleroderma : Tightening and binding down of skin.

Erythema ab igne : Red coloured linear/ reticulate pattern skin rash over legs caused especially when sitting for longer periods very close to heaters.

Cheilitis : Inflammation of lips induced by cold wind.

Winter eczema (asteatotic eczema) : Dry scaly skin rash, especially on legs and waist area.

Winter skin care is important. To prevent aging of your skin, follow these simple skin care tips. These anti-aging tips will promote smooth skin and fewer wrinkles.

1 Having beautiful skin is a life-long goal. Slow the aging process down with a few easy skin care tips to keep the winter winds at bay.

1 The bath or shower should be in warm rather than hot water. Hot water whisks away the fatty substances in the skin that help it retain water.

1 Soap should be used minimally and only when and where needed. Milder, less drying soaps or cleansing lotions should be preferred.

1 After bathing or showering, quickly and gently pat the skin partially dry with a towel (do not rub!). Within three minutes of getting out of the water, apply a moisturiser to seal the water in the skin before it can evaporate.

1 Lotion moisturisers are suspensions of oily chemicals in alcohol and water. Lotion moisturisers are generally the least greasy and the most pleasant to use and, therefore, are quite popular.

1 Try applying a broad-spectrum sunscreen to your face and your hands (if they're exposed) about 30 minutes before going outside. Re-apply frequently if you stay outside for a long time.

No one is immune from dry lips in winter! Here's how to cope with it: Drink plenty of water to stay hydrated and use a humidifier at home.

Put on lip balm with sunscreen every time you go outside. Avoid being in the sun and wind too much. Don't lick your lips — it may feel better briefly, but it only makes chapped lips worse. Again, there are certain parts of the body that require special care during the winter months. These are your feet and hands. Specially the feet tend to crack and they are the most neglected areas, constantly exposed to dirt and dryness. Remember, your scalp is also a part of your skin and requires regular attention, otherwise your hair too will fall off easily.

However, application of various products only on the outer surface does not lead to an ultimate healthy skin. What one needs is a healthy diet and a peaceful mind. The meals should have ample amount of juicy fruits and vegetables along with at least 10 glasses of water a day. Intake of liquids help your skin to retain the essential oils automatically and acts as a natural protection against dryness.

Healthy lifestyle

Healthy lifestyle substantially cuts risk of first stroke (The Tribune: 5.1.2011)

Those who make healthy lifestyle choices — such as not smoking, eating a low-fat diet high in fruits and vegetables, drinking in moderation, exercising regularly and maintaining a normal body weight — can lower risk of first time stroke by 80 per cent compared to those who don't make such changes, according to revised American Heart Association/American Stroke Association guidelines. For the first time, the guidelines address stroke as a broad continuum of related events, including ischemic stroke, non-ischemic stroke and transient ischemic attack (TIA). For prevention, there is often little difference along the stroke spectrum, said Larry B. Goldstein, chairman of the statement writing committee and director of the Duke Stroke Center in Durham, N.C.

Ultrasound Technique

New Ultrasound Technique Helps Identify Patients Who Need Breast Biopsies(Medical News Paper: 5.1.2011)

A New ultrasound technique is proving valuable in distinguishing malignant from benign breast lesions in some patients - results that could mean fewer unnecessary breast biopsies, a new study shows.

The study found that ultrasound elastography, which indicates tissue softness, can help predict cancer in patients with BI-RADS category 4 masses. "Because malignant tumors predominantly are harder than benign tissues, this technique significantly improves the differentiation between benign and malignant tissue" said Hiroko Satake, MD, lead author of the study. Dr. Satake is from Nagoya University School of Medicine in Japan.

"In an analysis of 115 breast masses that were recommended for biopsy (they were categorized as either BI-RADS 4 or BI-RADS 5), ultrasound elastography was 79% accurate in identifying cancer," Dr. Satake said.

"By accurately identifying benign tumors with imaging, we may be able to avoid sending patients for unnecessary biopsies," Dr. Satake said. Ultrasound elastography provides radiologists with elasticity scores, with lower scores meaning that the mass contains softer tissue. "Based on the results of our study, we recommend that patients with BI-RADS 4 masses should undergo biopsy if their ultrasound elasticity score is 4 or 5," Dr. Satake said.

Dr. Satake notes that ultrasound elastography should be used as an adjunct to standard sonography and dynamic contrast-enhanced MRI, which are currently being used to classify breast lesions based on the standard BI-RADS categorizations.

Strip to detect HIV, TB

Strip to detect HIV, TB to come to India soon (The Statesman: 7.1.2011)

Much on the lines of the pregnancy detection kit that is widely in use, an Indian origin doctor from the USA, Dr Srinivas N Pentyala, has come up with a strip that can detect HIV, TB, Hepatitis B, Cerebro Spinal Fluid (CSF) leak, presence of nicotine in blood, all in five minutes promising that the cost would be kept around Rs 50 and hopes to introduce these kits in India shortly.

“I am speaking to manufacturers here. If it does not come through then I will be manufacturing it myself,” Mr Pentyala said here on the sidelines of the 98th Indian Science Congress at SRM University at Kattankulathur near Chennai. He has already set up a company named Sesi in Hyderabad. He was at the conference to deliver a lecture on “Point of Care diagnostics in modern medicine.”

Invention of the kits started in the USA when the teaching hospital with which Dr Pentyala is attached, the Stony Brook University and Medical Centre, was sued by a woman whose child died after complications arose out of administering an overdose of epidural injection to reduce the pain during labour.

A common problem in administering epidural injection in the lower spine is the lurking danger of poking into the brain membrane thereby releasing CSF which can give a lifetime of health complication in the form of headaches to the women after the procedure.

Dr Pentyala, an anesthesiologist, then struck upon the idea of working with antibodies to detect the presence of a unique protein in CSF, the Lopocalin Type Prostate Glandin DZ Synthetic (L-PGDS). When gold nano particles in the strip comes into contact with L-PGDS, gold absorbs the protein and when it comes in contact with the antibody coated strip changes colour. The invention helps during administration of epidural injection when the needle end opening in the skin is swabbed and tested using this kit. The anesthesiologist can reinsert the needle and apply drug instead of giving an overdose.

The invention that came towards the end of 2006 became popular in the USA as Srinivasa's dipstick. It had other uses as in detection of CSF leak from the brain in case of accident victims or soldiers in a battlefield who do not have an obvious physical injury but could have had a minor crack in the skull. The strip then needs to be put in the ears or nose to detect CSF leak which then needs to be attended to immediately.

Using the same concept, he then went on to develop kits that use either saliva or urine swabs for detecting HIV, TB, Leptosporosis, prostate cancer, as well as nicotine for smokers. He said he is aiming at producing kits that will give results within 2 minutes that will be available over the counters in medical shops.

Health Chip

Health Chip Gives Instant Diagnoses (Science Daily: 7.1.2011)

Soon, your family doctor will no longer have to send blood or cancer cell samples to the laboratory. A little chip will give her test results on the spot.

Today, a blood sample whose protein content, genes and so on are to be read needs to be submitted to a series of complex processes, such as centrifugation, heat treatment, mixing with enzymes and concentration of disease markers. This means that samples are sent to central laboratories for analysis, and weeks may pass before the results are returned.

The same thing happens when women are checked for cervical cancer by taking a cell scrape from the cervix. The samples are then sent off and studied under the microscope. Diagnostic error rates can be high when abnormal cell appearance is determined by even experienced eyes.

Automated

The EU's MicroActive project has developed an integrated system based on microtechnology and biotechnology, that will enable a number of conditions to be diagnosed automatically in the doctor's own office.

The new "health chip" looks like a credit card and contains a complete laboratory. The EU project has used cells taken to diagnose cervical cancer as a case study, but in principle the chip can check out a number of different diseases caused by bacteria or viruses, as well as various types of cancer.

SINTEF has coordinated the project, whose other members include universities, hospitals and research institutes from Germany and Ireland. The Norwegian NorChip company had the idea for the chip, and has carried out full-scale tests during the project.

Advanced "credit card"

The chip is engraved with a number of very narrow channels that contain chemicals and enzymes in the correct proportions for each individual analysis. When the patient's sample has been drawn into the channels, these reagents are mixed.

"The health chip can analyse your blood or cells for eight different diseases," say Liv Furuberg and Michal Mielnik of SINTEF. "What these diseases have in common is that they are identified by means of special biomarkers that are found in the blood sample.

These "labels" may be proteins that either ought or ought not to be there, DNA fragments or enzymes.

"This little chip is capable of carrying out the same processes as a large laboratory, and not only does it perform them faster, but the results are also far more accurate. The doctor simply inserts the card into a little machine, adds a few drop of the sample taken from the patient via a tube in the cardholder, and out come the results."

Scientists at SINTEF's MiNaLaB have developed a number of techniques for interpreting the results when the biomarkers have been found. For example, they can read them off in a spectrophotometer, an optical instrument in which the RNA molecules in different markers emit specific fluorescent signals.

"SINTEF's lab-on-a-chip projects have shown that it is possible to perform rapid, straightforward diagnostic analyses with the aid of microchips, and we are now working on several different types of chip, including a protein analysis chip for acute inflammations," says Liv Furuberg.

Mass production

NorChip has just started a new two-year EU project that aims to industrialise the diagnostic chip to the mass-production stage while the company will also evaluate market potential and industrial partners.

Chief scientist Frank Karlsen in NorChip says that the ways in which the chip can be used can be extended to enable patients themselves to take samples at home, and he expects that such special sampling systems will be ready for testing within a few years.

Medical Treatment

BPL status, free medical treatment for Zorawar's descendant (The tribune: 11.1.2011)

Following the report on the financial plight of the fourth generation descendant of the legendary Dogra warrior, General Zorawar Singh, which appeared in The Tribune today, the Deputy Commissioner (DC), Reasi, PK Pole, has issued instructions to the Additional Deputy Commissioner (ADC), Reasi, to look into the case.

The ADC was asked to accord status of Below Poverty Line (BPL) to Krishan Devi (70), the widow of Rattan Singh, the fourth generation grandson of General Zorawar Singh, within two days.

The woman did not know that she had been issued a ration card meant for the Above Poverty Line (APL) category. She lives in a damp mud-plastered hut by the side of the ruins of what is still known as the “Mahal” of the late warrior. She had last availed herself of the subsidised 700 gm sugar from the ration depot in 2007.

With the BPL status, Krishna will become eligible for old-age pension. The DC also issued instructions to the District Social Welfare Officer, Reasi, to submit the action-taken report in 15 days in this regard. The ADC was also asked to ensure that her hut was repaired, if the same required to be done. The DC also asked the Chief Medical Officer, Reasi, to provide free treatment to the widow who cannot afford the weekly medical expenses of about Rs 250.

Health care

Healthcare aggravates poverty in India? (New Kerala: 13.1.2011)

Additional 39 million people fall into poverty annually in India by health-care expenditures, according to a study published in "The Lancet" medical journal headquartered in London.

It further reveals that healthcare inequalities prevail and are related to socioeconomic status, geography, and gender, and are compounded by high out-of-pocket expenditures, with more than three-quarters of the increasing financial burden of health care being met by households. "Health-care expenditures exacerbate poverty", it adds.

Religious statesman Rajan Zed, in a statement in Nevada (USA) on Wednesday, said that India should wake up to the monumental healthcare crisis and serious inequities in health, and provide universal health-care coverage to its citizens.

Health Workers

India Needs more health workers : Lancet (The Indian Express: 13.1.2011)

WHILE reliable data on health workers in India is difficult to obtain, a report in The Lancet: India series says that the country has roughly 20 health workers per 10,000 population.

The figure is arrived at when the workforce is calculated including allopathic doctors (31%), nurses and midwives (30%), pharmacists (11%), practitioners of ayurveda, yoga and naturopathy, unani, siddha, and homoeopathy (9%), and others (9%).

In their paper 'Human Resources for Health in India', experts Mohan Rao, Krishna D Rao, A K Shiva Kumar, Mirai Chatterjee and Thiagarajan Sundararaman have called for urgent reforms. Associated with the Public Health Foundation of India, Rao regrets the absence of adequately

trained health-care providers in public and private sectors.

The National Rural Health Mission has brought in Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH) services into mainstream medicine and by helping accredit 70,000 social health activists.

The researchers have also noted the uneven distribution of health workers across the country. While Chandigarh has 23.2 health workers per 10,000 population, in Meghalaya, the number is just 2.5. The number of allopathic doctors per 10,000 people in states such as Goa (41.6) and Kerala (38.4) is up to three times higher than in states such as Orissa (19.7) and Chhattisgarh (15.8).

The number of women doctors is strikingly low: 7.5 per 10,000 in Chandigarh and 0.26 in Bihar. Only 17 per cent of allopathic doctors and 6 per cent in rural areas are women.

Oral health

It's easy to control bad breath (The Indian Express: 13.1.2011)

We have noticed that awareness among people regarding their oral care is on the rise. Yet nowadays every third person complains of having bad breath. How it occurs: In the majority of the cases it originates from poor oral hygiene (especially from gums and tongue). When the debris (food particles) are retained in the mouth, bacteria start acting on those debris leading to a decay of the food particles. The decay and debris produce a sulphur compound that causes the unpleasant odour called halitosis (bad breath).

The causes

There are a number of factors which contribute to bad breath. The major cause is poor oral hygiene, which mainly originates from gums and the tongue. Bad breath is also a sign of gum disease.

Patients with red, swollen gums which bleed after or during brushing have halitosis. The tongue, if it is not cleaned properly, also causes bad breath.

Dry mouth is the second important cause as saliva helps in washing away food particles and bacteria from the mouth and hence helps in keeping bad odour under control.

For example, cancer patients undergoing radiation therapy may experience dry mouth and so they fall an easy prey to bad breath.

Your nose is a major source of halitosis, mainly in the cases of sinus infections.

Bad breath can also occur in patients having systemic diseases like diabetes mellitus, kidney failure, liver malfunctioning or lower respiratory tract infections like lung or bronchial infections.

One can have bad breath on eating certain foods such as onions and garlic.

Dieting, hormonal changes, smoking and alcohol consumption also lead to this problem.

Bad breath is usually worse upon awakening in the morning as salivary glands slow down the production of saliva during sleeping, ultimately allowing bacteria to grow in the mouth.

If the cause for halitosis is some systemic infection, then consulting a physician or specialist is mandatory.

The writer is a Dental Consultant, Fortis City Centre, Chandigarh.

Useful tips

Maintain good oral hygiene by brushing twice a day and flossing at least once in a day. Flossing removes debris stuck in-between your teeth.

Clean the back of your tongue either with a toothbrush or a tongue cleaner/tongue scraper.

If you are wearing any artificial removable appliance such as orthodontic retainers or dentures, then proper cleaning of the appliance before placing it in the mouth is necessary as it is a major source of bacteria and food particles.

Drink as much water as you can to keep your mouth moist.

Chewing sugar-free gums may lead to increased saliva production which may help control odour.

Avoid eating such food items in raw form as may lead to bad breath like onions and garlic.

If mouth-washes are to be used then swish it around for at least 30 seconds and then spit it out.

Last but not least, regular dental check-ups to get rid of accumulating plaque and bacteria around our teeth are essential.

Health-care system

A hybrid Indian health-care system (Business Standard: 19.1.2011)

A brief news report in a leading daily says that the government is contemplating introducing in the new Five-Year Plan beginning next year a health insurance scheme for all. People will pay for it depending on their income, with the government paying for those below the poverty line. The big thing is that it will cover not just hospitalisation expenses but also OPD treatment at listed (presume approved) hospitals.

An opinion cannot be formed on the basis of such a sketchy report but there is enough in it to pose a few questions. First, isn't there supposed to be a public, that is publicly funded, health-care system under which anybody can walk into such a facility, be it a district hospital or a primary health centre (PHC), and get treated? To beef it up where it is the weakest, the National Rural Health Mission has been launched. For a long time, the poor villager will have no choice but to go to the PHC. In terms of funding and delivery, the two systems (existing and proposed) will be similar as far as treatment for poor people (those below the poverty line) is concerned. Those at the top of the income heap already go in for fully privately funded health insurance to cover hospitalisation. They are unlikely to go in for the new system which will really be looking at the income groups in the middle.

Significant, those in the middle will pay premium according to their income. So, this will be a system in which the government subsidy will taper off as individual incomes rise. The second question is, don't we have something called the income tax which is payable depending on what you earn and is progressive? Will it be simpler and save a lot of paperwork for the government to pay a single premium for all, which is equal to the entire cost of the scheme, and introduce a health insurance surcharge on the income tax payable? I presume a universal health insurance scheme of the type being contemplated will cover pre-existing illnesses. It is not clear, but I also presume this scheme will have defined benefits, that is you can get care only up to a certain value, more only if you opt to pay a higher premium. The third question is, assuming there is a modest cost of care ceiling for the poor who pay no premium, what happens when an individual exceeds it? Does she then take herself out of the approved hospital (maybe private) and shift into a full-fledged government hospital where free health care is provided under the traditional government-supported system without a ceiling? If she is already in a government hospital approved for the universal insurance scheme, will it mean shifting from one ward (paying) to another (free)? The whole point is, there is no substitute for the broad European system under which a strong public health-care system, paid for out of the

taxes people pay, lives alongside private health cover which can be bought only by the well off who are unwilling to wait in the queue for an appointment with a consultant or for non-emergency hospitalisation. It is futile to think that to get over the inadequacy of the public health-care system in India, you need to adopt the American system under which the can is carried mainly by a health insurance system. The mess the American system is in and the additional costs imposed by the existence of health insurance companies should indicate which way the solution lies.

The system should save the amount a health insurance company spends on calculating premiums and selecting those who do not qualify (pre-existing illness). But we do need a way out of the current Indian situation where provision of public health care is either nonexistent (governments simply don't have enough money) or of appalling quality (courtesy the nature of management and the work culture of the staff). An intermediate position (between the European and American) is to have, along with the public health system, private hospitals, built with private investment, treating patients under a national health insurance scheme (funded by a lumpsum premium paid by the government to cover costs) and getting reimbursed. The key institutional layer that can make this work is strong third party administrators who use extensive treatment protocols and indicative costs to keep track of spending.

It is important to note that this will be an additionality. The backbone of the system must, repeat must, be a well run and funded old-fashioned public health system that offers competition to privately provided health care and thereby keeps costs down. It is not that it cannot be done. The quality of the public health system in Kerala and Tamil Nadu is far different from the rest of the country, with Andhra Pradesh and Karnataka falling in between. In Kerala, the cost of private health care is kept low because of competition from public health care.

One way of dividing responsibility is to keep primary health care, both in the countryside and urban slums, in the hands of the public health system, with secondary health care in urban and semi-urban areas being provided in good part by the new national health insurance system. The tertiary (research and referral) health-care responsibility has also to be largely borne by the public health system. With adequate government funding, these should become strong centres of research for dedicated academics (several AIIMSs around the country). This can be a practical hybrid to try out.

Health challenge

Meeting the health challenge (The Hindu: 19.1.2011)

India has a staggering burden of chronic disease arising from a variety of causes, but there is encouraging evidence to show that it can reduce both death and disability through effective low-cost measures. The key to successful intervention lies in learning from good pilot programmes and making them integral to health-care protocols in both public

and private sector institutions. A new series of articles published by The Lancet on universalising health coverage in India highlights the challenge that lies ahead. In the next two decades, chronic diseases resulting from cardiovascular and metabolic disorders, respiratory conditions, mental illness, and cancer are expected to cast a long shadow over national ambitions for economic growth in terms of healthy life-years lost. The section of the population that is likely to suffer the most will be those over 45. They may find the threat of infectious and parasitic diseases reducing with better standards of living but the threat of chronic diseases will increase. This is because the incidence of hypertension, poor control of blood glucose, tobacco use, and abuse of alcohol is expected to rise. The imperative therefore is to scale up the pilot programmes that have shown good results at prevention.

Last year the central government approved two key measures — the testing of adults for chronic diseases, and an awareness campaign on healthy behaviour — as part of an integrated national programme for prevention and control of cancer, cardiovascular diseases, and diabetes. A lot more needs to be done structurally to align policies with disease reduction goals. Regulation of unhealthy foods to reduce high calorie and salt content can mitigate the risk of diabetes and hypertension but this agenda is not making speed. Also, the unhealthy effects of energy-dense foods are compounded by negative changes in the urban environment. This experience shows that an assessment of the health effects of macroeconomic policies must be made mandatory. Achieving a drastic reduction in tobacco use must be made a national priority in the fight against cancer. The State health ministers, who met recently in Hyderabad, have done well to recognise the need to curb both smoking and smokeless forms of tobacco. But even with modified lifestyles, a medicalised approach to prevention will be needed. There are examples in this area to show that population-level testing for impaired blood glucose and hypertension, followed by a protocol of lifestyle modification and low-cost drug therapy, can stop disease progression. Given such clear evidence, the campaign against chronic disease must move into high gear.

CT scans

CT scans best to uncover body packed drugs (The Hindu: 20.1.2011)

CT has a sensitivity of 100 per cent, while others like digital radiography and digital X-ray have only 85 per cent and 70 per cent respectively.

The caution: Though CT can be used for detecting concealed drugs, low-dose protocols are needed to make it safer for people undergoing the procedure.

During 1924, Captain T W Barnard, Director, Erstwhile Institute of Radiology at the General Hospital, Madras, helped the police to locate a gold chain in the stomach of a thief by x-raying him.

A few years later, Barnard found precious stones secreted in small cavities inside the cheeks of the women of a band of criminals by x-raying them; police suspected that they stole a large quantity of jewels. Identifying drugs in place of gold will be difficult.

Body packing

The US Customs and Border Patrol (CBP) seize over a million pounds of drugs (mainly marijuana, cocaine and heroin) annually. Eighty percent of the smugglers caught by CBP practice 'body packing' of these illegal narcotics.

The May 2008 issue of the Applied Radiology describes the practice of body packing as the trafficking of illicit drugs within the gastrointestinal tract or vagina. According to the journal, body packers are also known as 'swallowers,' 'internal carriers,' 'couriers' or 'mules.'

Detects cocaine

A study presented recently at the annual meeting of the Radiological Society of North America (RSNA) identified computed tomography (CT) as the best way to detect cocaine in the body of a 'mule.'

Dr Patricia Flach, a radiologist at University Hospital of Berne and Institute of Forensic Medicine of Berne in Switzerland and colleagues analyzed images from 89 exams using various imaging methods (CT:27; Digital X-ray: 50 and low-dose linear slit digital radiography (LSDR):12) and performed on 50 suspected drug 'mules' over a three-year period at University Hospital.

The study group included 45 men and five women aged between 16 and 45. Researchers identified forty-three of the suspects as drug mules. They compared the radiologic findings with a written record of the drug containers recovered from the faeces of suspects.

CT imaging the best

CT imaging allowed the physicians to see all the drug containers, especially when they knew what to look for. Thus the sensitivity of CT is 100 per cent. LSDR had a sensitivity rate of 85 per cent; digital x-ray was able to identify the presence of cocaine containers only 70 per cent of the time.

Intestinal contents are messy and non-uniform in consistency. According to Dr Flach, there were positive findings on CT that were clearly not detectable on conventional x-rays due to overlap of intestinal air, faeces or other dense structures.

The coating and manufacture of the containers changed their appearance, especially on CT images. Rubber-coated condoms filled with cocaine appeared hyper-dense, or white, on CT, while other containers of similar size with plastic foil wrapping appeared iso- to hypo-dense or grey to black.

Dr. Stephen J. Taub, Division of Toxicology, Department of Emergency Medicine, Beth Israel Deaconess Medical Centre, Boston, USA and colleagues stated that body packers usually carry about one kg of drug, divided into 50 to 100 packets of 8 to 10 g each. Smugglers have devised automatic processes to pack drugs densely into latex sheaths or condoms.

False negatives

Writing in *The New England Journal of Medicine*, they noted instances in which physicians interpreted two plain abdominal radiographs as negative. The suspects subsequently passed 106 and 135 packets.

Plain abdominal radiographs may be useless to identify drugs in the 'mules.'

When the law enforcing authorities suspect an individual of being a drug 'mule,' they often seek the help of radiologists to detect quickly the presence of drugs concealed in the body.

According to the researchers, cocaine containers, which may be swallowed or inserted in the vagina or rectum, can be as large as a banana or as small as a blueberry.

"In these cases it is important for us to know that we have identified all the drug containers in a body, both for legal purposes and for the health of the patient," Dr. Flach said.

"However, there was no research telling us which imaging modality was best in detecting cocaine containers in the stomach, intestines or other body orifices."

Higher dosage

CT exposes the suspects to higher doses of ionizing radiation. It is obviously of concern while imaging healthy people.

"CT is the way to go," Dr. Flach said. "But low-dose protocols need to be implemented to ensure the safety of the people undergoing the procedure," she cautioned.

New Mechanism for Controlling Blood Sugar

New Mechanism for Controlling Blood Sugar Level Discovered (Science Daily :21.1.2011)

Medical scientists at the University of Leicester have identified for the first time a new way in which our body controls the levels of sugar in our blood following a meal. They have discovered the part played by a particular protein in helping to maintain correct blood sugar levels.

The breakthrough was made in the University of Leicester by a team led by Professor Andrew Tobin, Professor of Cell Biology, who is a Wellcome Trust Senior Research Fellow. The research is published online ahead of print in the international scientific journal the Proceedings of the National Academy of Sciences.

Professor Tobin said: "The work, which was done wholly at the University of Leicester, is focused on the mechanisms by which our bodies control the level of sugar in our blood following a meal.

"We found that in order to maintain the correct levels of sugar, a protein present on the cells that release insulin in the pancreas has to be active. This protein, called the M3-muscarinic receptor, is not only active but also needs to undergo a specific change. This change triggers insulin release and the control of blood sugar levels."

Professor Tobin added: "Without the change in the M3-muscarinic receptor protein sugar levels go up in the same way that we see in diabetes. We are of course testing if the mechanism of controlling sugar levels we have discovered is one of the mechanisms disrupted in diabetes. If this were the case then our studies would have important implications in diabetes."

Health Insurance (People Living with HIV (PLHIV)).

Govt Plan Insurance cover for HIV-infected(The Indian Express:21.1.2011)

INDIA is set to have the first, government-run policy to provide health and life insurance covers for People Living with HIV (PLHIV).

Sources in the National Aids Control Organisation (NACO) confirmed that a meeting had been finalised between key stakeholders, including insurance companies, economists and international and national healthcare experts, to work out a sustainable model for the policy.

The meeting, scheduled for February 3 and 4, will see delegates of various countries where successful insurance policies have been implemented for PLHIVs. The aim is for experts to study the models of these countries to arrive at a structure suitable for India.

According to a senior NACO official, though providing insurance cover to PLHIVs was outlined as an important agenda in the ongoing National AIDS Control Programme-3, cohesive action was being taken only now.

"Representatives from South Africa, the US, the Philippines and Namibia have confirmed their participation.

The conference will also see a strong representation from the insurance sector. Officials from the Insurance Regulatory and Development Authority will also be present," the official said. The government is seeking the help of NGO Population Services International (PSI), which has implemented a micro-level insurance programme for HIV-affected persons in high-risk states such as Karnataka, Andhra Pradesh and some districts of Maharashtra.

According to Ravi Subbaiah, PSI project in-charge, "Our existing programme only provides for a cover up to Rs 30,000 for patients with CD 4 count up to 300 (CD4 cells or T-helper cells are a type of white blood cells that fight infection and their count indicates the stage of HIV or AIDS in a patient). We are now looking at a pan-Indian project for a much greater premium, with importance on accessibility of services to patients."

He added that where the PSI programme only provides health insurance, brainstorming sessions with NACO had focused on a complete life insurance cover.

The PSI's existing initiative 'Connect' is supported by the United States Agency for International Development (USAID), and provides patients cashless facilities at hospitals enlisted in the network.

For a premium of Rs 1,511, the patient has to pay Rs 750, and the rest is subsidised by the PSI. Patients can avail of Rs 15,000 on hospitalisation at the onset of AIDS, and the other half for treatment of co-infections associated with AIDS.

Fortis hospitals (Health Care)

Fortis to add 12 hospitals in 2 yrs (The economic Times :21.1.2011)

Earmarks . 1,000 Cr For Expansion Plans, To Focus On Increasing Presence In Tier-II, Tier-III Cities

FORTIS Healthcare is working on an expansion plan that could lead to the addition of more than a dozen hospitals to its existing network over the next two years.

The group which operates a network of 52 hospitals with more than 8,000 beds intends to add a further 2,000 beds to its existing capacity and increase its presence in tier-II and tier-III towns and cities.

Fortis Healthcare's managing director Shivinder Mohan Singh told ET NOW: "Our target is to have at least 25 hospitals in tier-II and tier-III towns and cities in the next couple of years. The economics of operating hospitals in smaller locations has worked out quite well for us as operating costs are lower and the infrastructure that we put in place is more basic in nature, which helps us maintain healthy margins."

The hospital chain already has a presence in smaller towns and cities like Mohali, Moradabad, Kota and Pondicherry and has tied up with the Jindal Group to operate a hospital in Raigarh. "Our tie-up with the Jindal Group has worked well for us and we hope to have similar partnerships in future," Mr Singh said.

The company is likely to invest . 1,000 crore for the roll-out of various projects in the next two years, most of which will be financed through a combination of internal accruals and debt.

Fortis has also embarked on an international expansion plan currently being executed through an entity called Fortis Global Healthcare, which is wholly-owned by the promoters, brothers Malvinder Mohan Singh and Shivinder Mohan Singh.

Fortis lost out to Malaysian sovereign wealth fund Khazanah in a bidding battle that saw the company eventually tender shares it owned in Singapore-based Parkway Holdings to the fund. Parkway is amongst the largest hospital chains in Asia.

However, the Singh brothers continue to have global aspirations for their healthcare business. They recently acquired assets from Hong Kong-based Quality Healthcare and a significant strategic interest in Australia and New Zealand's largest dental practice, Dental Corporation. Both acquisitions were made through Fortis Global Healthcare.

"We are evaluating the option of listing in Singapore and other international markets but haven't taken a decision yet," Mr Singh confirmed without giving further details on which entity will be listed.

Fortis is likely to launch its largest project so far in the current calendar year, a 1,000-bed hospital in Gurgaon. "The Gurgaon project will be a world-class facility. It will be like the Parkway Novena and all our attention is focused on getting that project up and running," Mr Singh said.

Parkway Novena is a hospital project being set up by Parkway Holdings in Singapore, now a company 100%-owned by Khazanah.

Health System

Health of a nation (Business Standard: 24.1.2011)

Indigenous solutions and decentralized systems needed

Just as education and food have been the focus of public policy concern in recent months, thanks to the Manmohan Singh government's agenda of "inclusive growth", public health too must come into the focus of national policy sooner rather than later. Education, food and health are all State subjects in India's federal system. Yet, the central government can play, and has done so from time to time, a leadership role in guiding policy. It is a pity that some of these concerns come to the fore in India only when foreign funding agencies and foreign journals choose to focus on them. There is a wealth of research and experience available in different parts of the country on which public policy can draw without having to look for either funding or approval from western donors and institutions. Ironically, at a time when private for-profit health care is booming, the neglect of public health continues. To the extent there is some focus on public health, it is largely based on western models and ideas that have little relevance for India. Given the enormous public health challenge India faces, the time has come for more locally rooted solutions.

The importance of affordable health care is underscored once again by evidence that shows that an increasingly important contributor to poverty is the burden of health care. The rising cost of health care and the increasing willingness of families to spend on higher cost health care are pushing marginal households into poverty. Around 30 per cent of rural people do not go for any treatment for financial reasons. Worse still, some 39 million people are shoved into poverty bracket annually because of poor health. While only 11 to 12 per cent of the population is believed to have any form of health insurance cover, insurance too is not an answer. The fact remains that millions of Indians still do not have access to safe drinking water and proper toilets.

While the UPA government has launched a National Rural Health Mission, few state governments are doing enough to improve the functioning of government hospitals and primary health centres. Against the estimated requirement of around 75,000 community health centres per million people, the actual number is not even half of it. Besides, most

of the existing health centres are ill-equipped and under-staffed. It is largely because of the deficiencies of the public health system and poor penetration of the so-called universal immunisation programme that nearly 1.8 million children under the age of five years die annually. Worse, the disease profile is undergoing a rapid change. Some of the diseases that had, more or less, been eradicated, such as tuberculosis and malaria, have staged a comeback and several new infectious and chronic degenerative ailments have assumed threatening proportions. These include dengue, chikungunya, viral hepatitis and AIDS, among others. Regrettably, when it comes to resource allocation, the health-care sector seldom gets the priority it deserves. Total public spending on health in India is a meagre 0.94 per cent of the gross domestic product which is amongst the lowest in the world. Apart from allocating more funds to health, India needs improved governance and amore decentralised approach to health-care provisioning.

CT Scanning Aids Rapid Diagnosis

CT Scanning Aids Rapid Diagnosis, Treatment Planning for Abdominal Pain ScienceDaily:24.1.2011)

The use of CT scanning to evaluate abdominal pain in emergency departments can help physicians arrive at a diagnosis quickly and decisively. A study conducted at Massachusetts General Hospital (MGH) and appearing in the February issue of the American Journal of Roentgenology also finds that information provided by CT scans changed treatment plans for almost half the patients studied and significantly reduced probable hospital admissions.

"Our report addresses an important question with substantial policy relevance -- what is the value of CT scanning in the emergency department setting?" says Scott Gazelle, MD, MPH, PhD, an MGH radiologist and director of the Institute for Technology Assessment, senior author of the study. "We specifically looked at how the use of CT for patients with abdominal pain affects physicians' thinking about their patients' diagnosis, their confidence in the diagnosis and the treatment plan; and we found that it significantly affected all three."

Gazelle explains that imaging has become a target for efforts to reduce health care costs. "We've strongly believed that the use of CT in the emergency department can improve efficiency in the workup for many conditions, but we haven't had the evidence we would like to back up that assertion. We chose abdominal pain for our study because it's a common presenting symptom that doesn't have the clearly defined diagnostic guidelines available for other common symptoms that can lead to CT, like headache."

Over a 15-month period from November 2006 through February 2008, physicians in the MGH Emergency Department (ED) who ordered CT scans for patients with abdominal pain not associated with a traumatic injury were asked to complete a questionnaire both before the scan was conducted and again after receiving the results. The questionnaire included the physicians' current diagnosis of the probable cause of symptoms, their level of confidence in the diagnosis and their expected treatment recommendations.

Complete sets of questionnaires on the care of 584 patients were available for analysis. The CT scan results changed the diagnosis for 49 percent of patients and the management plan for 42 percent. The number of patients who would have been held for observation -- possibly including additional diagnostic procedures -- decreased 44 percent, and the number of planned hospital admissions was reduced almost 20 percent. The use of CT scanning significantly increased physicians' confidence in their diagnosis -- both when the scan changed and when it did not change the prescan diagnosis -- and that improvement was more pronounced in resident physicians than in staff physicians.

"Poor diagnostic certainty can lead to poor decision making," explains lead author Hani Abujudeh, MD, MBA, of MGH Radiology. "Increased certainty improves treatment planning and can reduce inappropriate utilization of hospital resources. Overall, the CT scan is an important tool for providing our patients with appropriate and timely care."

Gazelle adds, "While we didn't include a cost analysis in our study, it is fair to say that our results suggest the CT scan might reduce the use of other tests and procedures and therefore lower overall costs. Another benefit is that CT provides rapid results, which makes the workup process more efficient and can reduce both monetary costs and the time required to move patients through the ED."

Gazelle is a professor of Radiology and Abujudeh an associate professor of Radiology at Harvard Medical School. Additional co-authors of the American Journal of Roentgenology report are Rathachai Kaewlai, Robert Novelline, MD, and James Thrall, MD, MGH Radiology; Pamela McMahon, PhD, MGH Radiology and Institute for Technology Assessment; and William Binder, MD, MGH Emergency Medicine.

Healthy Eating Resolution

How To Stick To Your Healthy Eating Resolution (Medical News Today:24.1.2011)

It's now been a few weeks since we have made our New Year's resolutions to eat better and finally lose those last five pounds or more. It's time to check in and see if you've set

yourself up for success this year. Brittany Glassett, registered dietitian at Porter Adventist Hospital has a few tips to keep in mind when setting - and keeping - new goals.

- Make SMART goals: Specific, Measurable, Attainable, Realistic, Timely. For example, instead of resolving to "eat better," make a goal to eat fast food less than three times per month.

- Write goals down and choose one or two to focus on at a time. Don't get overwhelmed; once you've incorporated one or two changes into your lifestyle, pick another goal to tackle. Remember, it takes about three weeks to establish a new habit.

- Break your goal down into mini-goals. If you want to lose 50 pounds, that's a pretty big feat and can seem impossible at times. Start with a mini-goal of losing 5 pounds in the next month.

- Get support. Tell family and friends about your goal to help keep you accountable when temptation arises. Better yet, get them on the fast track to being healthy also!

- Plan ahead. Plan all of your meals and go to the grocery store on Sunday. That way you won't get home from work with nothing to eat but delivery pizza. Also, schedule your workouts just as you would any other meeting.

Six Small Changes That Make a Big Difference:

1. Choose more whole grains. All carbohydrates are not created equal. Unlike refined carbohydrates (white bread, sweets), whole grains contain heart healthy fiber and many vitamins and minerals. The fiber will keep you full between meals to help with weight management goals.

2. Add more color to your plate. Some of the most colorful foods are antioxidant packed fruits and vegetables. Try to have at least three different colors on your plate (white, cream and yellow don't count!). Make a goal to try a new fruit or vegetable every month.

3. Don't skip meals, especially breakfast. Eating small, regular meals (every three to four hours) will keep hunger at bay and help you to make better choices at meal times.

4. Don't drink your calories. Soda, juice and high calorie coffee drinks contain "empty calories" - they provide excessive amounts of calories without providing much, if any, nutrition.

5. Replace vegetable oil with canola oil and olive oil in your kitchen. Olive oil and canola oil contain heart healthy monounsaturated fats whereas vegetable oil contains omega-6 fatty acids, a polyunsaturated fat, which are eaten in excess in the typical American diet. Omega-6 fatty acids promote inflammation in the body, which is associated with many disease states including heart disease.

6. Keep a food diary. Even if it's for one or two days a week, studies have shown that those who have lost weight and maintained it keep food journals. It really can be an eye-opener!

Armed Forces Hospital (Med India: 27.1.2011)

Armed Forces Hospital Will Be Revamped: Defence Minister Antony

Indian Defence Minister AK Antony assured the military on Monday that there would be no constraints on the outflow of funds for the modernization of 'Armed Forces Hospitals'.

Addressing a select gathering after presenting the Raksha Mantri's trophies for the best command hospital here, Antony noted with satisfaction that the Armed Forces Medical Services (AFMS) have utilized their entire annual budget of Rs 90 crores for the current financial year.

"All hospitals will be modernized at par with the best hospitals in the country in a phased manner," he said.

Antony further said that a proposal for the restructuring of the 'Military Nursing Service' has also been approved by the Defence Ministry and would soon be examined by the Union Cabinet.

He lauded the contribution of the AFMS in various missions abroad including under the UN Flag such as Ethiopia, Lebanon, Golan Heights, Congo and Afghanistan.

Earlier, the Defence Minister presented the Raksha Mantri's Trophies for the best command hospital for the year 2010 to Mumbai based Indian Naval Hospital Ship Asvini. Surgeon Rear Admiral YP Monga, Commandant of the hospital received the trophy and a cash prize of Rs ten lakhs.

Blood-clotting bandage

Blood-clotting bandage to help save lives on the battlefield (New Kerala: 31.1.2011)

Scottish scientists are developing a new chemical bandage that will help save lives on the battlefield by instantly helping to clot blood and staunch wounds.

The authors have discovered a group of polymers - molecules used in the manufacture of plastics - that accelerate the crucial clotting properties of platelets in blood, reports the Scotsman.

The polymers could have significant use in battlefield conditions as they can be sprayed on to bandages and applied directly to an injury to instantly begin the coagulation process, say researchers at Edinburgh University.

The research team was led by Mark Bradley, Professor of High-Throughput Chemical Biology, and Anne Hansen at the university's Chemical Sciences school.

The problem of treating battlefield wounds remains a major challenge with "bleeding out" - the loss of too much blood to sustain pressure and heartbeat - one of the major causes of death after injury.

The polymers could also have a much wider use in civilian life if incorporated into the sticking plasters commonly used to stop blood flow from cuts and other injuries.

Not only do they speed up the clotting process, they are also believed to prolong how long clots last.

Medical Opinion

A First Medical Opinion Can Influence The Second (Medical News Today: 31.1.2011)

A new study by Ben-Gurion University of the Negev (BGU) researchers indicates that physicians who give second opinions may be influenced by the first opinion and other external factors.

In the study, the researchers presented hypothetical scenarios with no clear cut clinical answers to a national sample of orthopedic surgeons and neurologists. Some were told that the patients had previously received treatment recommendations, but were not told what they were, while others were told the first opinion. One group was informed that after each gave his or her opinion, the patient would be seeking an additional opinion from another doctor.

When the orthopedic surgeons knew that the first doctor had recommended a more interventional treatment, the doctor giving the second opinion was more likely to recommend one too. However, when those same doctors were informed that their patients would seek another opinion, the orthopedic surgeons were more likely to recommend more conservative treatment instead, such as physiotherapy.

According to BGU Prof. Joseph Pliskin, the Sidney Liswood Chair in Health Care Management, "In addition to the quantitative study, personal in-depth interviews with 35 orthopedic surgeons and neurologists found that they generally had a positive view of second opinions, and even encouraged patients to seek them. But second opinions also involve difficulties in patient-doctor relationships, and among specialists themselves. It is difficult for patients to choose what to do when several doctors offer conflicting advice."

Specialists interviewed also noted the tension between public and private medicine, urban and periphery accessibility, as well as family and religious leaders' involvement when seeking a second opinion, and the legal and economic aspects of second opinions. Prof. Pliskin recommends that patients seek an alternate opinion when they hesitate to take the advice of their own physician.

Health Ministry - (To wipe out kala-azar by 2015)

Health min misses target, vows to wipe out kala-azar by 2015

India has missed the National Health Policy target to eliminate kala-azar — the deadly parasitic disease transmitted through the bite of a sandfly — by 2010.

Now, the Union health ministry's new target is to eliminate or reduce the number of kala-azar cases to 1 per 10,000 population by 2015.

Provisional data available with TOI shows that the National Vector Borne Disease Control Programme (NVBDCP) recorded nearly 25,113 cases of Kala-azar in 2010 with 73 deaths.

Of these 19,889 cases and 73 deaths were reported from Bihar, followed by Jharkhand — 3,904 cases and four deaths — and West Bengal — 1,254 cases and four deaths. The Capital recorded 33 cases, and not a single incident of death.

"We have missed the 2010 target. According to a tripartite treaty between Bangladesh, Nepal and India, the new kala-azar elimination target date is 2015. Elimination means reducing number of cases to 1 per 10,000 population," a health ministry official said.

He added, "We won't miss the 2015 target. At present, only 542 blocks across India report this infection. And in 50% of these blocks, we have eliminated the disease."

So why did the ministry miss the target? “Bihar, which is worst hit by Kalaazar, is the main reason. Fortunately, things are changing in Bihar, where the state health ministry is pulling out all stops to eliminate it.”

Bihar’s health minister informed Union health minister Ghulam Nabi Azad at a recent meeting in Hyderabad that the state government was organising 10,000 camps in 38 districts under “Gram Swasthya Chetna Yatra” (GSCY), which will give special attention to kala-azar detection, prevention and treatment.

“Miltefosin, a drug, is very effective. Earlier, a person suspected to be infected had to be taken to a hospital for diagnosis. But, RK 39 uses only a finger prick method,” an official said. The ministry is also giving incentives to those combating the disease.

Advertisement

Health Policy

Health Policy

Star Health launches two new products (The Hindu: 7.1.2011)

Star Health and Allied Insurance Company has launched two new products — a health policy with dual benefits and a policy to provide basic health cover to couples with an offer to take care of child delivery expenses up to a limit.

Star Unique Health Insurance policy will provide hospitalisation benefits. It will also cover any pre-existing diseases after a waiting period of 11 months. This policy can be a boon for persons who are perceived to be hypertensive or diabetic. This cover will be for people in the 18-65-age category.

According to a release, the policy can be renewed up to 70 years. Thereafter, cover will be extended under an equivalent scheme with continuity of benefits, the release adds. This policy is also available for HIV positive patients. There is a rider, though. The CD 4 counts of these patients should not be less than 350. Treatment for HIV/AIDS and opportunistic infections, however, will not be covered under this policy, says the release. This policy will have a two-tier premium rate structure. For people residing in select notified cities, the premium will be higher. According to V. Jagannathan, Chairaman-cum-Managing Director, this is because of the higher cost of treatment in these cities.

The Star Wedding Gift Insurance policy is for couples. It offers cover for basic health and also provides for child delivery expenses with an upper limit.

The waiting period will be 36 months for availing additional benefit (child delivery expenses) under the policy. The minimum qualifying age is 18 and the cover will be available up to 40 years. The policy will be available for couples who have already a child. Addressing a press conference here, Mr. Jagannathan said Star Health had grossed a premium of Rs.950 crore till December 2010. He was confident that the premium would scale to Rs.1,250 crore by the end of the current financial year. The paid-up capital of the company, he said, had gone up to Rs.202 crore following injection of funds by ICICI Venture Fund. With this, ICICI Venture Fund holds 14 per cent share in Star Health. Foreign holding is 20 per cent. The special purpose vehicle, comprising industrialists, holds 62 per cent.

The balance is held by others. Mr. Jagannathan said the company had enough funds to take care of the business growth over the next one year.

Hepatitis

Hepatitis

New Biomarker Identified in Hepatitis Infection (Med India: 6.1.2011)

Scientists at Inserm and Institut Pasteur have performed biomarker discovery on patients being treated for chronic hepatitis C infection. Their work, published in The Journal of Clinical Investigation, demonstrates that the plasma levels of the protein IP-10 predict, prior to treatment initiation, the efficacy of treatment with pegylated-interferon and ribavirin. Commercialization is anticipated in 2011, and will help inform physicians of the chances that patients will respond to standard treatment or if instead they will require new therapeutic cocktails (e.g., inclusion of protease inhibitors)

Importantly, hepatitis C is the leading cause of primary liver cancer (hepatocellular carcinoma) and it remains an important cause of liver failure due to fibrosis and cirrhosis. This infectious disease represents a major public health problem, with greater than 170 million cases worldwide. The World Health Organization estimates 3 to 4 million new cases per year and considers the virus a "viral time bomb" due to the long term sequella of infection.

Currently, there is no approved vaccine available and approximately 80% of individuals infected by the virus develop chronic disease, a risk factor for cirrhosis, liver failure, liver cancer as well as other medical complications (e.g., diabetes).

For the past ten years, treatment has been based on the use of type I interferon given in combination with the anti-viral ribavirin. While effective, it results in a cure for only 50% of patients. Moreover, treatment is long (24 – 48 weeks), and it results in severe side effects (e.g., depression, anemia).

Immunization

Polio

Eradication close with 94% drop in polio cases (The Times of Indias: 13.1.2011)

India has seen a 94% decline in polio cases, giving the country a real chance to finally eradicate the crippling disease. Compared to 741 cases of polio in 2009, India recorded just 42 cases in 2010. The number of affected districts too saw a sharp fall from 90 in 2008, 56 in 2009 to just 17 in 2010.

The last six months have seen the lowest number of polio cases during the high transmission season (July-September) in any year. Polio hotbed Uttar Pradesh reported just 10 polio cases in 2010 compared to 602 cases in 2009. The state has also not reported a single polio case since April 2010. Bihar, another state badly affected with polio virus, has also reported a sharp drop.

Health ministry data shows that Bihar had nine polio cases in 2010 against 117 in 2009. Bihar also reported only three polio cases since February 2010.

Speaking to TOI, health minister Ghulam Nabi Azad said, "At this rate, we will finally be able to totally eliminate polio very soon. The single oral bivalent vaccine that protects against the two deadly strains of polio, P1 and P3, is working wonders. We are going all out with this vaccine."

India's expert advisory group on polio has emphasized that the intensity of activities for polio eradication should be maintained at this critical stage with detection of wild polio virus anywhere in India dealt with as a public health priority activity.

Infant Mortality

Female Infant Mortality

Female infant mortality linked to violence against mothers (The Indian Express: 10.1.2011)

A RECENT study, led by researchers at the Harvard School of Public Health (HSPH), has revealed that deaths of millions of female infants and children in India are related to domestic violence against their mothers.

According to the study published in the recent issue of Archives of Pediatrics and Adolescent Medicine journal, mortality is greater among infants whose mothers experienced “intimate partner violence”.

Deaths of 1.8 million female infants and children in India over the past 20 years are related to domestic violence against their mothers. In their examination of over 158,000 births occurring between December 1985 and August 2005, the researchers found that husbands’ violence against wives increased the risk of death among female children, but not male children,

in both the first year and the first five years of life.

“Being born a girl into a family in India in which your mother is abused makes it significantly less likely that you will survive early childhood. Shockingly, this violence does not pose a threat to your life if you are lucky enough to be born a boy,” said lead author Jay Silverman, associate professor of society, human development and health at HSPH.

The authors attribute this disparity to lower investment in girl children in nutrition, immunisation and care for major causes of infant and child death. This neglect of girl infants and children is likely to be most pronounced in families in which the status of women is the lowest, that is, in those families in which women are physically abused by their husbands. At present, 2.1 million children die in India every year, and the nation is not on track to meet the United Nations Millennium Development Goal of a two-thirds reduction in child mortality from 1990 levels by 2015.

Infants

Infants Process Words in a Grown Up Way (Med India: 10.1.2011)

In a new study it has been found that even though babies are too young to talk, they can understand words and process them in a grown up way.

Scientists at the University of California, San Diego, showed that babies process words they hear with the same brain structures as adults, and in the same amount of time.

And they don't just process the words as sounds, they grasp their meanings too.

"Babies are using the same brain mechanisms as adults to access the meaning of words from what is thought to be a mental 'database' of meanings, a database which is continually being updated right into adulthood," said Katherine E. Travis.

To conduct the study, the team MEG - an imaging process that measures tiny magnetic fields emitted by neurons in the brain - and MRI to noninvasively estimate brain activity in 12 to 18-month old infants.

In the first experiment, the infants listened to words accompanied by sounds with similar acoustic properties, but no meaning, in order to determine if they were capable of distinguishing between the two. In the second phase, the researchers tested whether the babies were capable of understanding the meaning of these words.

For this experiment, babies saw pictures of familiar objects and then heard words that were either matched or mismatched to the name of the object: a picture of a ball followed by the spoken word ball, versus a picture of a ball followed by the spoken word dog.

Child Mortality

1.8m Female Infant and Child Mortality Linked to Domestic Violence (Med India: 7.1.2011)

A new study led by researchers at the Harvard School of Public Health (HSPH) has revealed that the deaths of 1.8 million female infants and children in India over the past 20 years are related to domestic violence against their mothers.

In their examination of over 158,000 births occurring between 1985 and 2005, the researchers found that husbands' violence against wives increased the risk of death among female children, but not male children, in both the first year and the first five years of life.

"Being born a girl into a family in India in which your mother is abused makes it significantly less likely that you will survive early childhood. Shockingly, this violence does not pose a threat to your life if you are lucky enough to be born a boy," said lead author Jay Silverman, associate professor of society, human development, and health at HSPH.

The authors attribute this disparity to lower investment in girl children in such areas as nutrition, immunization and care for major causes of infant and child death (e.g., diarrhea and respiratory infections).

This neglect of girl infants and children is likely to be most pronounced in families in which the status of women is the lowest, that is, in those families in which women are physically abused by their husbands.

Based on the study findings, they urge that violence against women be considered a critical priority within programs and policies to improve child survival, particularly those working to increase the survival of girls.

Maternal Mortality Ratio and Infant Mortality Ratio

Health Minister Ghulam Nabi Azad's top five focus areas for health in 2011(The Tribune: 20.1.2011)

- * Major initiatives to reduce Maternal Mortality Ratio and Infant Mortality Ratio in high focus states through intensive implementation of NRHM, Janani Suraksha and child care measures.

- * Strengthening the immunisation drive through child tracking system and focused monitoring.

- * Implementation of major decisions taken by the Cabinet and Parliament, including clinical establishment rules, rolling out non-communicable diseases programmes and menstrual hygiene programme for adolescent girls.

- * Completion of the construction of medical colleges of six AIIMS-like institutions and upgradation of 13 medical colleges under Pradhan Mantri Swasthya Suraksha Yojana; establish nine regional paramedical institutions and 150 ANM schools in the backward and remote areas across the country.

* Rolling out of the Rural Health Care Course and introduction and passage of important bills in Parliament, including those on the National Commission on Human Resources in Health; Organ and Tissue Transplantation and Institute of Excellence Status for NIMHANS, Bangalore.

Metranal and Child Health

Babies Fed Cow's Milk

Babies Fed Cow's Milk Formula Gain Weight Faster (Medical News Today: 30.12.2010)

Babies fed cow's milk formula gain weight faster than babies fed protein hydrolysate formula or breast-fed babies, according to a new US study that suggests this finding could be relevant to infants' risk of developing obesity, diabetes and other diseases later in life.

The study was the work of lead author Dr Julie Mennella, a developmental psychobiologist at Monell Chemical Senses Center, Philadelphia, Pennsylvania, and colleagues, and is published in the 27 December online issue of Pediatrics.

Previous studies had already revealed that formula-fed babies gained weight faster than breast-fed babies, but it was not clear whether this was true of all types of formula.

Mennella said the study found that "all formulas are not alike":

A key area of interest at Monell is how the composition of food interacts with the senses to influence feeding behavior.

While most infant formulas are based on cow's milk, other choices include soy-based and protein hydrolysate-based.

Protein hydrolysate-based formulas contains pre-digested proteins and are designed to suit babies who cannot tolerate the intact proteins of other formulas.

It is thought that in adults, pre-digested proteins cause the gut to signal that a meal is coming to an end, resulting in smaller meals and the consumption of fewer calories.

The researchers at Monell wondered, given this information, if infants fed on protein hydrolysate formulas would also eat less and whether this would affect their growth, compared to infants fed formula based on cow's milk. They thought yes, and set out to investigate, because, as Mennella explained to the press:

"Events early in life have long-term consequences on health and one of the most significant influences is early growth rate."

For their study, Mennella and colleagues recruited infants whose parents had already decided to bottle feed.

When the infants were two weeks old, the researchers randomly assigned them to be fed one of two types of formula for seven months; one group of 35 babies received cow's milk-based formula and the other group of 24 babies received a protein hydrolysate formula.

Both formulas had the same amount of calories per bottle, but the hydrolysate formula had more protein, including greater amounts of small peptides and free amino acids.

The babies were weighed and measured every month in the lab, where they were also filmed being fed a bottle of their assigned formula. The feeding continued until the baby signalled he or she was full.

The results showed that over the seven months of the study, the infants fed on protein hydrolysate gained weight more slowly than infants on cow's milk formula. There was no significant difference in length, suggesting that the difference between the groups resulted from gains in weight not attributable to gain in length.

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(To rule out the effects of differences in size and age, the researchers used World Health Organization weight-for-length and length-for-age growth standards also known as "anthropometric z scores").

From the monthly assessments, Mennella and colleagues also found that the babies fed protein hydrolysate consumed less formula to the point of signalling they were full compared to the babies fed the cow's milk formula.

There was no difference in the mother's ratings of how acceptable the babies found the formula.

When they compared the results to the national norms, the researchers found the rate of weight gain for the protein hydrolysate infants was comparable to that of "gold standard" breast-fed babies, whereas the cow's milk formula babies gained weight at a greater rate than the same breast milk standards.

They concluded that the cow's milk formula-fed infants' weight gain was "accelerated", whereas the protein hydrolysate-fed infants' weight gain was "normative".

"These two formulas have the same amount of calories, but differ considerably in terms of how they influence infant growth," said Mennella.

The study did not determine whether the differences in weight gain were "because of differences in the protein content or amino acid profile of the formulas and, in turn, metabolism", so this remains unknown.

The researchers recommended that more studies be done on the long-term consequences of these early growth differences.

Mennella pointed out that one of the reasons the babies fed protein hydrolysate formula had similar growth rates to "gold standard" breast-fed babies, was because they consumed less formula during a feed, as determined from the monthly filmed assessments.

The next question for research, said Mennella, is:

"Why do infants on cow's milk formula overfeed?"

The researcher believe their findings highlight a need to understand the long term effect of formula composition on feeding behavior, growth and metabolism.

In future studies in this area they plan to use measures of energy metabolism and expenditure to see how individual formulas affect growth, and how they differ from breastfeeding.

Child Health

How formulas influence infant's weight gain, obesity risk(New Kearala News: 27-12-2010)

The study has implications related to the infant's risk for the development of obesity, diabetes and other diseases later in life.

While most infant formulas are cow's milk-based, other choices include soy-based and protein hydrolysate-based formulas. Protein hydrolysate formulas contain pre-digested proteins and typically are fed to infants who cannot tolerate the intact proteins in other formulas.

In adults, pre-digested proteins are believed to act in the intestine to initiate the end of a meal, thus leading to smaller meals and intake of fewer calories. Based on this, the authors hypothesized that infants who were feeding protein hydrolysate formulas would eat less and have an altered growth pattern relative to infants feeding cow's milk-based formula.

In the study infants whose parents had already decided to bottle-feed were randomly assigned at two weeks of age to feed either a cow's milk-based formula (35 infants) or a protein hydrolysate formula (24 infants) for seven months.

Both formulas contained the same amount of calories, but the hydrolysate formula had more protein, including greater amounts of small peptides and free amino acids.

Infants were weighed once each month in the laboratory, where they also were videotaped consuming a meal of the assigned formula. The meal continued until the infant signaled that s/he was full.

Over the seven months of the study, the protein hydrolysate infants gained weight at a slower rate than infants fed cow milk formula. Linear growth, or length, did not differ between the two groups, demonstrating that the differences in growth were specifically attributable to weight.

"All formulas are not alike," said study lead author Julie Mennella, a developmental psychobiologist at Monell.

"These two formulas have the same amount of calories, but differ considerably in terms of how they influence infant growth."

When the data were compared to national norms for breast-fed infants, the rate of weight gain of protein hydrolysate infants was comparable to the breast milk standards; in contrast, infants fed cow's milk formula gained weight at a greater rate than the same breast milk standards.

Analysis of the laboratory meal revealed the infants fed the protein hydrolysate formula consumed less formula during the meal.

"One of the reasons the protein hydrolysate infants had similar growth patterns to breast-fed infants, who are the gold standard, is that they consumed less formula during a feed as compared to infants fed cow's milk formula" said Mennella.

Child obesity

Child obesity a major threat to health (The Tribune: 22-12-2010)

Obesity has become a global problem affecting all people of all ages. But what is alarming is that it has not spared the children as well. In urban India, almost 15 per cent of the school children are obese. Michelle Obama, America's First Lady, has taken upon herself the task of eliminating childhood obesity in a generation! This is because almost 32 per cent American children and adolescents are obese.

Why are we so worried about childhood obesity? After all, one always associated chubby and fat kids with good health! The fact is that obesity in childhood increases the risk for hypertension, type 2 diabetes, increased blood cholesterol levels and cardiovascular diseases both in early years and later on.

So, what is the solution? It is very simple. We have to convince and educate the parents. They don't have to study rocket science or break a bank to have an influence on their kids' weight and health. Make sure the kids play outdoor games for an hour everyday. Limit the TV viewing time. Discourage junk foods and aerated drinks. Encourage them to eat a balanced diet. Prepare healthy tasty food at home.

As the kids succumb very easily to peer pressure, all the parents should decide to send health-giving food in the tiffin boxes, and the teachers should also do their bit to encourage them. So, go ahead and do it. The beauty is that even if we achieve 20 per cent success, we will change the health status of our kids.

Unscrupulous advertising by food manufacturers

This is one big issue which is really worrying the nutrition experts. When junk foods and sodas are so glamourised on the small screen, how can you blame the poor kids? You have pretty actresses luring you to consume sugar substitutes without explaining you their harmful side-effects.

The only way out is EDUCATING the masses about nutrition. One should be able to read the food labels and judge for oneself whether a particular food item is good for health or not. What were the nutrition professionals debating about?

There was a big debate on cholesterol being the major cause of heart disease, and a debate on the focus on the reduction of fat in dietary guidelines for good health.

Leading medical experts have questioned the contention that cholesterol is a major cause of heart disease. They feel that cholesterol is only one of several risk factors contributing to heart disease. It is a component of all body cells and is manufactured by the liver. So, even if no cholesterol-rich foods are ingested, the body still has the ability to create endogenous cholesterol. High blood cholesterol levels are more strongly associated with genetic factors than any other risk factors currently identified.

Foods containing saturated fats are rich in cholesterol and do elevate blood cholesterol, but the mechanism whereby cholesterol deposits itself on artery walls is not yet known fully. Experts feel that if you want to reduce the risk of heart diseases, stop smoking,

maintain normal blood pressure and reduce total calories by eating a nutritionally balanced diet with a variety of foods .They criticise the extreme focus placed on cholesterol since this standpoint diminishes public awareness of smoking and high blood pressure as major risk factors.

The focus on reduction of fat in dietary guidelines is not necessarily the best way to be healthy. Not all fats are bad. We have the good mono-unsaturated fats in olive oil and mustard oil and unsaturated fats in soybean oil and groundnut oil.

Though some studies have shown that replacing saturated fat with unsaturated fat may reduce the risk of heart disease, most people replace saturated fat with bad carbs (refined sugars) which ends up being worse. The conclusion, “What actually is important is to have a wholesome balanced diet with increased consumption of fruits, vegetables, nuts, fish, vegetable oils and whole grains, and reduced consumption of trans-fat, salt and processed meats.”

What they all agreed upon?

That nutrition science is a “ work in progress”. It is like trying to reach the destination through a thick dark jungle. You go a few steps forward, a few backwards, but all you are doing is trying to reach your destination of GOOD HEALTH which you definitely will.

Child Health

Mom’s voice vital in activating child’s brain (The Asian Age: 21-12-2010)

A mom’s voice plays vital role in activating her newborn child’s brain responsible for language learning, says a new study.

Researchers from University of Montreal and Sainte-Justine University Hospital Research Centre claim to have made the discovery after performing electrical recordings on the infants within the 24 hours following their birth.

The brain signals also revealed that while the infants did react to other women’s voices, these sounds only activated the voice recognition parts of the brains.

“This is exciting research that proves for the first time that the newborn’s brain responds strongly to the mother’s voice and shows, scientifically speaking, that the mother’s voice is special to babies,” said lead researcher Maryse Lassonde of the University of Montreal. Brain exploration had never before been undertaken on such young participants. “We applied electrodes to the heads of 16 babies while they were sleeping,” Lassonde explained, “and we asked the mother to make the short ‘A’ vowel sound — like in the French word ‘allô’. We then repeated the exercise with the female nurse who brought the baby to the lab. When the mother spoke, the scans very clearly show reactions in the left-

hemisphere of the brain, and in particular the language processing and motor skills circuit.”

“Conversely, when the stranger spoke, the right-hemisphere of the brain reacted. The right-hemisphere is associated with voice recognition,” he said.

“Motherese” — the special voice mother’s use to communicate with their babies — is scientifically recognised.

The researchers took this into account by involving a nurse who is herself a mother, and they also countered the “novelty” aspect by arranging for the mother to meet with the nurse at regular intervals before the birth.

Child Abuse Bill

Child Abuse Bill to have Biting Powers (Hindustan Times: 21-12-2010)

A child abuse Bill is getting closer to reality, with the Cabinet set to consider a special law in the coming few weeks. Union minister for women and child development Krishna Tirath told HT that she had sought cabinet approval for the Bill.

“The Indian Penal Code (IPC) does not distinguish between adult and child victims, and we are very clear about the need to protect innocent children from sexual abuse of any kind,” she said.

Source say child abuse by those in a position of trust and authority, repeat offences, and abuse of children in especially vulnerable circumstances, are set to become more serious crimes with extra stringent punishments.

The new Bill is likely to have certain path-breaking features, according more gravity to sexual abuse by family, guardians, and others who live in the same house.

Abuse by police officers, within police stations, officers of the armed forces or other security forces, public servants, and by employees in jails, remand homes, protection homes, observation homes, hospitals and educational institutions, would all be categorised as “aggravated” offences, it is known.

The law, if passed by Cabinet and subsequently Parliament, will take an equally harsh view of sexual assault committed on a child in the course of communal or sectarian violence.

Aggravated offences will attract a term of not less than five years and may extend to seven years.

The ministry has also proposed that the amount of fine that accompanies such offences be left to the discretion of the courts with no upper limit. The category of aggravated offences would also include any abuse of a child below the age of 12 or is physically or

mentally challenged. The proposed Bill further views the use of weapons, fire, heated substances, poison, corrosive substances, explosive substances or animal, to cause sexual abuse, as aggravated offences too.

“The inclusion of these terms is in itself an indicator that unfortunately such offences have been committed in the past,” a senior ministry official said.

Similarly, sexually assaulting a child as a result of which he/she becomes pregnant, mentally ill, or unfit to perform regular tasks, gets infected with HIV or any other life-threatening or lifestyle-impairing illness, would be aggravated offence.

Breastfeeding

Breastfeeding Boosts Kids' Brains, Especially Boys'(Medical News Today: 21-12-2010)

Australian researchers found that babies mainly breastfed for at least six months went on to score significantly higher in academic tests at the age of ten, especially boys.

Researchers from the Telethon Institute for Child Health Research in Perth, the Curtin Health Renovation Research Institute, Centre for Developmental Health, and the National Drug Research Institute, Curtin University of Technology, also in Perth, published their findings online ahead of print in the journal Pediatrics on 20 December.

Co-author Dr Wendy Oddy, an Associate Professor at the Telethon Institute for Child Health Research, told the media that their study adds to the body of evidence on the benefits of breastfeeding for longer.

She said there are several ways that breastfeeding may boost academic achievement.

"We know that there are vital nutrients in breast milk that support brain development, particularly in terms of long-chain fatty acids," she said, adding that other studies have already shown breastfeeding accelerates development in boys:

"Males are also known to be more vulnerable to adversity during critical periods of development than females, therefore the neuro-protective effect of estrodiols, the female hormones, in breast milk, would have greater benefits for boys," she explained.

Oddy said evidence also suggests that breastfeeding improves the relationship between mother and child, helping bonding, and also indirectly, cognitive growth.

"A number of studies have found that male babies are more dependent on maternal attention to help develop their cognitive and language skills," she added.

With their study, Oddy and colleagues were particularly interested in seeing if there were any links between longer periods of breastfeeding and academic outcomes in middle childhood: they hypothesized they would find a link.

They reviewed the records of the Western Australian Pregnancy Cohort (Raine) Study which has been following the growth and development of over 2,800 children born in Western Australia between 1989 and 1991.

For their analysis they used data on 1,038 eligible boys and girls at age 10 years. This included standardized scores of mathematics, reading, writing and spelling ability.

After adjusting the figures to take out any effects from potential confounders, including maternal factors, family income and "early stimulation at home through reading", they found that boys were more likely to have attained higher academic scores in mathematics, reading, spelling and writing if they had been mainly breastfed during their first six months of life or longer.

For girls the benefits only showed in reading.

Oddy and colleagues concluded that:

"Predominant breastfeeding for 6 months or longer was positively associated with academic achievement in children at 10 years of age."

"However, the effectiveness of breastfeeding differed according to gender; the benefits were only evident for boys," they added.

Professor Fiona Stanley, Director of the Telethon Institute for Child Health Research, said the study shows the community needs to do more to help women breastfeed.

It's important that breastfeeding beyond six months is seen as the norm, she said, but stressed that women who don't breastfeed, whatever their reasons, should rest assured that there are many other ways they can boost the academic development of their children. One in particular stood out in this study, she stressed (in fact it is one that the researchers had to adjust for in order to see the effect from breastfeeding alone):

"While there was a modest effect of breast-feeding, the most significant predictor of educational ability was the time spent by the parent(s) reading with the child when they were young," said Stanley.

This highlights the important role of a nurturing environment in child learning," she added.

Child Health

Health Experts Demand Law Against 'Extreme Piercing' in Children (Med India: 3.1.2011)

Health experts in Queensland have knocked the legislation calling for urgent changes in the law to check the growing demand of extreme piercing in children.

Children as young as 11 are nudging towards body modification practices once reserved for hardcore punks, reports the Courier Mail.

There are no laws in Queensland outlawing the piercing of young children, except in genitals. Yet, tattooing, on anyone under the age of 18 is illegal.

The Deputy Premier and Minister for Health Paul Lucas said he intended to take a submission to Cabinet in the New Year.

"I share the concerns of parents when it comes to body piercing and minors," he said.

"I'm not talking about piercings such as simple earrings or studs in ears, but the sort of piercings that can permanently damage children's faces or other body parts.

"If that sort of body decoration is something people want to do, then I see no reason why they can't wait until they are 18 to do it on an informed basis.

"It is for this reason that I have asked Queensland Health to investigate legislative options for prohibiting the non-intimate piercings of minors," Lucas said.

The Australian Medical Association Queensland president Gino Pecoraro supported the campaign and said the laws for piercing should be the same as tattooing.

Newborns Respiratory

Newborns with Low Vitamin D Levels at Increased Risk For Respiratory Infections (Medical News Today 4.1.2010)

The vitamin D levels of newborn babies appear to predict their risk of respiratory infections during infancy and the occurrence of wheezing during early childhood, but not the risk of developing asthma. Results of a study in the January 2011 issue of *Pediatrics* support the theory that widespread vitamin D deficiency contributes to risk of infections.

"Our data suggest that the association between vitamin D and wheezing, which can be a symptom of many respiratory diseases and not just asthma, is largely due to respiratory infections," says Carlos Camargo, MD, DrPH, of the Massachusetts General Hospital (MGH), who led the study. "Acute respiratory infections are a major health problem in children. For example, bronchiolitis - a viral illness that affects small airway passages in the lungs - is the leading cause of hospitalization in U.S. infants."

Although vitamin D is commonly associated with its role in developing and maintaining strong bones, recent evidence suggests that it is also critical to the immune system. Vitamin D is produced by the body in response to sunlight, and achieving adequate levels in winter can be challenging, especially in regions with significant seasonal variation in sunlight. Previous studies by Camargo's team found that children of women who took vitamin D supplements during pregnancy were less likely to develop wheezing during childhood. The current study was designed to examine the relationship between the actual blood levels of vitamin D of newborns and the risk of respiratory infection, wheezing and asthma.

The researchers analyzed data from the New Zealand Asthma and Allergy Cohort Study, which followed more than 1,000 children in the cities of Wellington and Christchurch. Midwives or study nurses gathered a range of measures, including samples of umbilical cord blood, from newborns whose mothers enrolled them in the study. The mothers subsequently answered questionnaires - which among other items asked about respiratory and other infectious diseases, the incidence of wheezing, and any diagnosis of asthma - 3 and 15 months later and then annually until the children were 5 years old. The cord blood samples were analyzed for levels of 25-hydroxyvitamin D (25OHD) - considered to be the best measure of vitamin D status.

Cord blood samples were available from 922 newborns in the study cohort, and more than 20 percent of them had 25OHD levels less than 25 nmol/L, which is considered very low. The average level of 44 nmol/L would still be considered deficient - some believe that the target level for most individuals should be as high as 100 nmol/L - and lower levels were more common among children born in winter, of lower socioeconomic status and with familial histories of asthma and smoking. By the age of 3 months, infants with 25OHD levels below 25 nmol/L were twice as likely to have developed respiratory infections as those with levels of 75 nmol/L or higher.

Survey results covering the first five years of the participants' lives showed that, the lower the neonatal 25OHD level, the higher the cumulative risk of wheezing during that period. But no significant association was seen between 25OHD levels and a physician diagnosis of asthma at age 5 years. Some previous studies had suggested that particularly high levels of vitamin D might increase the risk for allergies, but no such association was

seen among study participants with the highest 25OHD levels. Camargo notes that very few children in this study took supplements; their vitamin D status was determined primarily by exposure to sunlight.

An associate professor of Medicine at Harvard Medical School, Camargo notes that the study results do not mean that vitamin D levels are unimportant for people with asthma. "There's a likely difference here between what causes asthma and what causes existing asthma to get worse. Since respiratory infections are the most common cause of asthma exacerbations, vitamin D supplements may help to prevent those events, particularly during the fall and winter when vitamin D levels decline and exacerbations are more common. That idea needs to be tested in a randomized clinical trial, which we hope to do next year."

IVF baby

Odds of an IVF baby? There's an app for that (The Asian Age: 6.1.2011)

Want to know your chance of having a baby through in-vitro fertilization? There's an app for that.

British researchers have devised a formula which they say gives a highly accurate prediction of the potential success of IVF, to help couples decide whether to try the treatment.

They have made it available online as a simple computer calculator application, and say it will soon be available for download on Apple's iPhones and other mobiles.

Scientists from the Universities of Glasgow and Bristol analyzed the details of more than 144,000 IVF cycles to produce a statistical model that can give a prediction of live birth which is up to 99 percent accurate.

"Treatment-specific factors can be used to provide infertile couples with a very accurate assessment of their chance of a successful outcome following IVF," said Scott Nelson of the University of Glasgow, who led the research.

Nelson, whose work was published in the Public Library of Science (PLOS) Medicine journal, said that

up until now estimates of success have not been very reliable.

The formula takes into account the woman's age, number of years trying to get pregnant, whether she is using her own eggs, the cause of infertility, the number of previous IVF cycles and whether she has previously been pregnant or had a baby.

"The result of this study is

a tool which can be used to make incredibly accurate predictions," he said in a statement.

Nelson's team used data held by the Human Fertilisation and Embryology Authority, which regulates IVF treatment in Britain.

They looked at all cycles carried out between 2003 and 2007 and assessed the chances of having a live birth.

The fertility treatment market is big and growing, with an estimated 140,000 IVF cycles in the United States in 2008. As many as 80 million couples worldwide are infertile, experts say.

In the United States and Britain, IVF is successful in about a third of women under 35 years old but in only five to 10 percent of women over the age of 40, Nelson said.

There are many other factors besides age which can alter the chance of success “and clinics don’t usually take these into account when counseling couples or women,” he added.

The calculator is already available free at <http://www.ivfpredict.com>. Applications for iPhones and Android smart phones are coming soon, so users “can discuss

the results with your clinicians right there in the clinic,” the website says.

“There is a real need in medicine to try and replace general statements such as ‘high risk’ and ‘good chance’ with well validated, quantitative estimates of probability,” said Gordon Smith, head of Cambridge University’s obstetrics and gynecology department, who did not work on the study.

“This model...provides women considering IVF with an understandable and quantitative estimate of their chances of success. It is a great resource

Breast feeding

Mother’s Milk Improves Physical Condition of Future Adolescents, Study Finds(Science Daily: 6.1.2011)

Breast feeding new born babies has lots of advantages in the short and in the long-term for babies. A study has confirmed the recently discovered benefits, which had not been researched until now. Adolescents who are breast fed at birth have stronger leg muscles than those who received artificial milk

Enrique García Artero, the principal author of the study and researcher at the University of Granada pointed out that, "Our objective was to analyse the relationship between the duration of breastfeeding babies and their physical condition in adolescence." "The results suggest further beneficial effects and provide support to breast feeding as superior to any other type of feeding."

The authors asked the parents of 2,567 adolescents about the type of feeding their children received at birth and the time this lasted. The adolescents also carried out physical tests in order to evaluate several abilities such as aerobic capacities and their muscular strength.

The paper, which was published in the Journal of Nutrition, shows that the adolescents who were breastfed as babies have stronger leg muscles than those who were not breastfed. Moreover, muscular leg strength was greater in those who had been breastfed for a longer period of time.

This type of feeding (exclusively or in combination with other types of food) is associated with a better performance in horizontal jumping by boys and girls regardless of morphological factors such as fat mass, height of the adolescent or the amount of muscle.

Adolescents who were breastfed from three to five months, or for more than six months had half the risk of low performance in the jump exercise when compared with those who had never been breastfed.

García Artero stressed that, "Until now, no studies have examined the association between breastfeeding and future muscular aptitude." "However, our results concur with the observations made as regards other neonatal factors, such as weight at birth, are positively related to better muscular condition during adolescence."

What importance does breastfeeding have?

"If all children were exclusively breastfed from birth, it would be possible to save approximately 1.5 million lives." This was stated by the UNICEF, which pointed out that breast feeding is the "perfect feed" exclusively during the first six months of life and additionally over two years.

As regards the new born, the advantages in the first years of life include immunological protection against allergies, skin diseases, obesity and diabetes, as well as a guarantee of the growth, development and intelligence of the baby.

The benefits also substantially involve the woman: reduction of post-birth haemorrhage, anaemia, maternity mortality, and the risk of breast and ovarian cancer, and it strengthens the affective link between mother and child. "Let's forget about the money saved by not buying other types of milk and baby bottles," says García Artero.

Infants

Infants Process Words in a Grown Up Way (Med India: 10.1.2011)

In a new study it has been found that even though babies are too young to talk, they can understand words and process them in a grown up way.

Scientists at the University of California, San Diego, showed that babies process words they hear with the same brain structures as adults, and in the same amount of time.

And they don't just process the words as sounds, they grasp their meanings too.

"Babies are using the same brain mechanisms as adults to access the meaning of words from what is thought to be a mental 'database' of meanings, a database which is continually being updated right into adulthood," said Katherine E. Travis.

To conduct the study, the team MEG - an imaging process that measures tiny magnetic fields emitted by neurons in the brain - and MRI to noninvasively estimate brain activity in 12 to 18-month old infants.

In the first experiment, the infants listened to words accompanied by sounds with similar acoustic properties, but no meaning, in order to determine if they were capable of distinguishing between the two. In the second phase, the researchers tested whether the babies were capable of understanding the meaning of these words.

For this experiment, babies saw pictures of familiar objects and then heard words that were either matched or mismatched to the name of the object: a picture of a ball followed by the spoken word ball, versus a picture of a ball followed by the spoken word dog.

Child Abuse

Child Abuse Interview Guidelines Time For A Re-think To Protect Victims? (Medical News today: 12.1.2011)

Do the guidelines on interviewing alleged victims of child abuse need to be re-thought? New research from the University of Abertay Dundee has found evidence that multiple interviews can actually help victims recall greater details about their abuse.

Currently the guidelines for the UK and Scotland recommend investigators avoid repeated interviews wherever possible, arguing that this risks inconsistent evidence and 'suggestability' the problem of an interviewer suggesting answers by not asking open-ended questions with multiple possible answers.

However, research by Dr David La Rooy and colleagues has found that when conducted properly, multiple interviews using open-ended questions can deliver stronger evidence to convict, and actually help alleged victims recall greater details about their experiences of abuse.

"When interviewers follow internationally recognised best-practice guidelines on using open questions and free-memory recall, more complete accounts of their abuse can be pieced together through conducting multiple interviews," Dr La Rooy said.

"It's commonly assumed that conducting more than one interview damages the quality of evidence, but our research has found that this isn't necessarily the case.

"When properly conducted, more than one interview helps victims' memories develop, revealing far greater detail than just one interview ever can."

Guidelines to investigators from both the UK Government in 2007 and the then Scottish Executive in 2003 recommend strongly against multiple interviews. However, the researchers found a strong body of psychological evidence suggesting otherwise.

Dr La Rooy added: "There is a need to distinguish between multiple interviews that are conducted properly and help a victim gradually recover their memory, and multiple interviews that are conducted poorly and lead a child to give particular answers.

"As guidelines are revised in the future we strongly hope that this evidence is taken into account."

The key psychological process is known as 'reminiscence', where an individual's memory is incomplete but can be gradually pieced back together over time. The researchers found that separating interviews gave time for additional, new information to be recalled.

The need to re-interview alleged victims also needs to be balanced with concerns about the welfare of victims, who can find the interviewing process extremely stressful and disturbing. However, the research shows that children can benefit from more than one opportunity to recall information.

Conducting a series of interviews, with structured and open-ended questioning, can allow the child to develop a trusting relationship with the interviewer and limit the negative effects of the process.

The research is published in the latest edition of Psychology, Public Policy and Law, the journal of the American Psychological Association.

Dr La Rooy worked with Dr Carmit Katz, Professor Michael Lamb and Dr Lindsay Malloy of Cambridge University on the paper.

Child Health

Hold The Gas? Inhaled Nitric Oxide Of No Benefit To Most Premature Babies(Medical News Today: 12.1.2011)

A new Johns Hopkins Children's Center study challenges the widespread practice of treating premature babies with nitric oxide gas to prevent lung problems, neurological damage and death. The research, based on analysis of 22 major studies of the effect of nitric oxide in babies born before 34 weeks of age, found no evidence of benefit in most infants.

Overall, the Hopkins review found that babies who received nitric oxide in the neonatal intensive care unit didn't fare any better than those who didn't. The babies who received the treatment were no less likely to die, develop chronic lung disease of prematurity, suffer cerebral palsy or have neurological or cognitive impairments, the researchers found.

The findings, to appear in the February issue of the journal *Pediatrics*, point against the routine use of inhaled nitric oxide in all premature babies and call for careful, case-by-case evaluation of each baby's degree of brain and lung maturation to determine if nitric oxide would help, hurt or do nothing for a patient, the researchers say.

"What we call for is careful evaluation by a team of clinicians of each patient's risk-benefit profile, factoring in birth weight, degree of prematurity and degree of lung and brain maturation," says lead investigator Pamela Donohue, Sc.D.

Because the investigators noticed a small, yet sufficiently intriguing difference in risk in some babies, the researchers stopped short of advocating complete abandonment of the treatment.

Babies who did not receive nitric oxide had no greater risk of dying than those who got the treatment. Untreated babies were also no more likely to develop chronic lung disease of prematurity than those treated with nitric oxide. However, when the researchers analyzed the data differently and looked at whether a baby had a greater risk of either dying or developing lung disease, a small difference emerged. The combined risk of death and lung disease was 7 percent higher among babies who didn't get the treatment.

"We can't say whether this small difference signals a true clinical benefit, but we have to at least allow for the possibility that it might portend better outcomes for at least some babies," says senior investigator Marilee Allen, M.D., a neonatologist at Hopkins Children's.

The efficacy of nitric oxide has been well documented in near-term babies, or those born after 34 weeks, but the new Hopkins Children's findings show that nitric oxide gas has no therapeutic value in most premature babies born at 34 weeks or earlier.

None of the 14 trials that analyzed the risk of death found differences in death rates between preemies who received nitric oxide and those who didn't. Nine studies compared long-term death rates among children after one year and up to five years after birth.

Again, none found a difference in death rates. The dose of nitric oxide had no bearing on how well a baby fared and neither did the baby's weight at the time of birth, the researchers found. One study found a higher death rate among babies born weighing 1,000 grams or more and treated with inhaled nitric oxide.

Household Food Insecurity - Effect of school food programs in disadvantaged neighborhoods. - pediatrics.aappublications.org

Brain Therapy - Leading Brain Efficiency Training & Therapy Provider. Contact Us Now! - MentaMove.in/Training+Equipment

5 Ways to Help Baby Sleep - Tear-free tips to help baby sleep No obligation, privacy guaranteed - www.SleepThroughNight.com

None of the 12 trials that analyzed the risk for developing chronic lung disease found differences among babies regardless of whether they received nitric oxide after birth or not. Four studies, however, revealed a 25-percent lower risk for lung disease among babies treated with a dose of 10 parts per million (gas-to-air ratio), a difference that vanished with lower and higher doses.

The analysis showed no differences in the risk of brain damage, neurological deficits, cerebral palsy or developmental impairment between babies who received nitric oxide and those who did not. One of four studies using head ultrasounds to detect brain injury found 4-percent lower risk in babies treated with nitric oxide. The other three studies did not. None of six trials evaluating cognitive development found differences between treated and untreated babies. Seven studies of cerebral palsy risk found no differences, nor did six studies of neurological and developmental impairment of children who received nitric oxide as babies and those who did not.

The research was conducted in collaboration with the Johns Hopkins Evidence-based Practice Center (EPC), one of 13 federal centers designed to generate, assemble, and synthesize knowledge and evidence necessary for the effective and efficient application of medical and public health practices.

The study was funded by the Agency for Healthcare Research and Quality, part of the U.S. Department of Health and Human Services.

Maternal mortality ratio

HOW ABOUT MOTHER CARE NOW? (The Business standard: 13.1.2011)

According to the Office of Registrar General of India, the maternal mortality ratio (MMR) declined from 398 per 100,000 live births in 1997-98 to 301 in 2001-03, falling

further to 254 in 2004-06. Statewise estimates of maternal mortality for 2004-06 showed Kerala was the only state with less than 100 deaths per 100,000 live births. The three worst performing states with a high MMR were Assam (480), Uttar Pradesh including Uttarakhand (440) and Rajasthan (388). According to the Institute of Health Metrics and Evaluation (IHME) estimates published in The Lancet in April 2010, India ranks 127 out of 181 countries in maternal mortality, with Sri Lanka and China way more successful than India in maternal care. Despite government intervention to achieve a faster rate of decline, especially under the Reproductive and Child Health Programme, it appears unlikely that the Millennium Development Goal for India set at 109 maternal deaths per 100,000 live births by 2015 will be met.

Women die as a result of complications during and following pregnancy and childbirth. While 80 per cent of maternal deaths worldwide are caused by severe bleeding, infections, high blood pressure during pregnancy, obstructed labour and unsafe abortions, diseases such as malaria, anaemia and HIV/AIDS also contribute to maternal mortality. It is important for women to have access to health care solutions to prevent or manage complications. The World Health Organisation (WHO) notes, apart from access to antenatal care in pregnancy, and care and support in the weeks after childbirth, “it is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death”. If we look at this last indicator across states in India, once again there is a large disparity. The District Level Household Survey (DLHS-3) 2007-08 estimates that 52.7 per cent of women had safe deliveries, that is, deliveries either in institutions or at home with the assistance of trained personnel. As many as 43.3 per cent of rural deliveries and 75.6 per cent of urban deliveries could be termed safe, pointing to the low access to health care in rural India. Almost all women in Kerala and Puducherry had safe deliveries. Goa, Tamil Nadu and Lakshadweep recorded more than 90 per cent safe deliveries. However, in 11 states, less than 50 per cent of the deliveries that took place could be termed “safe deliveries”. The worst performing states, where less than one third of mothers had safe deliveries, are Bihar, Uttar Pradesh, Meghalaya, Chhattisgarh and Jharkhand. In Jharkhand and Chhattisgarh, more than 80 per cent of deliveries were at home, with 7.2 per cent and 11.6 per cent of these home deliveries assisted by skilled personnel. Interestingly, Manipur and Punjab stand out as states with the highest share of home deliveries conducted with the help of trained personnel —14.3 per cent and 13.8 per cent respectively.

Last year, the WHO reported India as the country with the largest number of maternal deaths in the world. Though the percentage of safe deliveries has increased from 48 per cent to 52 per cent between DLHS-2 (2002-04) and DLHS-3 (2007-08) at the national level, this rate of increasing coverage is woefully inadequate, especially given the wide regional disparities in the country.

Indian States Development Scorecard is a weekly feature by Indicus Analytics that focuses on the progress in India and the states across various socio-economic parameters sumita@indicus.net

[INDIAN STATES DEVELOPMENT SCORECARD]

Despite government intervention, the maternal mortality ratio is alarmingly high in some states

BARE BONES

0 20 40 60 80 100

India Jharkhand Meghalaya Chhattisgarh Uttar Pradesh Bihar Uttarakhand Assam Dadra & Nagar Haveli Tripura Arunachal Pradesh Madhya Pradesh Orissa Himachal Pradesh West Bengal Rajasthan Haryana Manipur Sikkim Jammu & Kashmir Gujarat Mizoram Maharashtra Daman & Diu Karnataka Delhi Andhra Pradesh Punjab Andaman & Nicobar Chandigarh Tamil Nadu Lakshadweep Goa Puducherry Kerala

52.7 24.9 28.9 29.6 30.0 31.7 35.2 39.9 45.4 47.2 48.8 49.9 50.8 50.9 51.6 52.6 53.2 55.3 56.0 58.6 61.6 63.3 69.2 69.2 71.6 71.6 75.6 76.9 77.4 81.0 95.5 95.7 96.6 99.2 99.4

REUTERS

MATERNAL CONCERNS Country MMR 1990 MMR 2008 Global rank out of 181 countries (2008)

Sri Lanka 52 30 60 China 87 40 74 Nepal 471 240 126 India 523 254 127 Bhutan 1,145 255 128 Bangladesh 724 338 138 Pakistan 541 376 142

Source: IHME, 2010; Maternal mortality ratio: the no. of maternal deaths per 100,000 live births

NURSING NEGLECT Maternal deaths per 100,000 live births (2004-06) INDIA 254

Assam 480 Uttar Pradesh, Uttarakhand 440 Rajasthan 388 Madhya Pradesh, Chhattisgarh 335 Bihar including Jharkhand 312 Orissa 303 Karnataka 213 Punjab 192 Haryana 186 Gujarat 160 Andhra Pradesh 154 West Bengal 141 Maharashtra 130 Tamil Nadu 111 Kerala 95

Source: SRS Bulletin April 2009

Percentage of safe deliveries for currently married women aged 15-49

Source: DLHS-3, 2007-08

Maternal and child Health

Post-delivery, it takes 18 mths to recover (The Times of India: 13.1.2011)

No doubt, giving birth to a baby is a high point for a mother. But, there is a downside to it as well — it takes a year-and-a-half for her to “feel like a woman again” after childbirth, a new study has revealed.

In fact, according to the study, gruelling sleepless nights lead to a dip in a new mom's confidence amid a loss of independence, worries about looking frumpy and how she would be perceived by others. The findings have been based on a survey of 3,000 mums in Britain. In the poll, two-thirds admitted feeling “saggy”, “fat” and “unattractive”, while struggling to make it through the day amid “chaos”. Six out of 10 said their confidence took a knock when they realised their old clothes didn't fit, while a third were terrified about returning to work due to a lack of self assurance.

Personal fitness, fashion and social life all take a back seat as a new mother comes to terms with caring for her new arrival. But finally after 18 months the confidence begins to return as baby weight falls off and they become comfortable with the role of mother. PTI

TOUGH ORDEAL: Gruelling sleepless nights lead to a dip in a new mom's confidence amid worries about looking frumpy

Child health

Crying is healing (The Times of India: 18.1.2011)

Tears which flow with emotion actually contain higher amounts of protein and beta endorphin — natural pain relievers. They kill bacteria, lubricate eyes and help us see better, says Mita Bhan

Crying has come naturally to us since the day we were born. When we were infants, we bawled when we were hungry, sleepy, tired, frustrated, dirty, you name it. As we grew a little older, our tears rolled when we felt ignored, scared, reprimanded by adults, or we fell down. The tears didn't last for too long, and within a few minutes we were back to our normal active, curious, childlike selves. But what happened as we grew older? We learnt to repress our emotions. Not show our disappointment or pain so easily. We became big boys and big girls, and our parents and teachers reminded us again and again to stop crying over this or that.

But fact of the matter is we all have to cry even as adults at some point or the other in our lives. And scientists have discovered that those who have a good cry periodically actually lead healthier lives. Crying is actually beneficial for your mind, body and soul. Studies have revealed the following benefits of tears:

Release tension and the toxins of emotional stresses from the body. After a good bawl, don't we all feel a little lighter?

Tears which flow with emotion actually contain higher amounts of protein and beta endorphin — natural pain relievers. Tears also kill bacteria, lubricate our eyes and help us see better Those who cry more often than others report less physical illnesses than those who keep it inside. Suppressing sad feelings leads to stress

Crying aids inner calm and peace. We can view the situation more clearly and calmly after a good session Being strong and brave is not about suppression of emotions. It's about clarity, willingness to face whatever life offers our way. And knowing the power of release. So the next time you feel the tears well up, go get the box of tissues and cry your heart out. You'll feel better in more ways than one.

Child

No child should die of measles (The Tribune: 20.1.2011)

The Centre and states must focus on strengthening their public health cadres to eliminate infectious diseases. It is time we ensured no child died of measles. In 2011, the Government must also tighten the regulatory systems of education and training of health personnel. HR is our major constraint. I hope to see greater public investment in this and an end to crass commercialization of this sector due to private investment by non-interested actors. This year will also be critical to the formulation of protocols to provide medical and surgical treatment through third party payment systems without the ills of over-medicalization and exorbitant fees Greater people's involvement in the sector is the key. Do you think, for example, we can dream of a day when tobacco companies voluntarily shut shop and educate people not to buy their products? That should be our goal in 2011.

Sujatha Rao,
Former Union Health Secretary

Child care

The Haryana Seeks central funds for child care (The Financial Express:20.1.2011)

The Haryana government on Wednesday sought Central fund for the implementation of Integrated Child Protection Scheme. The state has already forwarded a financial proposal to Centre for release of funds.

Haryana women and child development minister Geeta Bhukkal said that the ICPS aimed at contributing to the improvement in the well being of children as well as to the reduction of vulnerabilities to situations and actions that lead to abuse, neglect, exploitation, abandonment and separation of children from parents.

The ICPS will bring several existing child protection programmes under one umbrella. These included a programme for juvenile justice, an integrated programme for street children and scheme for assistance to homes [Shishu Greh] to Promote In country Adoption.

The state set up a State Child Protection Society (SCPS) and is headed by the financial commissioner and principal secretary, women and child devel

opment and assisted by a team of officials. This society shall be responsible for implementation of ICPS and other child protection policies and programmes at the state-level. District child protection society will be set up in each district as a fundamental unit for implementation of the scheme. The society shall coordinate and implement all child rights and protection activities at district level. It shall also contribute to effective implementation of all child protection legislations, schemes and achievement of child protection goals laid out in National Plan of Action for Children 2005.

The minister said that a state adoption resource agency (SARA) would be set up in the state and the agency will coordinate, monitor and develop the work of adoption and render secretarial and administrative assistance to the Advisory Committee on Adoption.

She said that the scheme would provide support for setting up and maintenance of shelter homes, children homes, observation homes and special homes as provided by the Juvenile Justice (Care and Protection of Children) Act, 2000. There are special budgetary provisions for care of children with special needs in institutional care. As a statutory requirement, financial support would be provided to the states for setting up of child welfare committees in every district as provided under the Juvenile Act and adequate infrastructure to ensure their effective functioning.

Once put in place it is expected that the scheme would result in reduced vulnerabilities of children, better child protection services, increased availability and accessibility of a variety of child protection services.

Child obesity

Child obesity a major threat to health (The Tribune: 22-12-2010)

Obesity has become a global problem affecting all people of all ages. But what is alarming is that it has not spared the children as well. In urban India, almost 15 per cent of the school children are obese. Michelle Obama, America's First Lady, has taken upon herself the task of eliminating childhood obesity in a generation! This is because almost 32 per cent American children and adolescents are obese.

Why are we so worried about childhood obesity? After all, one always associated chubby and fat kids with good health! The fact is that obesity in childhood increases the risk for hypertension, type 2 diabetes, increased blood cholesterol levels and cardiovascular diseases both in early years and later on.

So, what is the solution? It is very simple. We have to convince and educate the parents. They don't have to study rocket science or break a bank to have an influence on their kids' weight and health. Make sure the kids play outdoor games for an hour everyday. Limit the TV viewing time. Discourage junk foods and aerated drinks. Encourage them to eat a balanced diet. Prepare healthy tasty food at home.

As the kids succumb very easily to peer pressure, all the parents should decide to send health-giving food in the tiffin boxes, and the teachers should also do their bit to encourage them. So, go ahead and do it. The beauty is that even if we achieve 20 per cent success, we will change the health status of our kids.

Unscrupulous advertising by food manufacturers

This is one big issue which is really worrying the nutrition experts. When junk foods and sodas are so glamourised on the small screen, how can you blame the poor kids? You have pretty actresses luring you to consume sugar substitutes without explaining you their harmful side-effects.

The only way out is EDUCATING the masses about nutrition. One should be able to read the food labels and judge for oneself whether a particular food item is good for health or not. What were the nutrition professionals debating about?

There was a big debate on cholesterol being the major cause of heart disease, and a debate on the focus on the reduction of fat in dietary guidelines for good health.

Leading medical experts have questioned the contention that cholesterol is a major cause of heart disease. They feel that cholesterol is only one of several risk factors contributing to heart disease. It is a component of all body cells and is manufactured by the liver. So, even if no cholesterol-rich foods are ingested, the body still has the ability to create

endogenous cholesterol. High blood cholesterol levels are more strongly associated with genetic factors than any other risk factors currently identified.

Foods containing saturated fats are rich in cholesterol and do elevate blood cholesterol, but the mechanism whereby cholesterol deposits itself on artery walls is not yet known fully. Experts feel that if you want to reduce the risk of heart diseases, stop smoking, maintain normal blood pressure and reduce total calories by eating a nutritionally balanced diet with a variety of foods. They criticise the extreme focus placed on cholesterol since this standpoint diminishes public awareness of smoking and high blood pressure as major risk factors.

The focus on reduction of fat in dietary guidelines is not necessarily the best way to be healthy. Not all fats are bad. We have the good mono-unsaturated fats in olive oil and mustard oil and unsaturated fats in soybean oil and groundnut oil.

Though some studies have shown that replacing saturated fat with unsaturated fat may reduce the risk of heart disease, most people replace saturated fat with bad carbs (refined sugars) which ends up being worse. The conclusion, "What actually is important is to have a wholesome balanced diet with increased consumption of fruits, vegetables, nuts, fish, vegetable oils and whole grains, and reduced consumption of trans-fat, salt and processed meats."

What they all agreed upon?

That nutrition science is a "work in progress". It is like trying to reach the destination through a thick dark jungle. You go a few steps forward, a few backwards, but all you are doing is trying to reach your destination of GOOD HEALTH which you definitely will.

Breastfeeding

Surgeon General's Initiative Promotes Breastfeeding (Medical News Today:24.1.2011)

Surgeon General Regina Benjamin on Thursday discussed details of a new initiative, "Call to Action to Support Breastfeeding," that aims to generate more support for breastfeeding at work, home and in the community, MedPage Today reports. National data show that although 75% of women start out breastfeeding, by six months 43% are still breastfeeding and just 13% are exclusively breastfeeding at that point (Fiore, MedPage Today, 1/20). The U.S. government aims to raise the rate of women who start breastfeeding to 82% and improve the rate of six months of exclusive breastfeeding to 25%. The American Academy of Pediatrics says that exclusive breastfeeding for six

months provides optimal nutrition for infants. Benjamin said, "The hardest thing is to keep it up, because our society and our culture aren't there to support" breastfeeding women (Neergaard, AP/Yahoo!, 1/20).

The breastfeeding initiative will feature public service advertisements airing on 1,200 television stations nationwide. In launching the initiative, the surgeon general pushed for several strategies to encourage breastfeeding, such as mandating that employers should offer women a "clean and private place other than a bathroom" to express breastmilk (MedPage Today, 1/20). The federal health reform law requires certain employers to offer breastfeeding women "reasonable" break times to express breastmilk and a place to do so privately (AP/Yahoo!, 1/20). Employers also should offer paid maternity leave and lactation support programs, Benjamin said.

Benjamin also suggested that women receive more information about breastfeeding prior to giving birth and that physicians be well-equipped to care for breastfeeding women. She said she also hopes the initiative will address cultural aspects of breastfeeding, noting, "The popular culture's sexualization of the breast makes some women want to hide the fact that they're breastfeeding" (MedPage Today, 1/20).

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WHO

WHO says junk fast food TV ads targeting children (World Newspaper:24.1.2011)

Since television commercials of foods high in fat, sugar or salt greatly influence eating habits of the young and impressionable and make them vulnerable to non-communicable diseases, World Health Organisation (WHO) has urged countries to reduce exposure of children to such marketing by implementing a set of international recommendations.

Poor diet is one of the four common factors associated with non-communicable cardiovascular diseases, chronic lung diseases cancer and diabetes, which cause around 60% of deaths worldwide, or over 35 million, annually. More than 9 million of these deaths are premature (before 60 years of age) and can be prevented through low-cost measures to stop tobacco use and alcohol abuse and promote healthy diets and physical activity.

WHO said a large share of unhealthy foods is marketed through TV commercials and a systematic review of evidence revealed such advertisements influence children's food preferences, purchase requests and consumption.

In May 2010, WHO member-states endorsed a new set of recommendations on marketing foods and non-alcoholic beverages to children, calling for national and international action to reduce exposure of children to ads that promote foods high in saturated fats, trans-fatty acids, free sugars, or salt.

The member-states suggested legislations or policies, intergovernmental collaboration and cooperation with civil society and public and private stakeholders to blunt powerful tools aimed at marketing such foods to children. WHO also asked countries to put in place a system to monitor and evaluate implementation of the recommendations.

While some countries have taken off advertisements of such products from prime time television and radio and regulated their marketing, a large number of countries, particularly developing nations such as India, are yet to take proactive measures.

As per WHO, about 43 million pre-school (under five) children worldwide are obese. Of these, nearly 35 million live in developing countries.

Scientific reviews have also shown that a significant portion of television promotionals expose children to “non-core” food products which have low nutritional value and cause child obesity.

In fact, WHO’s May 2010 estimate was that more than 42 million U-5 children worldwide would be obese by the end of last year - a majority in developing nations.

A recent study by Diabetes Foundation of India (DFI) found that TV commercials have such impact on schoolchildren that they consider eating fatty foods fashionable. At least 54% of children surveyed preferred buying foods shown in commercials and 59% said they would continue to buy such foods.

“Junk food advertisements have profound effect on children’s eating habits since they are frequently displayed during prime time without legal or official regulation,” Anoop Misra of DFI said.

Child Obesity

Obesity Linked to Lack of Sleep (Med India: 25.1.2011)

Children who sleep for at least nine hours do not have the problem of obesity and the accompanying metabolic disorders like diabetes and cardiovascular disease, states a new study.

Being cranky and less alert are symptoms parents should watch out for at home to know that their children need to sleep more. Otherwise, the consequences would be behaviour problems, poorer execution of cognitive tests and injuries.

Catching up on sleep over the weekend does help to a certain extent as they are comparatively thinner. However those who were obese already had shorter and more irregular patterns of sleep. These are the ones who had higher insulin levels - that can lead to Type II diabetes over a prolonged period - higher levels of 'bad' (LDL) cholesterol, and higher levels of C-reactive protein, that has been linked with heart disease in later life.

The study indicated that children who consistently get 9 to 10 hours of sleep on both weekdays and weekends have the healthiest metabolic profile. "Good sleep routines and sleeping the right amount is the best healthy proposition," says lead author David Gozal, chair of the department of pediatrics at the University of Chicago.

Breast-feeding

New hope for mothers and babies (The Hindu: 25.1.2011)

Exclusive breast-feeding is accepted best practice

Valsad was chosen for Mamta Abhiyan project in 2006

Valsad (Gujarat): When the women's self-help groups (SHG) come together for their routine meetings in this tribal-dominated district of Gujarat, high on their agenda are issues related to reproductive and child health.

The discussions revolve round neo-natal care, institutional deliveries, post-natal care and normal growth of children. Little wonder then that the results have been impressive. There are no home deliveries any more as traditional dais (midwives) get more from the government to refer deliveries to health facilities than they would for delivering at home.

The village health and nutrition days — known as Mamta Diwas — are observed with much fanfare, with women thronging anganwadi centres and health sub-centres for counselling, immunisation and check-ups. Exclusive breast-feeding is an accepted best practice, and only iodised salt is used in kitchens.

Once infamous for malnutrition and high infant and maternal mortality deaths, Valsad is now cited as a role model for change. A change brought about by women themselves —

35,000 of them, who are members of 22,000 SHGs associated with the Valsad District Cooperative Milk Producers Union, often referred to as the Vasudhara scheme.

It all started in 2006 when Valsad was chosen for a pilot project — Mamta Abhiyan — to improve maternal and child health and nutrition. It was joint and nutrition intervention strategy, with focus on strengthening and expanding outreach services, building up skills for early detection, management, referral and follow-up services.

“It was strange that while Gujarat was economically well-off, the health indicators were not encouraging. Same was the case in this district. Women were financially empowered because of their involvement with the SHGs, but reproductive and child health indicators did not show any improvement,” said Chief District Medical Officer A.S. Sanghvi.

Eventually, the United Nations Children's Fund (UNICEF) stepped in to train women in early detection of diseases among children under the Integrated Management of Neonatal and Childhood Illnesses. “UNICEF trained women for ensuring neo-natal and post-natal check-ups and encouraging them to go for institutional deliveries. Once the women come home after the delivery, a trained Accredited Social Health Activist, an anganwadi worker or her supervisor visit her in the house for a check-up. They are also trained to detect early signs of illnesses among children, and can even treat minor ailments. In case it is beyond their treating capacity, they refer the mother or the child to a nearby health facility,” said Narayan Gaonkar, health and nutrition expert with UNICEF.

Once the UNICEF scheme picked up, the Gujarat government decided to integrate all schemes related to reproductive and child health and nutrition under the National Rural Health Mission and the Integrated Child Development Scheme to prevent duplication and produce better results.

The State government has also taken some major initiatives to improve health indicators, like introduction of the ‘108’ ambulance service which reaches even the remotest parts of the State and is particularly helpful in cases of delivery. Even government vehicles, like jeeps available with the Forest Department, are directed to take women to healthcare centres for delivery.

The government gives Class I officer designation to MBBS doctors who do a post-graduate diploma in any speciality and pass the mandatory exam. It is working in close coordination with the private sector in health care to improve the health services. As many as 630 obstetrician and gynaecologists from under the Chiranjeevi scheme and 220 paediatricians from under the Balsakha scheme are offering services to the government sector. They are given monetary incentives for the services offered, and the scheme has picked up since it was started in 2007-08.

Maternal Health

INDIAN STATES DEVELOPMENT SCORECARD]

MOTHERHOOD STATEMENTS (Business Standard: 27.1.2011)

The National Population Policy adopted in 2000 emphasised the government commitment to safe motherhood, one of the objectives being universal coverage of maternal care. A critical component of safe motherhood is antenatal care (ANC)—access to timely care can go a long way in reducing maternal and infant mortality.

The District Level Household Survey (DLHS), 2007-08 collected data on the utilisation of ANC services for women who had delivered during the three years prior to the survey. According to the survey, 75 percent of these women had received at least

one antenatal care visit during pregnancy. In rural areas, the share was 71 percent. In urban areas, 87 per cent of the women had received at least one ANC visit during pregnancy. Across India, about 55 percent of those who had ANC visits received services from government health facilities, 36 percent from private health facilities and 10 percent benefited from community-based services that include NGOs, charitable trusts, home visits by trained personnel and so on. In general, government health facilities dominate, across all parameters, except in the case of women with 10 or more years of schooling and women in the highest wealth quintile. When it comes to the weaker sections, of course, the government health facilities are accessed the most.

Yet, there are some states where overall private health facilities account for more than 50 per cent share — Daman & Diu, Kerala, Andhra Pradesh, Punjab, Goa and Karnataka. Bihar and Uttar Pradesh stand out as states with the highest utilisation of community-based services at 33 percent and 27 percent respectively; in fact in all other regions, community services account for less than 10 per cent of the ANC services accessed.

It is important to note that though 75 percent of Indian women received any ANC services, just 18.8 percent received the recommended full ANC services, that includes at least three visits for antenatal check-up, at least one tetanus toxoid injection and 100 or more iron and folic acid tablets or equivalent syrup consumed during pregnancy. Goa ranks on top with full ANC services given to 91 per cent of the pregnant women. Kerala and Lakshadweep are next at more than 60 per cent coverage. The disparity is highest in West Bengal, Haryana and Punjab, where full ANC coverage is significantly lower than any ANC coverage. The states that are at the bottom of providing full ANC coverage are

Uttar Pradesh and Bihar, where less than 5 per cent of the expectant mothers get the full recommended care. Clearly, in these states, government health facilities are not delivering, while private healthcare, in whatever form it exists, remains out of reach for poor households. This also explains the relatively higher dependence on community-based services in these two states.

It was in 2006 that the government launched the Janani Suraksha Yojana, with special emphasis on low-performing states, identifying the ASHA, the accredited social health activist, as the link between the government and the women. The next DLHS will show how successful this programme has been in raising full coverage of ANC services among the underprivileged and reducing inter-state disparity.

Indian States Development Scorecard is a weekly feature by Indicus Analytics that focuses on the progress in India and the states across various socioeconomic parameters
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It is important to address inter-state disparities in providing full antenatal care

REUTERS

AFTER THE FACT

Access to antenatal care (ANC) by education Place of antenatal care Educational Any
Government Private Community profile ANC health health based facility facility services

Non-literate 59 54 23 16 Less than five years 75 63 27 10 5-9 years 84 61 35 7
10 or more years 95 45 57 5 India (15-49) 75 55 36 10

POOR RESPONSE

The rich access private health facilities Place of antenatal care Wealth index Any Govt
health Private health Community quintiles ANC facility facility worker

Lowest 54.9 52.7 16.5 17.3 Second 63.7 56.5 23.3 14.9 Middle 74.4 61.8 28.5 10 Fourth
84.3 59.9 37.8 6.7 Highest 93.6 44.2 58.1 4.7

STATES OF PROGRESS

All tables refer to "Percentage of currently married women (aged 15-49 years) who received antenatal check-up (ANC) during pregnancy" from DLHS-3, 2007-08.

0 20 40 60 80 100

Kerala Lakshadweep Goa Tamil Nadu Andaman & Nicobar West Bengal Andhra Pradesh
Daman & Diu Sikkim Puducherry Maharashtra Delhi Karnataka Mizoram Haryana

Himachal Pradesh Chandigarh Jammu & Kashmir Orissa Punjab Chhattisgarh Manipur
Assam Dadra & Nagar Haveli Gujarat Tripura Uttar Pradesh Arunachal Pradesh
Madhya Pradesh Bihar Rajasthan Jharkhand Meghalaya Uttarakhand India (15-49)

99.8 72.2 99.8 68.2 99.0 90.9 98.9 51.8 96.4 48.6 96.1 19.6 95.9 40.5 95.8 43.4 95.2 27.4
92.8 48.6 91.8 33.9 91.6 33.6 90.2 51.0 89.5 32.9 87.2 13.2 86.6 31.4 85.9 30.2 84.3 29.1
84.0 23.3 83.3 14.3 79.6 13.7 75.1 12.3 74.3 8.5 72.1 23.0 71.5 19.9 67.2 13.2 64.2 3.3
63.1 5.4 61.7 8.6 59.1 4.6 56.6 6.6 55.8 9.0 55.4 14.4 55.3 15.6 75.1 18.8

Premature Infants'

Premature Infants' Lungs May Improve With Better Nutrition (Medical News Today: 28.1.2011)

Improving lung function in premature babies with a severe lung disease may be linked to their feeding regimen, according to a new University of Michigan study.

Researchers studied 18 infants with a history of moderate to severe bronchopulmonary dysplasia (BPD) and found that those with above-average weight gain between evaluations showed significantly improved lung volumes, revealing a possible association between lung growth and improved nutrition.

The results of this study appear in an upcoming edition of the journal *Pediatric Pulmonology*. The results are available online now.

BPD typically develops in premature infants who require prolonged ventilation or oxygen therapy after birth, leading to significant reductions in airflow and lung overinflation when compared to full-term infants. Infants with BPD also often develop asthma later in life.

Over a nearly one-year span, U-M researchers found little improvement in the study group's average airflows and lung volumes. However, the nine premature babies with above-average weight gain over time saw greater improvement, though they were unable to catch up to full-term babies.

"Consistent with animal studies that show the harmful effects of malnutrition on lung development, we showed improvements in lung function, such as forced vital capacity and total lung capacity, in infants with above-average body growth," says study lead author Amy G. Filbrun, M.D., M.S., assistant professor of pediatrics and communicable diseases.

Filbrun also is director of the U-M Apnea and Bronchopulmonary Dysplasia Program.

Previous studies have shown that lung function in babies with BPD improves over time as the lung continues to grow, but researchers say this is the first to record longitudinal measurements using the raised volume rapid thoracoabdominal compression (RVRTC) technique.

This method measures airway function throughout the full range of lung volumes, similar to tests on older children and adults.

"These results add new and more accurate information on lung function in infants with a history of bronchopulmonary dysplasia at a time period in development when previous data was lacking," says Filbrun.

Babies born before 37 weeks of pregnancy are considered preterm, or premature. Each year, 1 in 8 babies born in the United States are premature, reports the U.S. Centers for Disease Control and Prevention.

More premature infants are surviving because of advancements in care for these babies, but they remain at-risk for developing BPD.

Growth failure and malnutrition are common among infants with BPD. Researchers say studies examining the effects of various feeding regimens on lung growth are warranted, with the idea that improved nutrition may improve airway function and long-term respiratory health in these children.

Chennai's Centre - Liver Diseases in Children

Chennai's Centre for Liver Diseases in Children (Med India: 31.1.2011)

A Centre for Pediatric Liver Diseases and Transplantation is a planned project of the Global Hospitals in Chennai.

Global Hospitals chairman and managing director K.Ravindranath talked, at a press conference, of the comprehensive, dedicated centre for pediatric liver diseases and transplantation.

This centre, run by specialists with experience in performing a number of pediatric liver transplants, and supported by a complement of pediatricians, will offer a complete set of treatments for children with simple to complex liver disease.

The Centre will address the alarming increase in liver diseases among children. Lifestyle changes are influencing the diet and nutrition of people today, and children are very susceptible to the worldwide fad of eating junk food. This could lead to childhood obesity and later on to fatty liver diseases.

However, doctors warn, that congenital defects are the leading causes of pediatric liver diseases in India. They urge for more awareness among parents and pediatricians of symptoms within the crucial first two weeks. If it is not addressed within this time period, it might necessitate a transplant.

At the press conference, Ramesh Kancharla, consultant pediatric hepatologist, Global Hospitals and Health urged pediatricians to check for vital signs such as normal stools, weight gain, abnormal hardness of the liver, and in some congenital conditions, abnormal facial features, if jaundice continues even after two weeks, in a new born. The causes could range from metabolic diseases of the liver, Wilson's disease and the more common biliary atresia.

Mental Health

Mental Health

Mental Disorder

Now, dial 100 to help the mentally ill who have lost their way(World Newspaper: 6.1.2011)

Think of the number 100 and the first thing that comes to your mind is crime. Well, now you can dial the number to inform authorities about mentally unstable people roaming around in the city with no one to take care of them.

For, city-based Hospital for Mental Health (HMH) is all set to begin a control room to help report on vulnerable mentally unstable people. This effort is in collaboration with the police department.

The HMH has created an expert team to help rescue such people and to ensure that they are admitted to a hospital.

"There are many such people who roam the city and they are in need of physical and psychological help. We will begin this project from January 6," said Dr. Ajay Chauhan, superintendent for HMH.

As per the law, the police are duty-bound to get mentally unstable people admitted to a hospital if they get information about the same.

Earlier, IPS officer Keshavkumar had began a drive to admit such people to the HMH through the police department. The initiative had received a tremendous response. However, later, the drive lost its zeal either due to the reluctance on part of the police or lack of awareness among citizens.

"We had earlier cured many such patients and ensured their proper rehabilitation in the society. Before being brought to us, many of them were found roaming the streets," said Dr. Chauhan.

"At present we get one or two patients every month and this too with the help of police. But we are hopeful of citizens coming forward to help such people once the drive is publicised. We are optimistic that the drive will get us 25 to 30 such patients every month," he said.

The HMH has cases where several such mentally unstable people, who after proper medical and psychological help, managed to remember their earlier life and family details. The hospital thus helped reunite several people with their families.

As part of the project, if one has to inform about a mentally unstable person, he/she needs to dial 100. This call will then be diverted to the HMH's helpline number and a team of psychiatrists, social workers of the HMH and other staff will be sent to the spot where the patient was found.

The team will then evaluate the patient and if need be will ensure that he is admitted to the hospital for proper care.

"Citizens should come forward to help such people who have lost contact with their families due to their condition. Through treatment and counselling we can help them lead a normal life and try to reunite them with their families," said Dr. Chauhan.

Positive Attitude

Positive Attitude Can Help You To Drive Away Illness: Study(MedIndia:30.12.201)

A positive attitude on life could help you to bounce back from the challenges of ill health, suggests a new study.

Psychologists say that putting on a brave face works even for serious complaints such as arthritis, diabetes and heart conditions

The study of Britons aged 50 to 90 found that those with resilient personalities felt better despite their various aches and pains.

Unfortunately, this inner strength takes years to develop and cannot be turned on overnight, according to Dr Gill Windle who led the research at Bangor University in North Wales.

"Resilience is the key but it's probably something which builds up over a lifetime - in some cases because of experiences in childhood," the Daily Express quoted Windle as saying.

Older people were more likely to suffer poor health but tended not to grumble about it.

"Even though they may be suffering, older people are likely to say 'Oh, I'm all right', Windle said.

'Emotional Intelligence'

'Emotional Intelligence' Sharpens During Old Age(Med India: 3.1.2011)

Psychologists from the University of California, Berkeley have found that older people have a hard time keeping a lid on their feelings, especially when watching heart breaking or disgusting scenes in movies and reality shows. The research team, led by UC Berkeley psychologist Robert Levenson, tracked how our emotional strategies and responses change as we age. Their findings support the theory that emotional intelligence and cognitive skills can actually sharpen as we enter our 60s, giving older people an advantage in the workplace and in personal relationships.

However, they're better than their younger counterparts at seeing the positive side of a stressful situation and empathizing with the less fortunate, according to the research.

"Increasingly, it appears that the meaning of late life centers on social relationships and caring for and being cared for by others. Evolution seems to have tuned our nervous systems in ways that are optimal for these kinds of interpersonal and compassionate activities as we age," Levenson said.

The findings of the first study were published in the journal, *Psychology and Aging*.

The second study was published in the July issue of the journal *Social Cognitive and Affective Neuroscience*.

Mental Health

Epidemic in the making (The Tribune: 20.1.2011)

Currently, two crore Indians need treatment for serious mental disorders and five crore for common mental problems. Thirtyfive lakh people require hospitalisation for mental illnesses at any given time

Aditi Tandon

This year will mark a decade of the Erwadi tragedy in which 28 inmates of a private mental asylum in Tamil Nadu were charred to death in August 2001. They couldn't escape the fire because they were chained. Ten years hence, mental health continues to subsist in the margins of general health services with the government not ready to treat it separately or give it the budgetary due it deserves.

That brings us to a serious situation: In 2010, morbidity on account of mental illness overtook cardiovascular diseases as the single largest risk in India. Yet, the Health Minister made no mention of the looming mental health epidemic. Nor was the National Rural Health Mission revised to address psycho-social disorders.

Currently, over two crore Indians need treatment for serious mental disorders and five crore for common mental problems. The National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore which was recently declared an Institute of National Importance, says 35 lakh people need hospitalisation for mental illnesses at any given time.

But there are just 29,000 beds available in all the recognised mental health facilities in India. The lesser said of private facilities, the better. The treatment gap is a whopping 50 to 90 per cent despite the Constitution guaranteeing access to services to all under Article 21. The judiciary has repeatedly interpreted this Article to mean "right to health" and even directed the National Human Rights Commission to keep an eye on the quality of services being provided by the 37 government mental health facilities in India.

The first survey in 1997 revealed shocking facts — 38 per cent hospitals were built with custodial architecture, their average age being 84 years; 51 per cent had closed wards (in violation of the Mental Health Act 1987 that replaced the Indian Lunacy Act); 54 per cent offered balanced diets to inmates.

Very recently, the NHRC commissioned another review to see if anything had changed. It wasn't impressed as the study found there were no psychologists in 39 per cent hospitals, no psychiatric social workers in 50 per cent and no psychiatric nurses in 67 per cent hospitals. Clearly, no psycho-social inputs like individual therapies or psychological testing are available, states the study by Pratima Murty and K. Sekar though they found 91 per cent hospitals now had recreational facilities for the inmates.

But the situation is far from satisfactory due to acute shortage of manpower in the sector. Current vacancy of psychiatrists in the government system is 116 (it was just 27 in the 1997 review); 44 per cent hospitals have no clinical psychologists. While in the 1997 investigations, 30 per cent hospitals said they didn't have psychiatric social workers, today 38 per cent report the absence.

The private sector is worse off with just 3000 registered practitioners with the Indian Psychiatric Society – that is one per three lakh people (Australia has 50 times this number). Another problem is their skewed distribution — 75 per cent are in urban areas, leaving rural India uncovered.

And yet the government has failed to define optimal psychiatrist-to-population ratio so far though India roughly needs about 11,500 trained psychiatrists (has just 3000). Clinical psychologists are short by 9,000 and psychiatric social workers by 8,800.

The gaps being huge, there's a pressing need for medical education reform. Of the 211 recognised medical colleges offering PG courses in the country, only 101 offer PG in psychiatry. Very recently, the MCI added 125 seats to the pool by relaxing teaching norms. But dilution of norms is not the answer. Psychiatric training must be improved.

Today an MBBS student, through the 142 weeks of his training, studies psychiatry for just two weeks (20 hours)! That means for one-third mentally disturbed patients (0.33 per cent) he sees, he has only 0.14 per cent exposure of the discipline. That's shocking and must change.

The MCI is now looking at revising the psychiatry curriculum and give it greater weightage in MBBS training. Results of this exercise will determine the future availability of manpower in the sector. Last year, the Health Ministry also uploaded on its website the revised Mental Health Act 1987. Stakeholders must respond to the draft now to push for changes, if any, considering the law would impact large sections of neglected people.

More than 35 per cent Indians seeing general practitioners these days report some psycho-social condition that demands attention. The situation is therefore that much alarming.

Bring mental health centrestage

It is high time mental health got the due it deserves. There is an urgent need to integrate mental health into the government's cardiovascular disease (CVD) detection programme which was recently launched. We must also provide mental health services in the Health Ministry's Mother and Child Care programmes in order to detect mental problems in babies born out of high-risk pregnancies. Such children, if left undetected, could end up facing severe problems like schizophrenia. Perinatal complications lead to brain disorders affecting child health. Therefore, we must detect disorders early enough to cure them. Also, 30 per cent of persons who suffer heart attacks and strokes report high chances of psychiatric illnesses. Integration of mental health with the CVD programme is hence critical.

FACTFILE

- * India's oldest mental hospital is in Chennai; it came up in 1794; youngest is in Purulia, set up in 1994.
- * WHO report on global disease burden says by 2020, childhood neuropsychiatric disorders will rise by 50 per cent, internationally to become one of the five most common causes of morbidity, mortality and disability among children.
- * Indian mental hospitals lack facilities for children: of 37, only 7 have some provision.
- * One-fifth of teenagers will suffer from developmental or emotional problems while one in eight will have a mental disorder.
- * Mental illnesses are considered disabilities but a mentally ill person makes over 30 visits to a government facility to get a disability certificate
- V Half of govt facilities offer rehabilitation services. Recently, the Central Institute of Psychiatry published a list of 98 fit-to-go inmates. They had no place to go.
- * 60 per cent districts have no mental health facility

Mental Health

Stress taking toll on mental health: Study (The Times of India:24.1.2011) Psychiatric Illnesses On Rise In Urban India

City life has its own trials. Stress at work and in social life have resulted in an increase in the number of people suffering from psychiatric illnesses and sub-syndromes of diseases like headache, tension and insomnia, says a survey conducted by the Indian Council of Medical Research (ICMR) on urban mental health.

According to the survey conducted across three cities in the country, including Delhi, 8-10% people suffer from psychiatric illnesses like depression, anxiety, and schizophrenia, among others.

Sub-syndrome mental illnesses — psychological problems that do not qualify as mental illness — were found to be more common. “Total 3,600 people in Delhi from different socio-economic strata were included in this study, which was conducted between 2004 and 2009. It was found that even in a city like Delhi, where medical facilities are available and there is greater awareness about psychiatric illnesses, only 10-20% receive treatment. There is a stigma attached to mental illness and people tend to avoid institutional health facilities available,” said Dr Nimesh Desai, director of the Institute of Human Behaviour and Allied Sciences (IHBAS), who led the urban mental health survey in Delhi. He said focus group meetings conducted to analyse the results showed that many people – mostly young adults – used tranquilizers and sleeping pills.

“There appeared to be an interface between one’s physical medical condition and his state of mind. People suffering from diabetes, cardiovascular diseases and neurological disorders were found to have psychological problems in common,” Desai added. Depression was found to be the most common mental illness in the survey. “There is rift in social life of the urban populace. People communicate barely in families. Personal dissatisfaction, disinterest in work, lack of motivation, domestic problems and marital discord were major reasons behind the mental problems,” said another researcher.

It is assumed that in the next 10 years, these problems will escalate further. Lack of experts such as psychiatrists, psychiatric nurses and clinical psychologists was another big hindrance. There is a lack of beds in mental institutions, too. “There is shortage of about 8,000 psychiatrists, 17,000 clinical psychologists and 9,000 nurses,” said Desai.

Delhi health minister Kiran Walia said the government is taking measures to fill in the gap in screening and treatment of mental disorders. “We are going to introduce mental health programme under the National Rural Health Mission. Under this initiative, doctors will make door-to-door visits and provide counselling and necessary treatment. The ASHA workers will be trained on how to screen psychiatric disorders and provide basic guidance to the people,” said Walia.

Positive Emotions

Are Positive Emotions Good For Your Health In Old Age? (Medical News Today:24.1.2011)

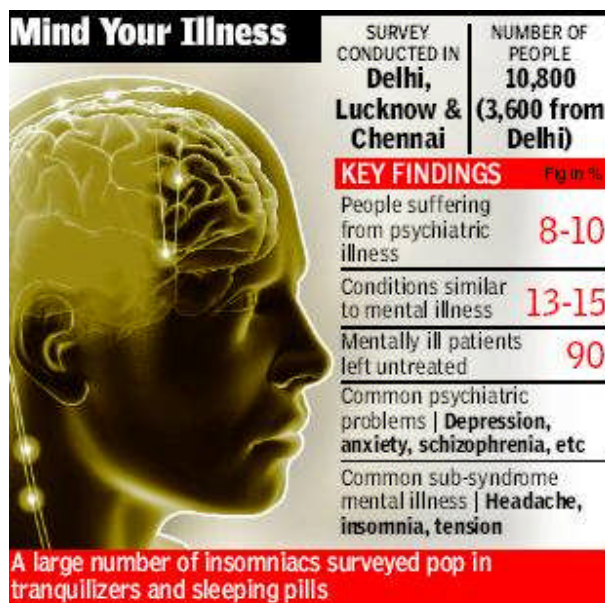
The notion that feeling good may be good for your health is not new, but is it really true? A new article published in *Current Directions in Psychological Science*, a journal of the Association for Psychological Science, reviews the existing research on how positive emotions can influence health outcomes in later adulthood.

"We all age. It is how we age, however, that determines the quality of our lives," said Anthony Ong of Cornell University, author of the review article. The data he reviews suggest that positive emotions may be a powerful antidote to stress, pain, and illness.

There are several pathways through which a positive attitude can protect against poor health later in life. For example, happier people might take a proactive approach to aging by regularly exercising and budgeting time for a good night's sleep. Alternately, these people may avoid unhealthy behaviors, such as smoking and risky sex. The benefits of these healthy lifestyle choices may become more important in older adults, as their bodies become more susceptible to disease.

An optimistic outlook has also been shown to combat stress-a known risk factor for a lot of disease. Studies have found that people with stronger positive emotions have lower levels of chemicals associated with inflammation related to stress. Also, by adopting a positive attitude people may even be able to undo some of the physical damage caused by stress.

Ong, a developmental psychologist, became interested in the study of positive emotion during graduate school when he learned about what researchers call the paradox of aging: Despite the notable loss of physical function throughout the body, a person's emotional capacity seemed to stay consistent with age. Ong speculates that if positive emotions are indeed good for our health then, "one direct, measureable consequence of this should be the extended years of quality living."



Mental disorders

New study may provide clues to treating a variety of mental disorders (New Kerala: 27.1.2011)

A new study by the University of Missouri Brain Imaging Center (BIC) may provide researchers clues to treating a variety of mental disorders.

In an effort to understand abstract working memory, Nelson Cowan, director of the BIC, used magnetic resonance imaging to produce graphics that depict the structure and function of the brain during various mental tasks.

People use their abstract working memories to assign meaning when trying to recall facts.

Previous studies identified an area of the brain responsible for holding abstract working memory, although it was assumed by some researchers to hold only visual information.

At the BIC, Cowan found that this same part of the brain could hold auditory information as well. And that is why people think of Christmas when they hear 'Jingle Bells'.

"This research has given us better understanding of an area of the brain that may be affected in people with various learning disabilities, autism and schizophrenia," he said.

"Recent research has shown that people with schizophrenia simply hold fewer items in their working memories, rather having an inability to disregard unimportant items, as previously thought. Thus, discovering more about working memory will enable scientists to better target schizophrenia, among other disorders," he added.

Mental Disorder

Now, dial 100 to help the mentally ill who have lost their way(World Newspaper: 6.1.2011)

Think of the number 100 and the first thing that comes to your mind is crime. Well, now you can dial the number to inform authorities about mentally unstable people roaming around in the city with no one to take care of them.

For, city-based Hospital for Mental Health (HMH) is all set to begin a control room to help report on vulnerable mentally unstable people. This effort is in collaboration with the police department.

The HMH has created an expert team to help rescue such people and to ensure that they are admitted to a hospital.

"There are many such people who roam the city and they are in need of physical and psychological help. We will begin this project from January 6," said Dr. Ajay Chauhan, superintendent for HMH.

As per the law, the police are duty-bound to get mentally unstable people admitted to a hospital if they get information about the same.

Earlier, IPS officer Keshavkumar had began a drive to admit such people to the HMH through the police department. The initiative had received a tremendous response. However, later, the drive lost its zeal either due to the reluctance on part of the police or lack of awareness among citizens.

"We had earlier cured many such patients and ensured their proper rehabilitation in the society. Before being brought to us, many of them were found roaming the streets," said Dr. Chauhan.

"At present we get one or two patients every month and this too with the help of police. But we are hopeful of citizens coming forward to help such people once the drive is publicised. We are optimistic that the drive will get us 25 to 30 such patients every month," he said.

The HMH has cases where several such mentally unstable people, who after proper medical and psychological help, managed to remember their earlier life and family details. The hospital thus helped reunite several people with their families.

As part of the project, if one has to inform about a mentally unstable person, he/she needs to dial 100. This call will then be diverted to the HMH's helpline number and a team of psychiatrists, social workers of the HMH and other staff will be sent to the spot where the patient was found.

The team will then evaluate the patient and if need be will ensure that he is admitted to the hospital for proper care.

"Citizens should come forward to help such people who have lost contact with their families due to their condition. Through treatment and counselling we can help them lead a normal life and try to reunite them with their families," said Dr. Chauhan.

Positive Attitude

Positive Attitude Can Help You To Drive Away Illness: Study(MedIndia:30.12.2011)

A positive attitude on life could help you to bounce back from the challenges of ill health, suggests a new study.

Psychologists say that putting on a brave face works even for serious complaints such as arthritis, diabetes and heart conditions.

The study of Britons aged 50 to 90 found that those with resilient personalities felt better despite their various aches and pains.

Unfortunately, this inner strength takes years to develop and cannot be turned on overnight, according to Dr Gill Windle who led the research at Bangor University in North Wales.

"Resilience is the key but it's probably something which builds up over a lifetime - in some cases because of experiences in childhood," the Daily Express quoted Windle as saying.

Older people were more likely to suffer poor health but tended not to grumble about it.

"Even though they may be suffering, older people are likely to say 'Oh, I'm all right',

Windle said.

'Emotional Intelligence'

'Emotional Intelligence' Sharpens During Old Age (Med India: 3.1.2011)

Psychologists from the University of California, Berkeley have found that older people have a hard time keeping a lid on their feelings, especially when watching heart breaking or disgusting scenes in movies and reality shows. The research team, led by UC Berkeley psychologist Robert Levenson, tracked how our emotional strategies and responses change as we age. Their findings support the theory that emotional intelligence and cognitive skills can actually sharpen as we enter our 60s, giving older people an advantage in the workplace and in personal relationships.

However, they're better than their younger counterparts at seeing the positive side of a stressful situation and empathizing with the less fortunate, according to the research.

"Increasingly, it appears that the meaning of late life centers on social relationships and caring for and being cared for by others. Evolution seems to have tuned our nervous

systems in ways that are optimal for these kinds of interpersonal and compassionate activities as we age," Levenson said.

The findings of the first study were published in the journal, *Psychology and Aging*. The second study was published in the July issue of the journal *Social Cognitive and Affective Neuroscience*.

Mental Health

Epidemic in the making (The Tribune: 20.1.2011)

Currently, two crore Indians need treatment for serious mental disorders and five crore for common mental problems. Thirtyfive lakh people require hospitalisation for mental illnesses at any given time

Aditi Tandon

This year will mark a decade of the Erwadi tragedy in which 28 inmates of a private mental asylum in Tamil Nadu were charred to death in August 2001. They couldn't escape the fire because they were chained. Ten years hence, mental health continues to subsist in the margins of general health services with the government not ready to treat it separately or give it the budgetary due it deserves.

That brings us to a serious situation: In 2010, morbidity on account of mental illness overtook cardiovascular diseases as the single largest risk in India. Yet, the Health Minister made no mention of the looming mental health epidemic. Nor was the National Rural Health Mission revised to address psycho-social disorders.

Currently, over two crore Indians need treatment for serious mental disorders and five crore for common mental problems. The National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore which was recently declared an Institute of National Importance, says 35 lakh people need hospitalisation for mental illnesses at any given time.

But there are just 29,000 beds available in all the recognised mental health facilities in India. The lesser said of private facilities, the better. The treatment gap is a whopping 50 to 90 per cent despite the Constitution guaranteeing access to services to all under Article 21. The judiciary has repeatedly interpreted this Article to mean "right to health" and even directed the National Human Rights Commission to keep an eye on the quality of services being provided by the 37 government mental health facilities in India.

The first survey in 1997 revealed shocking facts — 38 per cent hospitals were built with custodial architecture, their average age being 84 years; 51 per cent had closed wards (in violation of the Mental Health Act 1987 that replaced the Indian Lunacy Act); 54 per cent offered balanced diets to inmates.

Very recently, the NHRC commissioned another review to see if anything had changed. It wasn't impressed as the study found there were no psychologists in 39 per cent hospitals, no psychiatric social workers in 50 per cent and no psychiatric nurses in 67 per cent hospitals. Clearly, no psycho-social inputs like individual therapies or psychological testing are available, states the study by Pratima Murty and K. Sekar though they found 91 per cent hospitals now had recreational facilities for the inmates.

But the situation is far from satisfactory due to acute shortage of manpower in the sector. Current vacancy of psychiatrists in the government system is 116 (it was just 27 in the 1997 review); 44 per cent hospitals have no clinical psychologists. While in the 1997 investigations, 30 per cent hospitals said they didn't have psychiatric social workers, today 38 per cent report the absence.

The private sector is worse off with just 3000 registered practitioners with the Indian Psychiatric Society – that is one per three lakh people (Australia has 50 times this number). Another problem is their skewed distribution — 75 per cent are in urban areas, leaving rural India uncovered.

And yet the government has failed to define optimal psychiatrist-to-population ratio so far though India roughly needs about 11,500 trained psychiatrists (has just 3000). Clinical psychologists are short by 9,000 and psychiatric social workers by 8,800.

The gaps being huge, there's a pressing need for medical education reform. Of the 211 recognised medical colleges offering PG courses in the country, only 101 offer PG in psychiatry. Very recently, the MCI added 125 seats to the pool by relaxing teaching norms. But dilution of norms is not the answer. Psychiatric training must be improved.

Today an MBBS student, through the 142 weeks of his training, studies psychiatry for just two weeks (20 hours)! That means for one-third mentally disturbed patients (0.33 per cent) he sees, he has only 0.14 per cent exposure of the discipline. That's shocking and must change.

The MCI is now looking at revising the psychiatry curriculum and give it greater weightage in MBBS training. Results of this exercise will determine the future availability of manpower in the sector. Last year, the Health Ministry also uploaded on its website the revised Mental Health Act 1987. Stakeholders must respond to the draft now to push for changes, if any, considering the law would impact large sections of neglected people.

More than 35 per cent Indians seeing general practitioners these days report some psycho-social condition that demands attention. The situation is therefore that much alarming.

Bring mental health centrestage

It is high time mental health got the due it deserves. There is an urgent need to integrate mental health into the government's cardiovascular disease (CVD) detection programme which was recently launched. We must also provide mental health services in the Health Ministry's Mother and Child Care programmes in order to detect mental problems in babies born out of high-risk pregnancies. Such children, if left undetected, could end up facing severe problems like schizophrenia. Perinatal complications lead to brain disorders affecting child health. Therefore, we must detect disorders early enough to cure them. Also, 30 per cent of persons who suffer heart attacks and strokes report high chances of psychiatric illnesses. Integration of mental health with the CVD programme is hence critical.

FACTFILE

* India's oldest mental hospital is in Chennai; it came up in 1794; youngest is in Purulia, set up in 1994.

* WHO report on global disease burden says by 2020, childhood neuropsychiatric disorders will rise by 50 per cent, internationally to become one of the five most common causes of morbidity, mortality and disability among children.

* Indian mental hospitals lack facilities for children: of 37, only 7 have some provision.

* One-fifth of teenagers will suffer from developmental or emotional problems while one in eight will have a mental disorder.

* Mental illnesses are considered disabilities but a mentally ill person makes over 30 visits to a government facility to get a disability certificate

V Half of govt facilities offer rehabilitation services. Recently, the Central Institute of Psychiatry published a list of 98 fit-to-go inmates. They had no place to go.

* 60 per cent districts have no mental health facility

Mental Health

Stress taking toll on mental health: Study (The Times of India:24.1.2011) Psychiatric Illnesses On Rise In Urban India

City life has its own trials. Stress at work and in social life have resulted in an increase in the number of people suffering from psychiatric illnesses and sub-syndromes of diseases like headache, tension and insomnia, says a survey conducted by the Indian Council of Medical Research (ICMR) on urban mental health.

According to the survey conducted across three cities in the country, including Delhi, 8-

10% people suffer from psychiatric illnesses like depression, anxiety, and schizophrenia, among others.

Sub-syndrome mental illnesses — psychological problems that do not qualify as mental illness — were found to be more common. “Total 3,600 people in Delhi from different socio-economic strata were included in this study, which was conducted between 2004 and 2009. It was found that even in a city like Delhi, where medical facilities are available and there is greater awareness about psychiatric illnesses, only 10-20% receive treatment. There is a stigma attached to mental illness and people tend to avoid institutional health facilities available,” said Dr Nimesh Desai, director of the Institute of Human Behaviour and Allied Sciences (IHBAS), who led the urban mental health survey in Delhi. He said focus group meetings conducted to analyse the results showed that many people – mostly young adults – used tranquilizers and sleeping pills.

“There appeared to be an interface between one’s physical medical condition and his state of mind. People suffering from diabetes, cardiovascular diseases and neurological disorders were found to have psychological problems in common,” Desai added. Depression was found to be the most common mental illness in the survey. “There is rift in social life of the urban populace. People communicate barely in families. Personal dissatisfaction, disinterest in work, lack of motivation, domestic problems and marital discord were major reasons behind the mental problems,” said another researcher.

It is assumed that in the next 10 years, these problems will escalate further. Lack of experts such as psychiatrists, psychiatric nurses and clinical psychologists was another big hindrance. There is a lack of beds in mental institutions, too. “There is shortage of about 8,000 psychiatrists, 17,000 clinical psychologists and 9,000 nurses,” said Desai.

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Positive Emotions

Are Positive Emotions Good For Your Health In Old Age? (Medical News Today:24.1.2011)

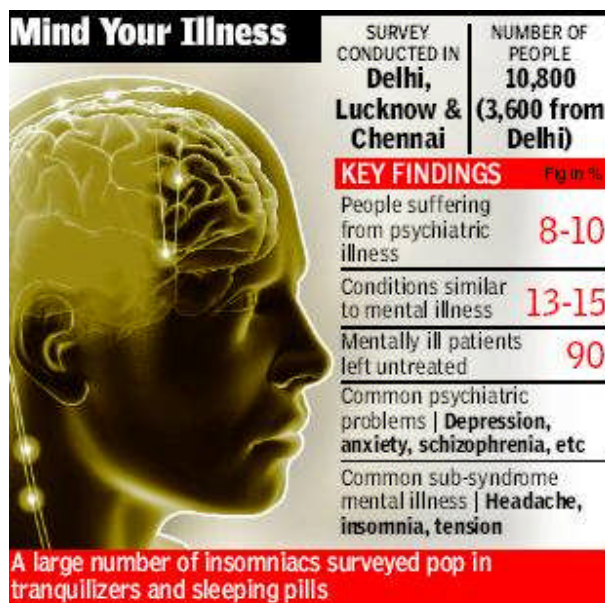
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Positive Attitude

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The second study was published in the July issue of the journal Social Cognitive and Affective Neuroscience.

Obesity

Obesity

Severe Vehicle Crashes, Obesity Increases Risk Of Death (Medical News Today: 23-12-2010)

Moderately and morbidly obese persons face many health issues -- heart disease, diabetes, hypertension, stroke, gallbladder disease and others.

Now, increased chances of dying while driving during a severe auto accident can be added to the list.

In a severe motor vehicle crash, a moderately obese driver faces a 21 percent increased risk of death, while the morbidly obese face a 56 percent increased risk of not surviving, according to a study posted online ahead of print in the American Journal of Emergency Medicine.

Dietrich Jehle, MD, professor of emergency medicine at the University at Buffalo School of Medicine and Biomedical Sciences and at Erie County Medical Center, is first author on the study.

Interestingly, underweight and normal weight drivers were found to be at higher risk of dying from a severe crash than slightly overweight drivers.

"The severity and patterns of crash injuries depend on a complex interaction of biomechanical factors, including deceleration velocity at impact, seat belt and air bag use, vehicle type and weight, and type of impact," says Jehle, "but the effect of body mass on crash outcome has not been previously evaluated in databases of adequate size or controlled for some of these confounding factors.

"Crash test dummies have saved lives and provided invaluable data on how human bodies react to crashes, but they are designed to represent normal-weight individuals. If they represented our overweight American society, there could be further improvements in vehicle design that could decrease mortality."

Based on this data, Jehle suggests several changes that might save lives. "Extending the range of adjustable seats would be helpful, as well as encouraging moderately and morbidly obese individuals to buy larger vehicles with more space between the seat and the steering column.

"We also recommend that manufacturers design and test vehicle interiors with obese dummies, which currently are not available, in addition to testing with the 50 percentile

(BMI 24.3) male dummy," he adds. "It would improve safety for the one-third of the U.S. population that is obese. For underweight and normal weight individuals, placing airbags within the seat belt also might be protective."

Jehle and colleagues set out to investigate the relationship between driver body size and risk of crash-related fatality by analyzing data in the national Fatality Analysis Reporting System database (FARS).

According to FARS, to be included in the database a crash must involve: "a vehicle traveling on a roadway customarily open to the public and must result in the death of an occupant of a vehicle or a non-motorist." From the 168,049 drivers in severe motor vehicle crashes entered in the database, 155,584 met the criteria for inclusion in the analysis.

Drivers were grouped based on body mass index (BMI) -- weight in kilograms divided by height in meters squared -- into underweight, normal, overweight, slightly obese, moderately obese and morbidly obese categories.

Severe crashes between 2000 and 2005 that involved one or two vehicles (cars, pickups, SUVs or vans) were used in the analysis. Fatalities considered related to the crash that occurred within 30 days of the crash, such as those resulting from surgery, also were included.

In addition to the overall results, data analyzed by sex show that in the moderately and morbidly obese categories, both male and female drivers independently demonstrated a statistically significant increase in death when compared with normal-weight drivers.

"The rate of obesity is continuing to rise, so is it imperative that car designs are modified to protect the obese population, and that crash tests are done using a full range of dummy sizes," Jehle states.

Obesity

Obesity and cardiac problems (The Times of India: 11.1.2011)

One must maintain a healthy weight, eat less meat, stay away from sweetened bottle drinks, increase fibre intake and exercise regularly to avoid cardiac disease, says Dr Pradeep Chowbey

Symptoms of most cardiac problems include chest pain, difficulty in breathing or shortness of breath and pain or numbness in some parts of the body. Other possible symptoms may include a racing or slow heart-beat, chest pain and dizziness. Cardiac problem is the leading cause of death in adults. The heart disease that takes thousands of lives every year is coronary heart disease.

Morbid or class-3 obesity is dangerous and can cause cardiovascular disease, including heart attack, stroke, heart failure, peripheral vascular disease and arrhythmias. Obesity is a major independent risk factor for heart disease. Narrowing of the arteries is 10 times more common in obese people compared to people of normal weight. Blood clots can also form in narrowed arteries and cause a stroke.

Obesity produces conditions which in turn lead to cardiac problems. Some of these conditions are:

High blood pressure (hypertension):

High blood pressure increases the risk of cardiovascular disease.

High blood cholesterol:

One of the major risk factors for heart disease is high blood cholesterol. Extra cholesterol enters the body when the intake of meat, eggs and dairy products increases.

Physical inactivity:

Exercise burns calories, helps in controlling cholesterol levels and diabetes and may lower blood pressure. Exercise also strengthens the heart muscle and makes the arteries more flexible.

If you are morbidly obese, you are at a high risk of cardiovascular disease. Hence it is essential to know your body mass index (BMI). If your BMI is more than 32.5 it is imperative to consult a bariatric surgeon. Once a person reaches this stage, traditional methods of weight loss do not help. However, people with an ideal BMI count can try the following things at home to keep off the pounds and at the same time avoid chances of developing a cardiac disease:

- Maintain a healthy weight
- Eat less meat
- Stay away from sweetened bottle drinks
- Increase fibre intake
- Exercise regularly

Obesity

30-second bursts of exercise may help fight childhood obesity (New Kerala: 11.1.2011)

New research suggests that short bursts of exercise may be better than long drawn-out PE classes in fighting childhood obesity.

In a study of Scottish schoolkids, researchers found that those who did 30-second sprints interspersed with breaks for just a few minutes produced better results than youngsters exercising more moderately for 30 minutes.

According to experts, this approach could be used in schools to improve the fitness of pupils, with the time saved spent teaching them about health and nutrition.

Professor Julien Baker and Duncan Buchan, from the University of the West of Scotland, conducted tests with teenagers at Holy Cross High School in Hamilton.

The pupils were split into three groups of 25. One group carried out high intensity activity, exercising three times a week for four minutes, with 30 seconds of sprinting followed by 30 seconds of rest.

The next group carried out moderate activity, exercising three times a week for 30 minutes. The last control group just did their usual PE lessons.

At the start and end of the eight-week study, the researchers measured body fat, blood pressure, activity and agility as well as testing blood for signs of good cardiovascular health.

Baker said the short bursts of exercise appeared more effective at improving health.

"The high intensity exercise group exercised for about 80 per cent less time," the Scotsman quoted him as saying.

"But this group improved more than the moderate intensity group.

"There was significantly reduced blood pressure in the high intensity group than the other groups. The blood profiles were better and body fat went down in this group, too," he added.

Obese Teens

Meal Replacements Do Not Help Obese Teens (Med India: 21-12-2010)

A new study by Philadelphia's Children's Hospital concluded that replacement meals to may not help obese teenagers to lose weight. These replacement meals may help shed weight quickly in the initial stages of dieting. However in the long term, these meal replacements are not better than regular standard low calorie diets. Meal replacement products comprising of bars, shakes and other pre-prepared food rations help to control

calorie intake because they contain determined amounts of calories and nutrition. But teenagers might have problems estimating portion sizes so meal replacement program may not be helpful for them.

For the study researchers recruited a group of 113 obese teens and split them into three groups. Every group was assigned a different diet regime. One group was supposed to follow a 1300-1500 calorie diet program for a period of 1 year. The second group was asked to have meal replacement products for 4 months and a low calorie diet for the next 8 months. The third group was put on meal replacement diet for 1 year.

On completion of the study it was noted that in the first phase teenagers on the meal replacement exhibited 6.3% loss in their BMI (Body Mass Index). Those on the low calorie diet had a 3.8% loss in their BMI. However all of them gained weight during the second phase. At the end of 1 year, the average reduction in BMI was 2.8% for the low-cal diet group, 3.9% for meal replacement plus low-cal diet group and 3.4% for the meal replacement-only group. This proved that there was no significant difference in the weight loss among all three groups. This study is published in the journal 'Obesity.'

Obesity

Obesity begins in babies as young as 9 months old: Study(Kerala News: 3.1.2011)

If you think that children are part of the obesity epidemic, then here's something you should know

A new study has revealed that obesity can begin in babies as young as nine months old.

"With the consistent evidence that the percent of overweight children has steadily increased over the past decade, we weren't surprised by the prevalence rates we found in our study, but we were surprised the trend began at such a young age," said lead study author Brian Moss, at the social work school at Wayne State University in Detroit.

The researchers analysed the Early Childhood Longitudinal Study-Birth Cohort data collected on 16,400 American children born in 2001. Of these, 8,900 were nine-months-old and 7,500 were two-years-old.

They found that 31.9 percent of nine-months-old babies and 34.3 percent of two-year-olds were either at risk or obese.

The researchers also found that girls were at lower risk of obesity than boys.

Children, who were Hispanic and from lower-income families, were also found to be at greater risk of being obese than white children, while Asian Americans and Pacific Islanders had lower risk.

"Being in an undesirable weight category at nine months subsequently predisposed children to remain in a less desirable weight category," said Moss.

Childhood obesity expert Joyce Lee, MD, an assistant professor in pediatric endocrinology and health services research at the University of Michigan at Ann Arbor, confirmed that obesity is indeed becoming a problem in increasingly younger children.

"At younger ages, it is critical for parents to watch their child's nutritional intake as this will be the main determinant of their weight status," he said.

"There is no approved 'diet' for children that young, so parents should communicate with their child's health care provider about healthy ways to feed their child," he added.

Obesity

Obesity and cardiac problems (The Times of India: 11.1.2011)

One must maintain a healthy weight, eat less meat, stay away from sweetened bottle drinks, increase fibre intake and exercise regularly to avoid cardiac disease, says Dr Pradeep Chowbey

Symptoms of most cardiac problems include chest pain, difficulty in breathing or shortness of breath and pain or numbness in some parts of the body. Other possible symptoms may include a racing or slow heart-beat, chest pain and dizziness. Cardiac problem is the leading cause of death in adults. The heart disease that takes thousands of lives every year is coronary heart disease.

Morbid or class-3 obesity is dangerous and can cause cardiovascular disease, including heart attack, stroke, heart failure, peripheral vascular disease and arrhythmias. Obesity is a major independent risk factor for heart disease. Narrowing of the arteries is 10 times more common in obese people compared to people of normal weight. Blood clots can also form in narrowed arteries and cause a stroke.

Obesity produces conditions which in turn lead to cardiac problems. Some of these conditions are:

High blood pressure (hypertension):

High blood pressure increases the risk of cardiovascular disease.

High blood cholesterol:

One of the major risk factors for heart disease is high blood cholesterol. Extra cholesterol enters the body when the intake of meat, eggs and dairy products increases.

Physical inactivity:

Exercise burns calories, helps in controlling cholesterol levels and diabetes and may lower blood pressure. Exercise also strengthens the heart muscle and makes the arteries more flexible.

If you are morbidly obese, you are at a high risk of cardiovascular disease. Hence it is essential to know your body mass index (BMI). If your BMI is more than 32.5 it is imperative to consult a bariatric surgeon. Once a person reaches this stage, traditional methods of weight loss do not help. However, people with an ideal BMI count can try the following things at home to keep off the pounds and at the same time avoid chances of developing a cardiac disease:

- Maintain a healthy weight

- Eat less meat

- Stay away from sweetened bottle drinks

- Increase fibre intake

- Exercise regularly

Fat

Fat Associated With Chemical Changes in DNA That May Help Explain Obesity-Related Disease (Science Daily: 24.1.2011)

Fat appears to associate with some distinctive chemical changes in the DNA -- a finding that may help explain why obesity can increase the risk for chronic problems such as cardiovascular disease and diabetes, researchers report.

The finding, published in BMC Medicine, may one day help identify those at risk and reduce it, according to Dr. Xiaoling Wang, genetic epidemiologist at the Medical College of Georgia's Georgia Prevention Institute.

"Losing fat is very difficult; we know that. We also know it causes many diseases so we want to identify and target pathways to reduce those diseases," Wang said.

Fat used to be viewed as essentially padding and a ready energy source but scientists are learning it's more like a factory that makes chemicals and compounds such as hormones and proteins. Studies comparing two groups of obese versus lean teens found higher

levels of chemical change, or methylation, in a portion of the UBASH3A gene and lower levels in part of the TRIM3 gene.

Both genes are known to have roles in regulating the immune system, which is often dysregulated in obese individuals. Dysregulation can result in a level of chronic inflammation that contributes to diseases such as cardiovascular disease, diabetes and cancer. Methylation can impact immune function by affecting gene expression levels which ultimately impacts downstream functions of the proteins produced by genes.

"You need to know disease pathways to find novel medications," Wang said. "We generally know they have a dysregulation of the immune function, but we didn't know the specific site." She believes she found at least two sites in the UBASH3A and TRIM3 gene. Her initial search was broad: a genome-wide screen of seven obese and seven lean teens that enabled her to identify genes most different between the two. She ranked the differences and, in a much larger study of 46 obese and 46 lean controls, looked at the same sites in the top six genes and found again the distinctive methylation pattern in UBASH3A and TRIM3.

Wang now wants to clarify whether fat causes the DNA changes or vice versa and confirm that the changes contribute to the immune dysfunction associated with obesity.

She notes that because obesity does not always lead to related diseases, it's important to have a way to not just intervene, but to identify those most at risk. Factors such as fitness, body shape and environment probably are also predictors for related disease.

"... (T)he public health message of 'eat less and exercise more' appears to have fallen on deaf ears," Drs. Paul W. Franks and Charlotte Ling of Sweden's Skåne University Hospital, Lund University write in an accompanying editorial. "Thus, despite the apparently simple explanation and remedy for obesity, this knowledge is not enough. We are saddled with a challenge, which is to unravel the mechanisms by which obesity emerges and to understand how its presence causes disease and death, with the hope that somewhere within the details hides the solution to the problem." They note that Wang's study provides "tentative evidence" that DNA methylation at the two gene sites may be implicated in obesity-related disease.

Plump (Fat)

Being plump is good for health' (Times of India: 25.1.2011)

Are you a reluctant dieter? Then, it would be a perfect excuse for you, as scientists have claimed that staying fat may be better for your health.

The researchers said the idea that weight is harmful has been “exaggerated” and people who are little heavier may actually live longer. The California University (CU) study that looked at about 350,000 people in the US also suggested that the obese put their health in greater danger when they obsessively try to slim down.

It recommended that people should eat a varied and balanced diet, and take “enjoyable” amounts of exercise — even if they still end up carrying a few extra pounds. The researchers also noted that society’s obsession with dieting is “ineffective” and often leads to people becoming fatter as they crave food and binge, the Daily Mail reported.

Linda Bacon, a CU professor who led the study, claimed there is evidence to show that overweight people live longer than normal. Those who are obese in old age also tend to live longer than elderly people who are thin, they said. They are also more likely to survive certain health conditions, such as type 2 diabetes, heart disease and kidney failure, added the researchers.

Although it’s known that obesity puts people at higher risk of heart disease and other illnesses, the scientists said that “being fat” is not the cause. Instead, they blame poor diet and lack of exercise — which almost always come with obesity.

Artificial Heat

Heaters can add to your bulging waist (The Asian Age :27.1.2011)

Prolonged exposure to comfortable warm temperatures may permanently reduce the body's ability to burn brown fat

Scientists have some chilling news for those using heaters at home -keeping our homes cosy actually prevents us from burning up calories to warm up our bodies.

Modern centrally-heated homes with efficient double glazing are helping to send obesity rates soaring, says a University College London study.

It is an increasing problem across the developed world where average indoor temperatures are constantly rising, the journal Obesity Reviews reports.

Fiona Johnson, who led the study at Oxford, said: "Increased time spent indoors, widespread access to central heating and air conditioning, all contribute to restricting the range of temperatures we experience in daily life."

And its impact on weight is made worse by the extra time we now spend indoors, whether working from home or shopping online, according to the Daily Mail.

Even when we do venture out, it is often via heated cars or other transport to offices and workplaces where the temperature is carefully controlled by air conditioning units.

The research said there was a direct link between "reduced exposure to seasonal cold and increases in obesity in the UK and US."

If the body is already warm, it does not need to convert a "brown" fat known as adipose-tissue into energy to generate heat, the study said.

Brown fat was previously thought to be present only in infants, playing a vital role in keeping them warm, but recent research found it in adults as well.

This latest study suggested that prolonged exposure to comfortable warm temperatures may permanently reduce the body's ability to burn this brown fat.

Population

No Room for Complacency (The Times of India: 13.1.2011)

The state of its population shows that Asia can't afford to rest on its economic gains

UNFPA's State of World Population 2010 and UNDP's Human Development Report 2010 were recently released and there is good and bad news for Asia. The good news is that women are giving birth to fewer children, babies born in most countries survive to celebrate their first birthday and indeed can expect to live longer than any time in history, and contraceptive use is as comparable to the developed world. With a young population, and thus a large number in the productive compared to the dependent ages, Asia is in an ideal position to reap the demographic dividend. And its economic boom is its crowning glory.

But there is bad news too. Asia's averages are misleading, and conveniently cover up the inequities that persist within countries, between regions, between rich and poor, and between men and women. Many parts of Asia have been barely touched by the economic boom, children continue to be undernourished and poorly educated; women continue to deliver babies in their homes, and when they are teenagers; motherhood continues to be a death trap for many. Three disparities drive home the inequities.

First, maternal mortality has fallen impressively, but when we know that almost all maternal deaths are preventable, 330 is hardly an acceptable maternal mortality ratio. Regional disparities are glaring: the UNFPA report highlights that 660 maternal deaths occur per 1,00,000 live births in Laos, 540 in Cambodia, and 450 in India; fewer than half report skilled attendance at delivery.

Disparities between rich and poor are just as stark. Poor women resist delivering in hospitals, fearing hidden costs, disrespectful providers and unhygienic conditions. One of the women we surveyed told us about her daughter-in-law, who died giving birth in India. Recounting the incident she said, "The doctor asked us to personally arrange for blood and some medicine, but it took time and she died before we could." Distance, limited access to blood and supplies, poverty, and physician apathy cost this woman her life. She is not the only one.

Children continue to give birth to children: for every 1,000 adolescent girls, 101 in Nepal, 72 in Bangladesh and 68 in India have already given birth. We know that when girls become pregnant before their bodies and minds are ready to take on the tasks of adulthood, it exposes them and their babies to huge health risks.

Second, although Asia is in a position to harness the demographic dividend, this will not happen without a youth population that is educated, skilled, employed and healthy.

Unfortunately, this is not the case in many settings. In Bangladesh, Myanmar, India, Laos, Nepal and Pakistan, for example, just between one-third and half of girls are in secondary school, a minimum requirement for entering the workforce. Moreover, the demographic dividend does not last forever. Today's youth will be tomorrow's older, less productive dependents. Asia as a whole is simply not ready to reap the demographic dividend.

And finally, the attainment of reproductive rights is unfulfilled. The reproductive rights of women and men continue to be violated in many parts of Asia. Child marriage, outlawed by international conventions, persists in South Asia; in Bangladesh for example, almost four in 10 young women were married before they were 15.

The right to information has been repeatedly violated: sex education is provided in very few countries and, where it is provided, teachers are uncomfortable and the curriculum is so technical that it fails to educate and protect the young. A study in India found that two in five young men and women believed that a woman cannot become pregnant the first time she has sex. No knowledge equals no protection.

The huge unmet need for family planning is yet another telling indicator of how far Asia is from ensuring that couples are able to determine the number and spacing of their children. Inequity in a woman's ability to ensure that all her pregnancies are wanted persist: in Cambodia, Nepal and Pakistan, for example, almost one in three women from the poorest households had an unmet need for contraception, compared to one-fifth or fewer in better off households.

The rights of women and girls are taken away even before they are born by the practice of prenatal sex determination and abortion of female foetuses, a practice that has skewed the sex ratio of populations of many Asian countries. Within marriage and partnerships, women have little say in sexual relations and sexual and physical violence characterises many relationships. And the ability to make decisions and control money and even the freedom to move around their villages elude many women.

Asia has no doubt come a long way from the days of widespread poverty, but as the Human Development Report 2010 emphasises, human development is different from economic growth. Conversely, as we in Asia are experiencing, fast economic growth is not always accompanied by parallel achievements in human development. Asia's progress cannot be measured by its economic laurels, but by the quality of life of each of its 4.2 billion citizens. Governments, donors and civil societies should not be lulled into complacency by the rosy economic picture.

Jejeebhoy and Santhya are, respectively, senior associate and associate at the Population Council, New Delhi.

Pregnancy and Obstetrics

Gynecology

Robotic surgery in gynecology (The Tribune: 12.1.2011)

Rita, a 47-year-old female, went to a hospital with the complaints of profuse menstrual bleeding, pelvic pressure and pain, presumably due to fibroids in the uterus. After an ultrasound examination it was found that her uterus measured 15 cm by 8.5 cm by 10.2 cm. Afraid of the surgical knife, she requested for robotic surgery to remove the fibroid. The total operative time was 2.5 hours. The estimated blood loss was 100 c.c. She went home in a couple of days without any complications. The cost was about Rs 15 lakh. Most others are not so lucky!

Robotics in surgery is an emerging technology which is creating waves in North America and Europe. India, too, is not left behind with at least three health care centres acquiring robots. Robotic surgery is essentially another way of doing laparoscopic surgery albeit with better technical inputs and technology. The scope of robotic gynaecologic procedures using the Da Vinci robotic system ranges from tubal ligation or reversal of ligation to ovarian cystectomy to myomectomy to radical hysterectomy.

The system has an advantage of a three-dimensional field, greater surgical precision, decreased fatigue and tension tremor, as well as added wrist motion for improved dexterity and ease of suturing. But it comes with a heavy price tag. Aggressive marketing by manufacturers and hospitals may lead to unethical practices

Why robot?

When engaging the robot, the surgeon is able to sit in a comfortable position at a robotics console and work by viewing an enhanced three-dimensional image of the patient instead of the two-dimensional image allowed by the traditional laparoscopic approach. There is a real advantage because the robot's arms can rotate 360° in any direction, with none of the restrictions in manoeuvrability that limit the movement of a human hand.

Through tiny 1-2 cm incisions surgeons can operate with greater precision and control, minimising the pain and risk associated with large incisions otherwise required in traditional surgery, while increasing the likelihood of a fast recovery and excellent clinical outcomes. It entails precision, miniaturisation, smaller incisions, decreased blood loss, less pain and quicker healing time.

Robotic surgeons offer a minimally invasive procedure for the treatment of cancer and other conditions involving the female genital tract. These conditions include the following:

1 Endometrial and cervical malignancies

1 Ovarian cancer

1 Complex gynaecological problems

One in three women will have a hysterectomy before she turns 60. While no woman wants to face surgery, today the vast majority of gynaecological conditions — from endometriosis to uterine fibroids, heavy menstrual bleeding to cancer - can be treated effectively without a big incision. With Da Vinci surgery, hysterectomy requires only a few small incisions so that you can get back to life faster, within days rather than the usual weeks required with traditional surgery. If you have been putting off surgery to resolve a gynaecologic problem for fear of the knife, it's time to ask your doctor about robotic surgery if you have money.

Robotic surgery may have to wait in India

There is no doubt that robot-assisted surgery has been very popular in effective and handling cardio-thoracic and prostate problems. Its entry into the treatment of benign and cancerous conditions in the gynaecology area is relatively new. It provides greater safety and precision but comes at a heavy cost and not all cases/conditions can be treated with this technology. The phrase “robot surgery” is so catchy that it is very easy to sell this concept to the unsuspecting public. Also one has to take into account the unique socio-economic conditions in India, where health care affordability should be the aim. While the rich can afford, it may remain a dream in the area of community gynaecology.

Pregnancy

Pregnancy-related morning sickness could be hereditary (New Kerala News: 27-12-2010)

Hyperemesis gravidarum (HG) is an extreme form of nausea and vomiting that endangers their lives and often forces them to reluctantly terminate their pregnancies.

Researchers from UCLA and the University of Southern California traced both the maternal and paternal family histories of women with HG and found not only that the condition could be genetic but that women with sisters who had HG could have a more than 17-fold risk of experiencing the debilitating condition too.

"Pregnant women with a family history of extreme nausea in pregnancy should be aware that they may have it too, and health care providers should take a family history of nausea in pregnancy at the first visit with an obstetrician," said lead author Marlena Fejzo of UCLA.

"The high familial prevalence strongly suggests a genetic component to this condition," added Fejzo.

Researchers surveyed about 650 participants for the joint study on the genetics and epidemiology of HG.

Women who had been diagnosed with HG and treated with IV fluids were asked to recruit, as a control, a friend who had at least two pregnancies lasting more than 27 weeks and who had not had HG.

The researchers then compared the family histories of extreme nausea in the women with HG with those of the controls. The researchers found that women with HG were more than five times as likely as the controls to report having a sister with severe morning sickness or HG.

When including sisters who had experienced HG - and excluding sisters with just severe morning sickness - study participants with HG had 17.3 times the odds of also having the condition.

In addition, 33 percent of the women with HG reported having an affected mother, compared with only 8 percent of the controls.

Pregnancy

Most US Pregnant Women Have Cocktail Of Chemicals Inside Them(Medical News Today: 17.1.2011)

The vast majority of pregnant mothers in the USA have multiple chemicals inside them, including some that have been banned for over thirty years, Californian researchers revealed in Environmental Health Perspectives. The authors expressed surprise that so many chemicals were found in pregnant women, bearing in mind that there is very little we know about what impact they may have on the mother and developing baby.

This is the first study to count how many chemicals American pregnant mothers are exposed to, the authors added.

The research team assessed data from NHANES (National Health and Nutritional Examination Survey) 2003-2004 on 268 pregnant mothers - a nationally representative sample of the American population.

The scientists gathered data on 163 chemicals and found the following chemicals in 99% of pregnant women:

PCBs (polychlorinated biphenyls) - a mixture of up to 209 chlorinated chemicals. No longer produced in the USA, but still exist in the environment. They have been used as coolants and lubricants in capacitors, transformers and other electrical equipment. Goods manufactured before 1977 in America may contain PCBs. People exposed to large amounts can suffer from skin conditions, such as acne and rashes. Some studies have linked PCB exposure to a higher risk of developing some cancers. Pregnant women exposed to high levels have been found to have newborns who weigh less than normal. Some behavioral and cognitive problems were found in babies born to mothers who ate PCB-contaminated fish.

Organochlorine pesticides - DDT (dichlorodiphenyltrichloroethane) is an organochlorine pesticide which was banned in the USA in 1972.

PFCs (perfluorinated compounds) - these compounds have unique properties to make materials stain, oil, and water resistant. They can be used to make fluoropolymers, such as Teflon, perfluorooctanesulfonic acid used in the semiconductor industry - Scotchguard (3M formula) contains PFCs, as well as 3M's former fire-fighting foam mixture. PFCs have many other applications.

Phenols - some phenols may possess endocrine disrupting and estrogenic activities.

PBDEs (polybrominated diphenyl ethers) - compounds used as flame retardants, banned in California and many US states.

Phthalates - compounds added to plastic to make them more flexible, transparent and durable. The USA, Canada and the European Union are phasing them out due to health concerns.

PAHs (polycyclic aromatic hydrocarbons) - potent atmospheric pollutants. Some compounds have been identified as carcinogenic (cause cancer), mutagenic (can alter genetic material), and teratogenic (can cause abnormalities of physiological development).

Perchlorate - salts derived from perchloric acid (HClO_4) which can occur both naturally and through manufacturing. Used in medicine for over five decades to treat disorders of the thyroid. Used widely in the pyrotechnics industry. It is also a component of rocket fuel. It can undermine human health by interfering with iodine uptake into the thyroid gland.

96% of the individuals tested were found to be carrying BPA (Bisphenol A). BPA is a compound used in industry to make plastic clear and hard. It can also be found in epoxy resins used to line the inside of food and drink cans. Studies have shown that babies inside the womb exposed to BPA have a higher risk of brain developmental problems, as well as developing cancer later on during their lives.

Plastic Chemicals - Order premium quality products from the Speciality Chemicals Company - www.lanxess.in

5 Ways to Help Baby Sleep - Tear-free tips to help baby sleep No obligation, privacy guaranteed - www.SleepThroughNight.com

Restless Leg Syndrome? - Discover This Little Known Cure For Your "Night Time" Restless Legs - www.AllCalm.com

The authors stress that their aim was to identify how many chemicals pregnant mothers were carrying, and not to assess what effect they might have on the mother's and baby's health.

Tracey Woodruff, PhD, MPH, director of the UCSF Program on Reproductive Health and the Environment, said:

"It was surprising and concerning to find so many chemicals in pregnant women without fully knowing the implications for pregnancy. Several of these chemicals in pregnant women were at the same concentrations that have been associated with negative effects in children from other studies. In addition, exposure to multiple chemicals that can increase the risk of the same adverse health outcome can have a greater impact than exposure to just one chemical."

Previous research has shown that exposure to some chemicals during fetal development can:

- Increase the risk of premature birth

- Raise the likelihood of being born with birth defects

- Increase childhood morbidity

- Make it more likely that the baby develops certain diseases later on in life

- Influence the baby's lifespan

Many chemicals can cross the placenta and get into the fetus. Urine and serum studies of the mother have identified chemicals which then appear in the amniotic fluid, meconium and cord blood, the authors added.

Woodruff said:

"Our findings indicate several courses of action. First, additional research is needed to identify dominant sources of exposure to chemicals and how they influence our health, especially in reproduction. Second, while individuals can take actions in their everyday lives to protect themselves from toxins, significant, long-lasting change only will result from a systemic approach that includes proactive government policies."

Pregnancy Guide

The Asian Age: 19;1.2011

Pregnancy guide

Dr MAMTA MURANJAN

Birth defects are errors in the development of a body structure or organ in the baby. As per the National Neonatal-Prenatal database report, birth defects rank fourth as a cause of death in live-born babies and second amongst the causes of stillbirths in India (estimated five lakh babies every year). Paying attention to your health is very important during pregnancy. Below is a list to follow for pregnant ladies.



Do's

- ▶ Eat a nutritious diet, indulge in light exercises and take adequate rest.
- ▶ Include items rich in folic acid such as chickpeas, spinach, cabbage, cauliflower and nuts in the daily diet. It reduces the risk of neural defects in babies.
- ▶ If a previous child has a neural tube defect, the recommended intake of folic acid is four mg.
- ▶ Screen yourself to detect Down syndrome in the baby.
- ▶ Test for diabetes during pregnancy.
- ▶ Consult the obstetrician before consuming a drug.
- ▶ Have an ultrasonography routinely performed.

Don'ts

- ▶ Avoid unnecessary consumption of drugs for minor or self-limiting problems.
- ▶ Avoid excessive consumption of Vitamin A or exposure to isotretinoin (constituent of medications used to treat acne or psoriasis).
- ▶ Avoid exposure to X-rays in first few months.
- ▶ Avoid close contact with cats during pregnancy.

The writer is a clinical geneticist at the Hinduja Hospital, Mumbai

Pregnancy

Dieting in pregnancy can lower baby's IQ New Kerala: 1`9.1.2011)

Women may be risking a low intelligence quotient (IQ) for their unborn babies by dieting during pregnancy, a new research indicates.

Cutting back on vital nutrients and calories in the first half of pregnancy stunts the development of an unborn child's brain, says a new study.

Although it was carried out on primates, researchers say the same findings are likely to be true for women, reports the journal Proceedings of the National Academy of Sciences.

Thomas McDonald of the University of Texas Health Science Centre US, who conducted the study, said: "This study is a further demonstration of the importance of good maternal health and diet."

"It supports the view that poor diets in pregnancy can alter development of foetal organs, in this case the brain, in ways that will have lifetime effects on offspring, potentially lowering IQ and predisposing to behavioural problems."

Past studies have shown that severe diets, famines and food shortages during pregnancy can harm unborn babies, according to the Daily Mail.

But the new study looked at the sort of "moderate dieting" typical of women in Britain and America. They compared two groups of baboon mothers at a primate research centre in San Antonio, US.

One group was allowed to eat as much as they wanted during the first half of pregnancy, while the other group was fed 30 percent less, a level of nutrition similar to what many prospective mothers experience, the researchers said.

In the second group, cells did not divide as much as they should and connections between neurons were not made.

Pregnancy

Study Shows That The Fetal Brain Is Vulnerable To Moderate Decreases In Maternal Nutrition (Medical News today: 20.1.2011)

Eating less during early pregnancy impaired fetal brain development in a nonhuman primate model, researchers from The University of Texas Health Science Center San Antonio report.

The researchers found decreased formation of cell-to-cell connections, cell division and amounts of growth factors in the fetuses of mothers fed a reduced diet during the first half of pregnancy. "This is a critical time window when many of the neurons as well as the supporting cells in the brain are born," said Peter Nathanielsz, M.D., Ph.D., director of the Center for Pregnancy and Newborn Research in the Health Science Center School of Medicine.

The study included collaborators at the Southwest Foundation for Biomedical Research (SFBR) in San Antonio and Friedrich Schiller University in Jena, Germany. The team compared two groups of baboon mothers located at SFBR's Southwest National Primate Research Center. One group ate as much as they wanted during the first half of pregnancy while the other group was fed 30 percent less, a level of nutrition similar to what many prospective mothers in the U.S. experience.

Hundreds of genes involved

"Our collaboration allowed us to determine that the nutritional environment impacts the fetal brain at both the cellular and molecular levels," said SFBR's Laura Cox, Ph.D. "That is, we found dysregulation of hundreds of genes, many of which are known to be key regulators in cell growth and development, indicating that nutrition plays a major role during fetal development by regulating the basic cellular machinery."

Moderate versus severe reduction

It is known that marked nutrient restriction, such as in famine conditions, adversely affects development of the fetal brain. Senior author Thomas McDonald, Ph.D., also of the Health Science Center, said the study "is the first demonstration of major effects caused by the levels of food insecurity that occur in sections of U.S. society and demonstrates the vulnerability of the fetus to moderate reduction in nutrients."

Dr. Nathanielsz noted:

In teenage pregnancy, the developing fetus is deprived of nutrients by the needs of the growing mother;

In pregnancies late in reproductive life, a woman's arteries are stiffer and the blood supply to the uterus decreases, inevitably affecting nutrient delivery to the fetus;

Diseases such as preeclampsia or high blood pressure in pregnancy can lead to decreased function of the placenta with decreased delivery of nutrients to the fetus.

'Lifetime effects'

"This study is a further demonstration of the importance of good maternal health and diet," Dr. McDonald said. "It supports the view that poor diets in pregnancy can alter

development of fetal organs, in this case the brain, in ways that will have lifetime effects on offspring, potentially lowering IQ and predisposing to behavioral problems."

Developmental programming of lifetime health has been shown to play a role in later development of obesity, diabetes and heart disease. In light of this new finding, research should focus on effects of developmental programming in the context of autism, depression, schizophrenia and other brain disorders.

Mother's protection

The study, published this week in Proceedings of the National Academy of Sciences, also forces researchers to review the commonly held notion that during pregnancy the mother is able to protect the fetus from dietary challenges such as poor nutrition, Dr. McDonald said.

The nonhuman primate model's brain developmental stages are very close to those of human fetuses, the researchers noted. Most previous research in this area was conducted in rats.

Obese pregnant women

Obese pregnant women 'more likely to have complicated births' New Kerala: 27.1.2011)

A new study at Liverpool University has found that overweight pregnant women are more likely to be overdue and have more complicated births.

Women who were overweight or obese before they conceived were more likely to have a longer pregnancy, need to have labour induced artificially and to go on to require caesarean section births.

For the study, the research team examined the records of almost 30,000 women who gave birth over four years.

Three in ten obese women were overdue, defined as still pregnant ten days after their due date, compared with around two in ten of healthy weight women.

The study found more than a third of obese women had their labour induced, compared with just over a quarter of normal weight women.

In addition almost three in ten obese women had an induction of labour, which later resulted in a caesarean delivery compared to less than two in ten normal weight women.

"Maternal obesity has become one of the most commonly occurring risk factors in obstetric practice including greater risk of prolonged pregnancy," the Telegraph quoted Dr Sarah Arrowsmith, from the University of Liverpool's Institute of Translational Medicine, and lead author on the paper as saying.

The study has been published in the British Journal of Obstetrics and Gynaecology.

Sleep Disorder

Metabolic Disorders

Shift Work and Metabolic Disorders Medical News Today: 24-12-2010)

Scientists from Kiel and Odense/Denmark are currently jointly researching the influence that working shifts, the quality of sleep and nutrition has on metabolic disorders and gene activity. The Department of Human Biology in the Zoological Institute at Kiel University, the Institute of Human Genetics at the University Medical Center Schleswig-Holstein, Campus Kiel and the University of Southern Denmark in Odense are participating in the new project: "Sleep, work and their consequences for human metabolic disorders". The researchers are receiving support amounting to EUR 730,000 over a period of three years from the European Union as part of the INTERREG 4A South Denmark-Schleswig-K.E.R.N. programme, using funds from the European Regional Development Fund. The long-term objective of this study is to develop preventative measures in order to reduce the risk of metabolic and sleep disorders developing in future.

People who work shifts are not able to comply with the natural sleep/wake rhythm based on the cycle of day and night. Their internal body clock becomes unbalanced. The consequences of this can be a variety of metabolic disorders which, on a long-term basis, can be accompanied by a range of illnesses, psychological disorders and even the inability to work. In order to be able to investigate the extent of the changes to the human body and its cells which result from shift work, pairs of twins from Denmark are being examined using molecular-biological methods. From each pair, one twin works shifts. According to the Kiel human geneticist, Dr. Ole Ammerpohl, "The advantage of examining identical twins is that both are practically genetically alike and the effects of lifestyle can be identified more easily. That is why it is essential to work together with the national Danish twins register, which has been analysing twins with regard to medical and professional aspects for many years."

The effects of working shifts may well be far more fundamental than previously assumed. They may have a direct impact on our genetic make-up and the genes contained within this material. "Gene activity is controlled by small switches on the DNA, known as DNA methylation", explains Ammerpohl. "This DNA methylation adjusts to suit changes in environmental conditions and can even be passed on to subsequent generations."

Alongside shift work itself, nutritional and sleeping patterns also aid the development of metabolic disorders. Therefore the project does not only include DNA methylation and genetic variations, it also covers the twins' nutritional behaviour, the quality of sleep obtained as well as hormone and blood counts (blood sugar, blood lipids, etc.). For example, whether the levels of the stress-hormone "cortisol" change in people as a result of working shifts is being tested. All the features mentioned above are placed in relation

to each other at the university in Odense and evaluated using special mathematical models.

Right up until a few generations ago, people got up at daybreak and went to bed when it got dark. "In order to adjust to this, our bodies have evolved over centuries to develop a sophisticated system of transmitters which control the sleep-wake cycle and enable the body to regenerate sufficiently", explains Professor Manuela Dittmar from Kiel University. However, over the last few decades our lifestyles have changed drastically. Working hours are no longer based on how long the day lasts. "More and more people are required to work shifts. The consequences for those affected include a higher incidence of typical civilisation diseases right up to burn-out syndrome and early disability", according to Dittmar.

Sleep

Practising sleep hygiene is a must'(World Newspaper: 3.1.2011)

I have a history of depression in my family and am very scared that I might suffer from clinical depression in future too. As a result, whenever I am blue about something, I panic and try to block out issues that cause any kind of pain. I run away from people and situations that may cause any emotional upheaval. I find it very difficult to open up to new relationships or career challenges or any kind of risk for that matter. Please help me change this.

Javed Sana, Bangalore

You are very well-informed. Yes, there is a risk of depression if there is family history. But worrying about it is not the solution. It is perfectly normal for a person to be depressed because of the stress we are exposed to on a daily basis. Both genetics and your social environment play a part in this. It is important not to run away from difficult situations. Address them head on, whether a work-related issue or a relationship problem. You learn the problem-solving techniques that way. This will give you more confidence and help you overcome difficulties.

I broke up with my ex-boyfriend about a year ago. I do not love him and I certainly do not want to get back with him. But I still find myself checking his Facebook and Twitter updates regularly and feel very upset when I see him with another woman. This is affecting my life and is preventing me from moving on. How do I get over this?

Anshika Sharma, Bangalore

You are going through a very difficult phase. Although we would like to think we can switch our mind on and off like a computer, our emotions don't always obey us. I feel you still have very strong feelings which you refuse to acknowledge. The first step here is to accept that the feelings exist. And then work through what led to the break-up. There probably is a hope somewhere that things may work out again. If the relationship is worth pursuing, look at it and evaluate whether professional help can revive it. In the

meanwhile, focus on your life and think positively about the future — both in terms of career and a fulfilling personal life.

Sleep disorders

Study examines socio-economic consequences of sleep disorders (New Kerala: 14.1.2011)

A new study at the University of Copenhagen and the Danish Institute for Health Services Research has examined the socio-economic consequences of the sleep disorder hypersomnia, revealing that it has far-reaching consequences for both the individual and society as a whole.

People suffering from the disorder are extremely sleepy and need to take a nap several times a day.

Hypersomnia is often a symptom of sleep disorders such as narcolepsy, sleep apnoea, restless leg syndrome, violent snoring and/or obesity-related breathing difficulties, explains Professor of Clinical Neurophysiology Poul Jennum from the Center for Healthy Aging at the University of Copenhagen.

The study shows that people who e.g. snore violently but especially those who suffer from sleep apnoea, narcolepsy and obesity-related breathing difficulties use the health services more frequently, take more medicine, and are more frequently unemployed. The more serious the sleep disorder the higher the socio-economic cost.

The researchers demonstrated that hypersomnia patients received state benefits more often than healthy subjects and took state subsidised medicine more frequently. The study has highlighted the high costs that have arisen, especially those born by society and which is largely due to frequent absence from the work force and lower incomes among the sick.

They also found an increase in the intake of medication, a higher rate of hospital admissions, and 30pc more unemployment when the disease went undiagnosed and untreated. There is, however, significant potential for better diagnosis and treatment.

"We have gotten better in the last few years at diagnosing and treating hypersomnia and the underlying diseases," explained Poul Jennum.

This can be a help to patients because we know that there are a lot of people who go around incredibly tired during the day who do suffer from hypersomnia, but have never been diagnosed or discovered the reason for their tiredness. It's clear that those who suffer from hypersomnia are more often ill and where hypersomnia is chronic, the economic costs to society can be quite considerable.

That's why it is essential that people with the disorder have access to a system of treatment - otherwise the illness can affect their education, ability to work and thus their economic circumstances and health.

Sleep

Room Light Before Bedtime May Impact Sleep Quality, Blood Pressure and Diabetes Risk (Science Daily: 14.1.2011)

According to a recent study accepted for publication in The Endocrine Society's Journal of Clinical Endocrinology & Metabolism (JCEM), exposure to electrical light between dusk and bedtime strongly suppresses melatonin levels and may impact physiologic processes regulated by melatonin signaling, such as sleepiness, thermoregulation, blood pressure and glucose homeostasis.

Melatonin is a hormone produced at night by the pineal gland in the brain. In addition to its role in regulating the sleep-wake cycle, melatonin has been shown to lower blood pressure and body temperature and has also been explored as a treatment option for insomnia, hypertension and cancer. In modern society, people are routinely exposed to electrical lighting during evening hours to partake in work, recreational and social activities. This study sought to understand whether exposure to room light in the late evening may inhibit melatonin production.

"On a daily basis, millions of people choose to keep the lights on prior to bedtime and during the usual hours of sleep," said Joshua Gooley, PhD, of Brigham and Women's Hospital and Harvard Medical School in Boston, Mass. and lead author of the study. "Our study shows that this exposure to indoor light has a strong suppressive effect on the hormone melatonin. This could, in turn, have effects on sleep quality and the body's ability to regulate body temperature, blood pressure and glucose levels."

In this study, researchers evaluated 116 healthy volunteers aged 18-30 years who were exposed to room light or dim light in the eight hours preceding bedtime for five consecutive days. An intravenous catheter was inserted into the forearms of study participants for continuous collection of blood plasma every 30-60 minutes for melatonin measurements. Results showed exposure to room light before bedtime shortened melatonin duration by about 90 minutes when compared to dim light exposure. Furthermore, exposure to room light during the usual hours of sleep suppressed melatonin by greater than 50 percent.

"Given that chronic light suppression of melatonin has been hypothesized to increase relative risk for some types of cancer and that melatonin receptor genes have been linked to type 2 diabetes, our findings could have important health implications for shift workers who are exposed to indoor light at night over the course of many years," said Gooley. "Further research is still needed to both substantiate melatonin suppression as a

significant risk factor for breast cancer and determine the mechanisms by which melatonin regulates glucose metabolism."

Other researchers working on the study include: Kyle Chamberlain of the University of Surrey in the United Kingdom; and Kurt Smith, Sat Bir Khalsa, Shantha Rajaratnam, Eliza Van Reen, Jamie Zeitzer, Charles Czeisler and Steven Lockley of Brigham and Women's Hospital and Harvard Medical School in Boston, Mass.

Sleep best way to absorb knowledge (New Kerala: 27.1.2011)

There is some cheering news for students preparing for exams. They can memorise new knowledge by just going to sleep.

Researchers in Germany found that the brain is better during sleep than during wakefulness at resisting attempts to scramble or corrupt a recent memory.

Their study illuminates the complex process by which we store and retrieve acquired information -- learning, in short, the journal Nature Neuroscience reports.

Fresh memories, stored temporarily in a region of the brain called the hippocampus, do not gel immediately, earlier research showed.

It was also known that reactivation of those memories soon after learning plays a crucial role in their transfer to more permanent storage in the brain's 'hard drive,' the neocortex, according to the Daily Mail.

During wakefulness, however, this period of reactivation renders the memories more fragile. Learning a second poem at this juncture, for example, will likely make it harder to commit the first one to deep memory.

Susanne Diekelmann of the University of Lubeck, Germany, who conducted the study said: "The positive impact of short periods of sleep on memory consolidation could have implications for memory-intensive activities such as language training."

Twenty-four volunteers were asked to memorise 15 pairs of cards showing pictures of animals and everyday objects. While performing the exercise, they were exposed to a slightly unpleasant odour.

Forty minutes later, half the subjects who had stayed awake were asked to learn a second, slightly different pattern of cards.

Just before starting, they were again made to smell the same odour, designed to trigger their memory of the first exercise.

Both groups were then tested on the original task. The sleep group performed significantly better, retaining on an average 85 percent of the patterns, compared to 60 percent for those who remained awake.

Good night's sleep

Lack of good night's sleep a major health concern (New Kerala:28.1.2011)

Almost two-thirds of people struggle to get a good night's rest, which according to a British research, constitutes a major public health concern.

Some 60 percent adults admit rarely getting the recommended six or seven hours of sleep every night.

More than a third suffer from insomnia, and many have battled with the condition for years. Doctors warn that sleeplessness leads to depression, lack of concentration and an inability to carry out simple tasks.

According to the findings of a major report, insomniacs are four times more likely to suffer from relationship problems, according to the Daily Mail.

They are also three times more likely to have difficulties concentrating or be in a bad mood and twice as likely to have energy slumps.

A quarter of adults have other sleep-related problems such as teeth grinding or sleep apnea - a disorder characterised by abnormal pauses in breathing, which causes sufferers to wake up in the night.

Just 39 percent of people sleep well, according to the survey of 5,300 by the Mental Health Foundation in the UK.

It says children should be taught the health risks of lack of sleep at school and also recommends GPs are trained to better diagnose those with problems.

Andrew McCulloch of the Mental Health Foundation said: "Sleep has for too long been neglected as a major influence on the physical and mental health of the nation. It is crucial we treat the issue of sleep problems as the major public health concern it is."

Experts say adults need at least five hours' uninterrupted sleep every day to properly concentrate and function.

SleepCare Solutions

SleepCare Solutions launches sleep disorder treatment facility(New Kerala:28.1.2011)

The country's first facility to treat sleep disorders has been set up here by the Hyderabad-based SleepCare Solutions (SCS) in collaboration with Philips Respironics, and plans are afoot for 25 more state-of-the-art centres.

With an overwhelming majority of Indians facing sleep disorders, the facility has come up in consonance with the guidelines of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the American Academy of Sleep Medicine.

The firm plans to set up 25 centres over the next two years at a cost of Rs.20 crore. While 15 centres will come up in India, the rest will be located in Middle East and South East Asia, announced Lavanya Gali, medical director, SCS.

Set up at a cost of Rs.1 crore, the facility in Hyderabad has three beds and two portable testing devices for those who can't visit the centre.

"We are committed to playing a major role to solve the sleep disorder problems facing the Indian subcontinent by combining Philips medical technology and SleepCare sleep medicine know-how," she said at a press conference.

The firm will be opening three new centres at Secunderabad, Bangalore and Pune in the next six months.

The facility offers comprehensive approach for the diagnosis and treatment of adult sleep disorders using the latest technology and therapeutic options.

Vamsi Maddipatla, director and president of SleepCare Solutions, said the SleepCare facility would charge Rs.7,500 to Rs.12,500 for sleep study while the CPAP developed by Philips Respironics costs Rs.15,000 to Rs.60,000. This device helps the patients with obstructive sleep apnea.

A Philips Sleep Survey, conducted in December 2009 by The Nielsen Company showed that 93 percent of Indians are sleep deprived, getting less than the eight hours of sleep they need per day.

The value of the global market for sleep aids is estimated at USD 25 billion in 2009 and is expected to increase to more than USD 33 billion in 2014.

Smoking

Smoking may worsen cancer patient pain (World Newspaper: 23-12-2010)

Cancer patients who continue to smoke despite their diagnosis experience greater pain than non-smokers, according to a new study.

Researchers at Texas A&M University found that for a wide range of cancer types and for cancers in stages I to IV, smoking was associated with increased pain severity and the extent to which pain interfered with a patient's daily routine.

In their cross-sectional study, investigators surveyed 224 patients with a range of cancer diagnosis.

Patients completed self-report measures of pain severity, pain-related distress, and pain-related interference, as well as a demographics questionnaire.

Patients were asked to rate their perceived severity of bodily pain and the degree to which pain interfered with their daily routine.

Current smokers experienced more severe pain than never smokers, and also reported more interference from pain than either never smokers or former smokers.

Among former smokers, there was an inverse relation between pain and the number of years since quitting, suggesting that quitting smoking may reduce pain over time.

Smoking

Smoking may worsen cancer patients' pain (New Kerala: 22-12-2010)

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Electronic cigarettes

Electronic cigarettes pose health risks (The Tribune: 5.1.2011)

Electronic cigarettes, which are increasingly used worldwide, are unsafe and pose health risks, according to a new study. Researchers at the University of California, Riverside, evaluated five e-cigarette brands and found design flaws, lack of adequate labeling, and several concerns about quality control and health issues. They conclude that e-cigarettes are potentially harmful and urge regulators to consider removing e-cigarettes from the market until their safety is adequately evaluated. Unlike conventional cigarettes, which burn tobacco, e-cigarettes vaporize nicotine, along with other compounds present in the cartridge, in the form of aerosol created by heating, but do not produce the thousands of chemicals and toxicants created by tobacco combustion. Nothing is known, however, about the chemicals present in the aerosolized vapours emanating from e-cigarettes.

Smoking

Studies Assess Smoking Nondisclosure, Miscarriage Risk During Pregnancy(Medical News Today: 7.1.2011)

Two recently published studies examined health concerns related to smoking during pregnancy. Summaries appear below.

Admitting smoking: Twenty-three percent of women who smoke during pregnancy deny it, compared with 9% of female smokers who are not pregnant, according to a Centers for Disease Control and Prevention study published in the American Journal of Epidemiology, Reuters reports. The study used a health questionnaire and a blood test measuring levels of cotinine, a nicotine byproduct, to detect whether women disclosed their smoking. Among pregnant women who smoked, participants who were ages 20 through 24 were most likely to deny smoking (Reuters, 12/31).

~ Miscarriage: Pregnant women who smoke at least 20 cigarettes per day are more than twice as likely as non-smokers to miscarry in the first trimester, according to a Japanese study published in Human Reproduction, Reuters reports. Although smoking during pregnancy has been linked with stillbirth, preterm delivery and low birthweight, studies have reached "conflicting conclusions" on whether the habit contributes to miscarriage risk, according to Reuters. In the new study of pregnancy records for 1,300 Japanese women, researchers found that 7% of smokers who experienced a miscarriage smoked at least 20 cigarettes per day, compared with 4% of women who delivered

Smoking around 4 or 5-yr-olds could raise their BP(New Kerala: 11.1.2011)

The study is the first to show that breathing tobacco smoke increases the blood pressure of children as young as 4 or 5 years old.

"Parental smoking is not only negative for children's lung function, but poses a risk for their future cardiovascular health," said Giacomo D. Simonetti, first author of the study at the University of Heidelberg in Germany.

Children with a smoking parent were 21 percent more likely to have systolic blood pressure (the top number in a reading, measured as the heart contracts) in the highest 15 percent, even after adjusting for other heart disease risk factors, such as birth weight, body mass index, and hypertension in the parents.

"Passive smoking increased the risk of having blood pressure at the upper end of normal, and some of these children already had high blood pressure," said Simonetti.

Smoking by mothers had a larger impact than fathers smoking, probably because more of their smoking was done in the home while fathers smoked more at their workplaces, said researchers.

The study findings suggest that encouraging strictly smoke-free environments, specifically at home, may help preserve cardiovascular health not only in adults but also in children, said researchers.

The study was published in the *Circulation: Journal of the American Heart Association*.

Smoking

'Thirdhand Smoke' May Be Bigger Health Hazard Than Previously Believed (Science Daily : 13.1.2011)

Scientists are reporting that so-called "thirdhand smoke" -- the invisible remains of cigarette smoke that deposits on carpeting, clothing, furniture and other surfaces -- may be even more of a health hazard than previously believed. The study, published in ACS' journal, *Environmental Science & Technology*, extends the known health risks of tobacco among people who do not smoke but encounter the smoke exhaled by smokers or released by smoldering cigarette butts.

Yael Dubowski and colleagues note that thirdhand smoke is a newly recognized contributor to the health risks of tobacco and indoor air pollution. Studies show that that nicotine in thirdhand smoke can react with the ozone in indoor air and surfaces like clothing and furniture, to form other pollutants. Exposure to them can occur to babies crawling on the carpet, people napping on the sofa, or people eating food tainted by thirdhand smoke.

In an effort to learn more about thirdhand smoke, the scientists studied interactions between nicotine and indoor air on a variety of different materials, including cellulose (a component of wood furniture), cotton, and paper to simulate typical indoor surfaces. They found that nicotine interacts with ozone, in indoor air, to form potentially toxic pollutants on these surfaces. "Given the toxicity of some of the identified products and that small particles may contribute to adverse health effects, the present study indicates that exposure to [thirdhand smoke] may pose additional health risks,"

Smoking

Smoking violation detected most in Bhubaneswar (The Asian Age: 13.1.2011)

The temple city Bhubaneswar, the capital of Orissa, is claimed to have recorded highest detection of smoking ban law violators in the country. The local Bhubaneswar-Cuttack commissionerate of police has detected at least 6,000 violators between April and

December 2010 and realised penalty amount worth `6,89,450 from them. "The Control of Tobacco Products Act (COTPA) which came into existence in 2008 in the form of Prohibition of Smoking in Public Places Rules 2008 is being strictly enforced in the areas under the jurisdiction of Bhubaneswar-Cuttack commissionerate. The detection rate and realisation of penalty amount is the highest in the country," commissioner of police (CP), B.K. Sharma said here on Wednesday. Addressing a press conference here, Mr Sharma said the city police was committed to ensure the state government's promise to make Bhubaneswar a smoking free city in the country.

As it is seen, the cases of smoking in public places in the city have gone down drastically after the police enforced the law in true letter and spirit.

The CP, while throwing lights on accident figures under the commissionerate area, said at least 299 people had died in 2010 as against 274 in the previous year. The share of the twowheelers in the accidents was 55, while trucks, buses, unknown and other sources contributed 79, 32, 28 and 105, respectively. Most of the two-wheeler accident victims were detected as youth riding high-speed bikes.

Mr Sharma said the commissionerate of police had got evidences about running of high-profile and organised sex rackets in the city and it was working out a concrete blue-print to control the immoral trafficking act.

Smoking

Phone Chats help smokers quit: Study (The Asian Age: 13.1.2011)

Trying to quit smoking as part of New Year's resolutions?

Personalized phone counseling along with Webbased guidance may help, according to a study.

About one in five adults in the U.S. smokes, and about half of those who don't quit will die from the habit, according to the Centers for Disease Control and Preventing, which also estimates that smoking costs the economy \$183 billion each year.

Smokers who got phone calls from experienced counselors and took part in a Web-based cessation program had nearly double the quit rates after 18 months of smokers who just used the Web program, according to a study led by Amanda Graham, director for research development at the Schroeder Institute for Tobacco Research and Policy Studies at the American Legacy Foundation. "This is one of the few large trials that have looked at the internet and telephone counseling combined," Graham told Reuters Health in an interview about the study, published in the Archives of Internal Medicine.

U.S. smoking rates have declined dramatically, from about 30 percent of the population in 1985, but most smokers still make multiple attempts before quitting successfully.

Of all the people who try to quit without medication or counseling, fewer than 5 percent actually succeed, according to the National Cancer Institute.

Telephone counseling has proved to be one of the more helpful interventions, the study authors noted, and many phone counseling programs now offer an internet component. The current study used QuitNet.com, a website established in 1995 that has more than 60,000 monthly users.

While basic membership is free, the premium version is \$99.95 a year. One of the study's authors was a consultant to the site's owner.

Researchers randomly assigned about 2,000 smokers to one of three groups -those who'd receive phone counseling plus a premium QuitNet membership that let them set quit dates and track their motivations, those who got just the premium QuitNet membership, and those who used a static website created for the study that offered general advice on quitting. After 18 months, 15 percent of the phone and premium net program participants reported not smoking since the start of the study, compared to 8 percent of the premium program users and 6 percent of the basic program users.

"These were significant differences, even though they may look small," said Victor Strecher, professor of public health at the University of Michigan in Ann Arbor, who was not involved in the study.

In the study, five calls from a telephone counselor were concentrated during the first month of the smokers' attempt to quit, a time when they were most prone to relapse. Strecher said he thought that having to attend counseling sessions in person or receiving too many phone calls might be off-putting, but that the targeted calls provided just enough extra encouragement. "Smokers tend to be mavericks," he said, noting that for this reason they often don't respond to an overly aggressive quitting program. But being able to use the Web at will, along with an occasional phone call, works well. -- Reuters

Smoking

Roll-your-own smokers more addicted: Study (World Newspaper: 14.1.2011)

New research has suggested that people who roll their own cigarettes are more addicted than those who smoke the readymade variety.

Amy Lewis of the Victoria University has found that cigarettes contain a number of addictive elements within the tar, in addition to the commonly cited nicotine.

"This is concerning for roll-your-own smokers as New Zealand loose leaf tobacco has a significantly higher ratio of tar to nicotine than manufactured cigarettes," Stuff.co.nz quoted her as saying.

"The vast majority of work done to date focuses only on nicotine and how it impacts on addictive pathways in the brain but my work shows that other components in tobacco also play a big part," she said.

Her research looked at the effect that other, non-nicotine, components of tobacco smoke have on enzymes such as monoamine oxidase, which breaks down brain neurotransmitters such as serotonin, dopamine and adrenalin, affecting people's mood.

In addition to being exposed to higher levels of tar, Lewis said roll-your-own smokers tended to have habits which increased their level of addiction, including not using filters and drawing more intensively.

Lewis said the study may shed more light on why people get hooked on cigarettes and help develop new strategies to help people quit.

"It's a bit like watching an orchestra at work - there are so many different brain pathways all working together to establish and fortify tobacco addiction," she added.

Smoking

Smoking Causes Genetic Damage within Minutes after Inhaling (Science Daily: 17.1.2011)

In research described as "a stark warning" to those tempted to start smoking, scientists are reporting that cigarette smoke begins to cause genetic damage within minutes -- not years -- after inhalation into the lungs.

Their report, the first human study to detail the way certain substances in tobacco cause DNA damage linked to cancer, appears in Chemical Research in Toxicology, one of 38 peer-reviewed scientific journals published by the American Chemical Society.

Stephen S. Hecht, Ph.D., and colleagues point out in the report that lung cancer claims a global toll of 3,000 lives each day, largely as a result of cigarette smoking. Smoking also is linked to at least 18 other types of cancer. Evidence indicates that harmful substances in tobacco smoke termed polycyclic aromatic hydrocarbons, or PAHs, are one of the culprits in causing lung cancer. Until now, however, scientists had not detailed the specific way in which the PAHs in cigarette smoke cause DNA damage in humans.

The scientists added a labeled PAH, phenanthrene, to cigarettes and tracked its fate in 12 volunteers who smoked the cigarettes. They found that phenanthrene quickly forms a toxic substance in the blood known to trash DNA, causing mutations that can cause cancer. The smokers developed maximum levels of the substance in a time frame that surprised even the researchers: Just 15-30 minutes after the volunteers finished smoking. Researchers said the effect is so fast that it's equivalent to injecting the substance directly into the bloodstream.

"This study is unique," writes Hecht, an internationally recognized expert on cancer-causing substances found in cigarette smoke and smokeless tobacco. "It is the first to investigate human metabolism of a PAH specifically delivered by inhalation in cigarette smoke, without interference by other sources of exposure such as air pollution or the diet. The results reported here should serve as a stark warning to those who are considering starting to smoke cigarettes," the article notes.

Smoking

Smoking Causes Genetic Damage within Minutes (The Asian Age: 17.1.2011)

Researchers say lung cancer kills an average of 3,000 people in the world each day and 90 per cent of this toll is due to cigarette smoking, which also causes at least 18 other types of cancer. PAH is one of the main causes of lung cancer.

The study, published in a US-based peer reviewed scientific journal Chemical Research in Toxicology, is claimed to be the first human study to detail the way certain substances in tobacco cause DNA damage linked to cancer.

Scientists tested effects of smoke in 12 volunteers and tracked the changes taking place in their body. To their astonishment, they found PAH very quickly forms a toxic substance in the blood known to trash DNA, causing mutations that can cause cancer.

Smoking

Smoking - Reason for Gender Gap in Death Rates (Med India: 19.1.2011)

In a recent research it has been found that in Europe smoking accounts for up to 60 percent of the gender gap in death rates. The reasons why women have been outliving men in developed European countries since the mid to late 18th century, in some cases, have been hotly contested. Smoking kills twice as many men as alcohol.

The gender gap in death rates is due to the fact that women seek out health care more readily than men.

But the magnitude and variability of the trends suggests a rather more complex picture, say the authors, who set out to explore this discrepancy in more detail.

They used World Health Organization figures on death rates among men and women from all causes as well as those attributable to smoking and drinking in 30 European countries for the years closest to 2005.

Smoking related deaths included respiratory tract cancers, coronary artery disease, stroke and chronic obstructive pulmonary disease. Those related to alcohol-included cancers of the throat and gullet and chronic liver disease as well as alcoholic psychosis and violence.

The proportion of the discrepancy in death rates for men and women attributable to smoking and alcohol was then calculated for all countries by dividing the gender gap for each cause by the gender gap for all causes.

Deaths from all causes were higher for men than for women, the figures showed, but the excess in male deaths varied considerably across the countries studied, ranging from 188 per 100,000 of the population a year in Iceland to 942 per 100,000 in Ukraine.

Smoking

Smoking in cars is like putting children in smoke-filled bars (World Newspaper: 21.1.2011)

Drivers are being urged not to smoke in cars following a study that found it's much like putting children in a smoke-filled bar.

The study has prompted NHS Greater Glasgow and Clyde to produce 15,000 'Our car is smokefree' stickers to change the minds of 15% of people who still smoke in the car while carrying children.

Smoking in cars is particularly harmful to children because their immune systems aren't fully developed, reports the Scotsman.

The Scottish Centre for Indoor Air conducted a study wherein the researchers placed a child-size doll with smoke monitoring equipment to a car seat.

"The concentration of fine particulates that children would breathe in during these journeys sometimes reaches levels that are similar to those measured in smoky bars prior to Scottish smoke-free legislation," said Dr Sean Semple.

And results also showed that lowering the car windows only reduced harmful air levels slightly, and not to a safe level.

Brenda Friel, the health board's senior health improvement officer, said, "No-one would think twice about the dangers of taking a child into a smoke-filled environment, yet many drivers don't realise the harm that can be done. Worryingly, 15% of UK smokers smoke in the car with children.

"I am sure that many people who smoke in a car in which a child is travelling believe that opening the window is enough to protect them from any harmful effects. Our tests prove that this is not the case."

Simon Clark, director of the smokers' group Forest, said, "We wouldn't encourage anyone to smoke in a car if small children are present. It's a matter of courtesy if nothing else, but this study borders on scaremongering."

Nicotine

Say no to nicotine (The Times of India: 25.1.2011)

Go All Out To Curb Tobacco Use

THE government is reportedly toying with a proposal to ban foreign direct investment (FDI) in the wholesale marketing arms of cigarette companies and subject import of tobacco products to licensing. We strongly urge it to do so. Prima facie that might seem at odds with the views expressed in these columns. As votaries of foreign direct investment into the country, we have always urged the removal of ceilings on FDI in various sectors. However, even as we root for more FDI, we are emphatic that such investment must be in sectors where the gains are a net positive. Unfortunately, that is not the case with investment in tobacco and tobacco-related sectors. The damage caused by consumption of tobacco products on human health is now well documented. The report, 'Economics of Tobacco and Tobacco Taxation in India', released last year estimated that without strong action, over 51 million Indians alive today will die prematurely from bidi and cigarette consumption. Over the years, the government has initiated a number of measures to curb tobacco consumption, including mandating the carrying of pictorial

warnings on cigarette packs and banning FDI in tobacco. However, these efforts have made very little dent on tobacco consumption.

In the West, sustained advocacy and better awareness have led to a sharp fall in tobacco consumption, while poor literacy and lack of awareness of health hazards make India an attractive destination for global tobacco majors faced with declining sales in the west. Undeterred by the recent (2010) ban on FDI, many of them have set up fully-owned marketing subsidiaries through which they sell their global brands and allegedly bring in funds to support their local operations. This loophole must be plugged forthwith. The cost in terms of public health expenditure (paltry as that may be) and in terms of loss of life and productivity can in no way compensate for the additional dollars brought by tobacco companies. Given the government's stated resolve to curb tobacco consumption, it must levy sin taxes on tobacco products and, no less important, say 'no' to foreign investment in the sector.

Smoking

Smoking linked to increased risk of breast cancer (New Kerala: 25.1.2011)

A new study has revealed that smoking before menopause, especially prior to giving birth, may be associated with a modest increase in the risk of developing breast cancer.

Using data collected from the Nurses' Health Study, Fei Xue, of Brigham and Women's Hospital and Harvard Medical School, Boston, and colleagues examined the records of 111,140 women from 1976 to 2006 for active smoking and 36,017 women from 1982 to 2006 for passive (secondhand) smoking.

A total of 8,772 breast cancer cases developed during follow-up. The development of breast cancer was associated with a higher quantity of current and past smoking, smoking for a longer period of time, younger age at smoking initiation and more pack-years (product of the number of packs per day and the number of years that quantity was smoked) of smoking.

"Smoking before menopause was positively associated with breast cancer risk, and there were hints from our results that smoking after menopause might be associated with a slightly decreased breast cancer risk," the authors write.

"This difference suggests an antiestrogenic effect of smoking among postmenopausal women that may further reduce their already low endogenous estrogen levels."

The study has been published in Archives of Internal Medicine.

Stress

Stress Enhances Unrelated, Ordinary Memories (Med India: 23-12-2010)

Stress can improve ordinary, unrelated memories, a team of neuroscientists discovered recently.

Their results could offer a pathway for addressing post-traumatic stress disorder (PTSD) and related afflictions.

Researchers at the Czech Republic's Academy of Sciences, the State University of New York (SUNY) Downstate Medical Center, and Rockefeller University conducted the study using laboratory rats.

"Our results show that stress can activate memory, even if that memory is unrelated to the stressful experience," explained Andre Fenton, the study's lead author.

A common feature of PTSD and various mood and anxiety disorders is the formation of negative associations from otherwise innocuous stimuli or the recall of negative memories stimulated by unrelated, neutral circumstances. What's less clear is how stress influences these phenomena.

In these experiments, rats learned to make distinctions between left and right in a T-shaped maze. One day later, the researchers induced stress in the rats through a commonly practiced technique-placing them in a bucket of water in which they had to swim.

Other rats were placed in shallow water, where swimming was not necessary. Subsequent to this procedure, the rats were again tasked with navigating the maze.

Their results showed that the rats who had undergone the stressful swim showed better memory for which way to turn in the T-maze than those placed in shallow water.

These results show that stress can reactivate unrelated memories, leading the authors to hypothesize that, in humans, traumatic stress might reactivate non-traumatic memories and link them to the traumatic memory, thereby facilitating the pathological effects seen in post-traumatic stress disorder and other conditions.

Stress can improve ordinary unrelated memories: Study(World Newspaper: 23-12-2010)

A team of neuroscientists has discovered that stress can enhance ordinary, unrelated memories.

Their results could offer a pathway for addressing post-traumatic stress disorder (PTSD) and related afflictions.

Researchers at the Czech Republic's Academy of Sciences, the State University of New York (SUNY) Downstate Medical Center, and Rockefeller University conducted the study using laboratory rats.

"Our results show that stress can activate memory, even if that memory is unrelated to the stressful experience," explained André Fenton, the study's lead author.

A common feature of PTSD and various mood and anxiety disorders is the formation of negative associations from otherwise innocuous stimuli or the recall of negative memories stimulated by unrelated, neutral circumstances. What's less clear is how stress influences these phenomena.

In these experiments, rats learned to make distinctions between left and right in a T-shaped maze. One day later, the researchers induced stress in the rats through a commonly practiced technique-placing them in a bucket of water in which they had to swim.

Other rats were placed in shallow water, where swimming was not necessary. Subsequent to this procedure, the rats were again tasked with navigating the maze.

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Stress

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Vaccines

Prevention better than cure: Adults opt for jabs (The Times of India: 10.1.2011)

With severe cold conditions gripping the capital and reports of increased cases of chest infections, the number of people seeking vaccination against infectious diseases like influenza and pneumonia is on the rise.

“We advise our patients to get vaccination against infectious disease like pneumonia and influenza, etc. Vaccination for adults is not a common practice here in India. In western countries vaccination is an important part of their immunization programme. This winter, many patients have come for vaccination at our hospital,” said Dr Anoop Mishra, head of the internal medicine department and director of department of diabetic and metabolic diseases at Fortis Hospitals.

Doctors say adults, too, require regular doses of vaccination to check infectious diseases like influenza and pneumonia. Adult vaccination can help save many lives that are otherwise lost to common flu and chest infections during winters. Elderly people and those at high risk of catching infections, including smokers, diabetics and people suffering from chronic illnesses, are advised to go for vaccination, say doctors. So, if you thought you have had your all your vaccination as a child, think again.

Mishra said that vaccination against infectious diseases helps prolong life. It is required especially for people suffering from diabetes, chronic obstructive pulmonary diseases, asthma, cancer and other chronic diseases and those who are above 65 years. “The number of smokers and people taking alcohol on regular basis has increased exponentially over the last few years in cities in India. Such people are at a high risk of contracting lung infections, and they must get themselves vaccinated,” added Mishra.

Influenza, which can be prevented with an annual dose of vaccine, is the single largest reason for hospitalization every year. Pneumonia remains a major cause of death among elderly people. The pneumococcal vaccine, which covers 13 strains of virus causing the disease, is required to be given to elderly people once in five years. Routine doses of vaccines against diseases like typhoid, hepatitis A, hepatitis B, meningococcal meningitis and rabies are recommended for adults.

“Many people do not know about the need for vaccination in adults. They believe that vaccines received during childhood are enough. There is no concerted effort to popularize adult vaccination by the government either,” said Dr Sanjeev Bagai, pediatric nephrologist and CEO of Batra Hospital.

He said that successful eradication of diseases like smallpox, tetanus and diphtheria in western countries has been possible due to adult vaccination.

VACCINES RECOMMENDED

Influenza | One dose/year

Pneumococcal | One dose (if age is less than 65 years, repeat after five years)

Typhoid vaccine

Hepatitis A | Two doses

Hepatitis B | Three doses

Meningococcus | One dose

For whom: All who are older than 65yrs, smokers, diabetics, cancer patients, heart patients, alcoholics

Chicken pox vaccine

One dose of chicken pox vaccine may be enough for Indian kids (World Newspaper: 10.1.2011)

Researchers at the Yale School of Medicine have found that two doses of chicken pox vaccine are better than one.

In fact, the chances of developing chicken pox were 95% lower in children who had received two doses of the vaccine compared to those who had received just one dose. In India, however, children are vaccinated with a single dosage against chicken pox.

However, experts said that research based on US scenario, may not always hold true in Indian context. “In India, we don't have adequate data about chicken pox to suggest anything about the second dosage. Moreover, chicken pox is quite an endemic in India,

thus creating herd immunity among the community. Thus, a single dose may be enough here," said Dr Kishore Kumar, paediatrician and chairman and MD, The Cradles.

The Centres for Disease Control and Prevention (CDC), Atlanta, began recommending a single dose of chicken pox vaccine for children between one and 13 years of age in 1995. The disease rate fell drastically and studies showed that the effectiveness of one dose was 86%. But there was still a high rate of breakthrough illness in immunised children. The CDC changed the immunisation policy for chicken pox in 2006, adding a second dose for children between four and six. In this study, it was revealed that the effectiveness of two doses was 98.3%.

However, in India, the scenario is totally different. "In foreign countries, there is a universal policy of vaccinating all children for chicken pox by the age of 14 to 15 months. However, in India, chicken pox vaccine doesn't form part of the National Immunisation Schedule. Moreover, since the vaccine is costly, not everyone can afford it. Thus chicken pox virus still exists in the community," said Dr Preethi Galagali, paediatric consultant, Chord Road Hospital and member of Indian Academy of Pediatrics.

Indian kids, who have been vaccinated and yet get exposed to the chicken pox virus, are said to have better immunity level. Thus, while there are several cases of children getting chicken pox even after getting vaccinated, the intensity of the disease is milder with low fever and no scars. Otherwise for children who are not vaccinated, and are between 1 and 12 years of age, the disease can get severe, added Galagali. "Thus, Indian Academy of Paediatricians does not recommend a second dosage of the vaccine as of now," she said.

At least five to 10 per cent of the children, who have already been vaccinated, fall prey to chicken pox, confirmed Dr Aravind Shenoy, HoD, pediatrics, Manipal Hospital. "While the American Academy of Pediatrics recommends five to 10 years of age as the right time for a second dosage of chicken pox vaccine, research needs to be done to find the right time for their Indian counterparts. Also in India, February-March-April is the time for chicken pox, as well as the board exams," he said. Again, since this vaccine is expensive, not every child can afford it, he added.

Malaria vaccine

Indian hopes to break malaria vaccine jinx (World Newspaper: 10.1.2011)

He may have won the largest prize money that India can offer a scientist — Rs 50lakh, science award from Infosys Science Foundation — but for Chetan E Chitnis that is merely incidental in his journey towards the real prize.

If his bets do pay off, Chitnis could be the face behind a major breakthrough, of the sort that literally happens once in centuries — a vaccine for preventing malarial infection.

Even though the malarial parasite was discovered by Sir Ronald Ross in late 1890s, when working in Secunderabad, mankind has been unable to device an effective vaccine against it till date.

Based on Chitnis' research into the ways through which malarial parasite attaches to a human blood cell, Hyderabad-based pharmaceutical company Bharat Biotech has made a test vaccine, which is currently being administered to 45 healthy volunteers at a site in Bangalore by contract research firm Lotus Labs to assess and evaluate its safety and effectiveness. "Results of the first phase of human trials are expected in December 2011," Chitnis told DNA of his vaccine.

For him, this is the culmination of about 10 years of research. Chitnis is currently a staff research scientist and principal investigator in the Malaria Research Group at the International Centre for Genetic Engineering and Biotechnology. Asked about how soon a vaccine could be available in the market, the scientist was very guarded.

"It all depends on the results, and we might even have to go back to the lab," the scientist said, choosing to keep his cards very close to his chest.

Even though he has not decided what to do with the tax free Rs50 lakh that he got with the Infosys Science award, Chitnis believes funding would not be a big problem for his research.

"If the results are good, pharmaceutical companies would be interested and willing to take it to the market," he said. The community of scientific observers point out that this is the first time a vaccine candidate gets into human trial phase in India and that there is definitely potential in this.

"There are several firsts associated with this vaccine and even if it fails, we would have gained a lot of useful information in the process and that can only help take us closer to eventual success," said T Adak, senior scientist at National Institute of Malarial Research. Adak has been actively involved in collecting epidemiological field data regarding the malarial parasite, which was used in the research that went into developing the vaccine candidate.

Even more hopeful is the jury at Infosys Science Foundation that selected Chitnis for the 2010 award. In its citation, the jury said his work narrowed down the research that goes into finding a vaccine for malaria.

Vaccine

Shingles vaccine cuts risk by 55 pc: Study (New Kerala: 12.1.2011)

new study has found that receiving the herpes zoster vaccine is associated with a 55 percent reduced risk of developing shingles, a painful, lingering disease.

The Kaiser Permanente researchers observed the outcomes of the effectiveness of the herpes zoster vaccine in a large, diverse population of men and women ages 60 years and older.

They found a significant reduced risk of shingles across all sub-groups -- those who are healthy as well as those with chronic conditions including diabetes or heart, lung or kidney diseases.

Shingles is caused by the dormant chickenpox virus, which stays in the body after a person has recovered from chickenpox. The virus can reactivate and replicate and cause shingles and damage to the nerve system. The elderly are especially vulnerable because as we age, our immunity against the virus that causes shingles declines.

The retrospective observational study looked at 75,761 vaccinated and 227,283 unvaccinated male and female members of Kaiser Permanente in Southern California from 2007 to 2009, using electronic health records to compare the incidence of shingles of the vaccinated and unvaccinated populations.

HPV Vaccine

HPV Vaccine against Anal Cancer Too (Med India: 27-12-2010)

The US FDA has expanded the approval of human papillomavirus (HPV) vaccine Gardasil for use against anal cancer too.

The vaccine may be used against anal cancer and pre-cancerous lesions in young people aged nine to 26 years old.

Thus far the vaccine has been used to treat women with cervical, vulvar, and vaginal cancer, and associated lesions caused by HPV types 6, 11, 16, and 18.

"Treatment for anal cancer is challenging; the use of Gardasil as a method of prevention is important as it may result in fewer diagnoses and the subsequent surgery, radiation or chemotherapy that individuals need to endure," said Karen Midthun, director of the FDA Center for Biologics Evaluation and Research.

Although anal cancer is rare in the general population, its occurrence is increasing especially among gay men, officials noted.

Human papillomavirus (HPV) is associated with about 90% of the estimated 5,300 cases of anal cancer diagnosed in the United States each year, the FDA said, citing statistics from the American Cancer Society. More women are diagnosed than men.

But Gardasil won't prevent development of anal precancerous lesions already present at the time of vaccination, the FDA said.

The most common adverse reactions to the vaccine include fainting, injection-site pain, headache, nausea and fever.

HPV Vaccine

Mums Play Vital Role in Convincing Daughters to Get HPV Vaccine (Med India: 5.1.2011)

A recent research has pointed out that mothers play a key role in convincing college-aged women to receive the human papillomavirus (HPV) vaccine, aimed to prevent the most common form of sexually transmitted infection.

The study found that young women were more likely to say they had received the HPV vaccine if they had talked to their mother about it.

"Mothers talking to their daughters were an important factor in whether young women were vaccinated," said Janice Krieger, lead author of the study and assistant professor of communication at Ohio State University.

Many mothers and daughters may be uncomfortable talking about the HPV vaccine, because it is designed to prevent the spread of a sexually transmitted virus, Krieger said.

But regardless of the difficulty in talking about it, the vaccine is important because a persistent HPV infection may cause cancer.

The exploratory research involved 182 mother-daughter pairs. All of the daughters were college students, with an average age of 20.

The daughters mailed a questionnaire about the HPV vaccine to their mothers, and completed a similar questionnaire for themselves.

Overall, 137 of the mother-daughter pairs had talked about the HPV vaccine, and 45 pairs reporting not discussing the vaccine.

Results showed that the key for daughters getting the vaccine was having mothers who discussed the HPV vaccine with their daughter and who reported believing that the vaccine was safe and effective in preventing HPV-related diseases.

MMR Vaccine

Study Linking Autism to MMR Vaccine "An Elaborate Fraud"(Medical News Today: 6.1.2011)

A study published in The Lancet by Dr. Andrew Wakefield linking the MMR vaccine with autism was no more than "an elaborate fraud", a report published in the BMJ (British Medical Journal) reveals today. The 1998 study, which was later retracted by The Lancet, scared thousands of parents and is thought to have resulted in a considerable drop in vaccinations.

BMJ Editor in Chief, Dr. Fiona Godlee, said:

"The MMR scare was based not on bad science but on a deliberate fraud.. (such) clear evidence of falsification of data should now close the door on this damaging vaccine scare."

Godlee compares Wakefield's fraud with Piltdown man, a paleontological hoax that led to the belief for four decades that the missing link (between man and ape) had been discovered.

Wakefield's other publications should be looked into for veracity, Godlee added "to decide whether any others should be retracted."

The true extent of the scam that preceded the scare is revealed in a series of three BMJ articles starting this week. The series is based on data, documents and interviews gathered over a seven-year period by Brian Deer, an award-winning investigative journalist.

In a communiqué, the BMJ wrote:

"Thanks to the recent publication of the General Medical Council's six million word transcript, the BMJ was able to peer-review and check Deer's findings and confirm extensive falsification in the Lancet paper.

Dr. Godlee, Jane Smith, a BMJ editor, and Harvey Marcovitch, a leading pediatrician and associate BMJ editor, conclude that:

"(there is) no doubt.. (that it was Wakefield who perpetrated this fraud). A great deal of thought and effort must have gone into drafting the paper to achieve the results he wanted: the discrepancies all led in one direction; misreporting was gross."

Despite all the evidence and retractions from The Lancet, basically washing its hands of his alleged studies, Wakefield repeatedly denies having done anything wrong. The authors wrote:

"Instead, although now disgraced and stripped of his clinical and academic credentials, he continues to push his views. Meanwhile the damage to public health continues." Godlee concludes:

"Science is based on trust. Such a breach of trust is deeply shocking. And even though almost certainly rare on this scale, it raises important questions about how this could happen, what could have been done to uncover it earlier, what further inquiry is now needed, and what can be done to prevent something like this happening again."

One dose of chicken pox vaccine may be enough for Indian kids (World Newspaper: 10.1.2011)

Researchers at the Yale School of Medicine have found that two doses of chicken pox vaccine are better than one.

In fact, the chances of developing chicken pox were 95% lower in children who had received two doses of the vaccine compared to those who had received just one dose. In India, however, children are vaccinated with a single dosage against chicken pox.

However, experts said that research based on US scenario, may not always hold true in Indian context. "In India, we don't have adequate data about chicken pox to suggest anything about the second dosage. Moreover, chicken pox is quite an endemic in India, thus creating herd immunity among the community. Thus, a single dose may be enough here," said Dr Kishore Kumar, paediatrician and chairman and MD, The Cradles.

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Malaria vaccine

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Vaccine

Shingles vaccine cuts risk by 55 pc: Study (New Kerala: 12.1.2011)

New study has found that receiving the herpes zoster vaccine is associated with a 55 percent reduced risk of developing shingles, a painful, lingering disease.

The Kaiser Permanente researchers observed the outcomes of the effectiveness of the herpes zoster vaccine in a large, diverse population of men and women ages 60 years and older.

They found a significant reduced risk of shingles across all sub-groups -- those who are healthy as well as those with chronic conditions including diabetes or heart, lung or kidney diseases.

Shingles is caused by the dormant chickenpox virus, which stays in the body after a person has recovered from chickenpox. The virus can reactivate and replicate and cause shingles and damage to the nerve system. The elderly are especially vulnerable because as we age, our immunity against the virus that causes shingles declines.

The retrospective observational study looked at 75,761 vaccinated and 227,283 unvaccinated male and female members of Kaiser Permanente in Southern California from 2007 to 2009, using electronic health records to compare the incidence of shingles of the vaccinated and unvaccinated populations.

Vaccine

Shingles Vaccine Linked To 55 Per Cent Reduction In Disease (Medical News Today: 13.1.2011)

Giving people the herpes zoster vaccine was linked to a 55 per cent reduction in risk of developing shingles according to a Kaiser Permanente study involving 300,000 older American GP patients, suggesting that vaccinating eligible people could prevent tens of thousands of cases of shingles in the US.

You can read about the retrospective cohort study, led by Dr Hung Fu Tseng, a research scientist with the Kaiser Permanente Department of Research and Evaluation in Pasadena, California, in the 12 January online issue of JAMA.

The findings support the US Centers for Disease Control and Prevention (CDC) recommendation that the vaccine be offered to eligible patients of all ages, including those over 75.

Tseng told the press that:

"Our study shows the vaccine has the potential to prevent tens of thousands of cases of shingles, a painful, lingering disease."

"We suggest clinicians follow the CDC's recommendations to talk to their patients about the option of vaccination against this serious condition," said Tseng.

Shingles (herpes zoster) is caused by the chickenpox virus (varicella zoster), which stays dormant in the nervous system after a person has recovered from chickenpox, but then flares up again, often many years later, as a painful skin rash with blisters, usually in a line on one side of the torso.

There are more than a million cases of shingles every year in the US. The condition affects mainly older people, as immunity against the virus declines; but it can also affect people under a lot of stress or who have weakened immunity. The condition can last months, even years, and seriously impair quality of life. It can also damage the nerves.

The herpes zoster vaccine has demonstrated efficacy against shingles in clinical trials, but has not been tested under everyday conditions such as in general practices.

Using electronic health records, Tseng and colleagues compared the incidence of shingles among a diverse population of 75,761 vaccinated, and 227,283 unvaccinated, men and women aged 60 and over who were members of Kaiser Permanente in Southern California between 2007 and 2009. The participants were community-dwelling, had

healthy immune systems and those who were vaccinated had received their vaccine in a GP setting.

The results showed a significant reduced risk of shingles across all sub-groups, including healthy patients and those with chronic conditions such as diabetes, heart, lung or kidney diseases.

The results remained the same after the researchers took into account differences in gender, race, chronic diseases and prior use.

Restless Legs Syndrome? - Discover this Proven Restless Legs Cure That Gives You Instant Relief - www.AllCalm.com

Parkinson's Disease - Treatment Options, Latest Advances. Trustworthy, Current Report. - www.parkinsonsdisease-guidebook.com

"Heart Attack Warning" - Clean Arteries Before Surgery. Painless, Fast, Safe & Easy - www.YourTicker.com/Angioprism

The findings differ from those of the clinical trial of the vaccine that had involved 38,000 people aged 60 and over and found it to be less effective for those aged 75 and over.

Tseng and colleagues found that the 55 per cent reduction in risk of developing shingles was true for people of all ages, including those over 75, who received the vaccine.

They said the findings support the CDC's recommendation that the vaccine be offered to eligible patients of all ages, including those over 75.

Co-author Dr Rafael Harpaz, an epidemiologist with the CDC's National Center for Immunization and Respiratory Diseases, said there was a 30 per cent risk of developing shingles during one's lifetime.

"It is therefore reassuring to confirm results of the original clinical trial that the herpes zoster vaccine is effective at preventing this painful disease."

"Although that trial was well done, one cannot be sure a vaccine works outside a research setting until you evaluate it in routine medical practices," he added.

As well as affecting the torso, shingles can also appear on the face and affect the eyes and result in very serious complications. Harpaz said their study found new information that the vaccine works to prevent shingles involving the eye.

In a statement, Kaiser said that a study published last year found that shingles is very rare among children who have been vaccinated against chickenpox.

HIV vaccine

New findings bring scientists closer to an effective HIV vaccine (World Newspaper: 17.1.2011)

Scientists have reported findings showing new evidence about broadly-reactive neutralizing antibodies, which block HIV infection.

Leo Stamatatos of the Seattle Biomedical Research Institute said the major stumbling block in the development of an effective vaccine against HIV is the inability to elicit, by immunisation, broadly reactive neutralising antibodies (NAbs).

These antibodies bind to the surface of HIV and prevent it from attaching itself to a cell and infecting it. However, a fraction of people infected with HIV develop broadly neutralising antibodies (bNAbs) capable of preventing cell-infection by diverse HIV isolates, which are the type of antibodies researchers wish to elicit by vaccination.

"We've found that the people who develop broadly-reactive neutralising antibodies-which are about 30 percent of those infected-tend to have a healthier immune system that differs from others who don't develop those antibodies," explained Stamatatos.

He said these antibodies target only a few regions of HIV, which is good from the standpoint of vaccine development.

In addition, the new findings have shown that these antibodies are generated much sooner than previously thought, in some cases as soon as a year after infection.

"These studies provide a strong rationale to begin teasing out the early immunological signals that allow some individuals, but not others, to mount broadly reactive neutralising antibody responses," added co-author Galit Alter.

Nanoparticle Vaccine

Nanoparticle Vaccine Protects Against Stomach Flu (Science daily; 20.1.2011)

A new vaccine strategy using nanoparticles as carriers may be the key to developing a vaccine against norovirus, one of the most common causes of foodborne disease in the United States. Researchers from the Cincinnati Children's Hospital Medical Center report promising findings in the January 2011 issue of the Journal of Virology.

The application of nanoparticles as carriers to present small peptide antigens is a growing field within vaccine development. Researchers led by Xi Jason Jiang of Cincinnati Children's Hospital Medical Center, have described a new nanocarrier, called a P particle, which holds promise as a scaffold for a variety of vaccines. In the current study they inserted rotavirus antigen into the P particle, which boosted immune response to rotavirus, as well as norovirus, in mice.

Both rotavirus and norovirus are important causes of acute gastroenteritis. The former causes severe diarrhea in children, and kills an estimated 527,000 worldwide, annually. Norovirus is a notably highly transmissible, and particularly unpleasant flu, which can result in one to three days of vomiting and diarrhea in otherwise healthy adults, and which kills 200,000 children annually.

"The dual vaccine holds promise for controlling gastroenteritis in children," says Jiang.

The P particle's unique feature is the scaffold. The P particle consists of 24 copies of an outer coat protein from norovirus. The beauty of the P particle is that it contains three types of surface loops, which are ideal for presenting a wide variety of antigens. Additionally, it is highly immunogenic and extremely stable, the latter an important quality for use in developing nations. The antigens can easily be inserted during the manufacturing process. Production is a simple matter of expressing the cloned P particle in *E. coli*.

In addition to the rotavirus antigen, the team has succeeded in inserting a number of antigens into the P particle, varying in size up to more than 200 amino acids. The resulting vaccines have induced significantly stronger immune responses in mice than have free antigens.

Jiang is principal investigator for a five year, \$4.1 million grant from the National Institute of Allergy & Infectious Disease (NIAID) that Cincinnati Children's received last May to develop the P particle vaccine against norovirus. "With the unique features of high efficiency, easy production, and low cost, this new platform will find a broad application in the biomedical sciences," says Jiang.

MMR vaccine

MMR vaccine & science fraud (The Hindu: 25.1.2011)

A 1998 paper linking a measles, mumps, rubella (MMR) vaccine with a 'new syndrome' of autism and bowel disease was retracted by The Lancet in February 2010. The retraction came after the U.K. General Medical Council's Fitness to Practise Panel conducted a 217-day hearing and found Andrew J. Wakefield, the lead author of the paper, guilty of dishonesty in relation to "the study's admissions criteria, its funding by

the Legal Aid Board, and his statements about it afterwards.” Deep-going investigation by Brian Deer, a journalist based in London, and published online recently as a series (www.bmj.com/content/342/bmj.c5258.full) in the British Medical Journal (BMJ), has revealed that the researcher from the Royal Free Hospital and School of Medicine, London, whose licence to practise has been revoked by the GMC, indulged in acts that went far beyond dishonesty as specified by the GMC. For instance, the critical data of all the 12 children included in the study had been “misrepresented or altered,” especially the symptoms and the timeline when the symptoms first showed up. Dr. Wakefield’s conflict of interest included a patent for a diagnostic test to “detect a new syndrome — autistic enterocolitis.” The doctor also stood to gain financially from the proposed development of the test kit and a ‘safer’ vaccine. The journalist has revealed how Dr. Wakefield had the support of his institution when he sought to exploit the MMR scare for financial gain.

Dr. Wakefield’s research will remain a textbook case of how falsified medical research involving 12 handpicked children can discredit the safety of a vaccine used for a few decades on millions of children. Scientists were quick to point out the flaws in the paper. No study has been able to replicate his work, and more than a dozen large-scale studies have found no link between the two. Yet it took more than a decade to fully expose the science fraud owing to the inexplicable failure of several institutions and individuals. The fallout of the 1998 study has been severe in some developed countries — public fear has been whipped up, and suspicion about a link between MMR vaccine and autism strengthened. Measles, once considered eradicated in the United States, emerged with a vengeance in 2008 when 131 cases were reported, double the annual average for the previous six years. The same year, England and Wales declared measles as an endemic, the first time in 14 years. Although signs of autism appear around the same time children receive the MMR vaccine, there is an urgent need to educate the public that no link has been found between the two. Awareness-building is all the more important as Dr. Wakefield continues to defend his work.

New vaccine

New vaccine against pneumonia 'to save thousands of lives'(New Kerala: 25.1.2011)

A new vaccine against pneumonia is being introduced in Africa and some other countries across the world

The vaccine could save more than half a million lives a year globally, reports the BBC.

The Gavi Alliance, a global health partnership of public and private sectors for immunisation, says 19 countries will get the jab at first.

Gavi said it needs an extra 500m pounds (800m dollars) annually for the next five years to meet a shortfall in immunisation for existing and new vaccines.

The pneumococcal vaccine costs 2.20 pounds (3.50 dollars) in Africa compared to 38 pounds in Europe as a result of a deal between Gavi and two manufacturers: Pfizer and GSK. The roll-out in the developing world comes just a year after the same vaccine was introduced in the United States.

GSK said the discounted price is only fractionally above the cost of production. A spokesman said the vaccine takes a year to produce and is the most technically sophisticated of all its vaccines.

Women Health

Women Health

Why women put on weight after marriage (World Newspaper: 7.1.2011)

Please eat or you are not going to lose weight, says Bollywood actress Kareena Kapoor, the size zero protagonist, standing a popular notion on its head.

“As an actress who works 18-20 hours a day under grueling circumstances... my stomach makes a call of hunger. And like a good girl, every 2-3 hours I attend to it,” writes Kareena Kapoor in a new book, *Women and The Weight Loss Tamasha* (Westland Ltd) by her fitness trainer Rujuta Diwekar, the driving force behind Kareena’s ‘size zero’ look.

Kareena advises women to “slip in a slice of cheese, some peanuts and an apple in their handbag” to take care of the intermittent pangs of hunger.

According to Diwekar, the best-selling author of *Don’t Lose Your Mind, Lose Your Weight*, the “four cardinal principles of eating right are to eat something within the first 10-15 minutes of waking up, eating every two hours, eating more when you are active and less when you are not, and finishing your last meal at least two hours prior to sleeping”.

Diwekar, who works out of Mumbai, is the winner of the Nutrition Award 2010 from the Asian Institute of Gastroenterology. She busts several myths about weight in her new book. According to her, “If you are enjoying something, it will burn the fat for you... Bananas, mangoes, chole puri, gulab jamun, the chutney with the idli, the coconut in your curry and the ghee on your khichdi are not fattening.”

Post-marriage, everybody gains weight; both men and women, but somehow it is much more apparent in women, Diwekar says.

“After marriage, women are conditioned to not just give up their name, home and hearth but also other things that are intrinsic to our core food, meal size and meal timings. All these changes manifest themselves as weight gain,” she says. Changes in meal and sleep timings tinker with the levels of Vitamin B. The deficiency in Vitamin B levels makes sleepy heads out of us every morning even if one has slept for eight hours, she says. “It causes constipation, bloating and mood swings,” Diwekar says.

Not eating at the right time compels married women to binge at strange hours — disrupting the balance of nutrients in diets and triggering an abrupt aging in the process.

Switch to child birth. The ‘mommy body’ tends to weigh a little more than usual in the first three to four months of child-birth, the fitness expert says. “If you are nursing, you will end up weighing a little more because of the extra tissues and fluids in the body. The body wants to store energy reserves for the daily tasks of waking up early, feeding the baby. The second thing is that there is an evolutionary reason for the bulge around the navel — it safeguards the mothers body against diseases and food scarcity,” Diwekar says.

The exercise and diet programme one must adopt to lose weight for this period should be one to “gain in lean body weight — which could sometimes lead to an increase in actual body weight — to become yummy mummies,” she says.

Yoga and Physical Fitness

Strenuous Yoga

Strenuous Yoga may lead to arthritis, says Medicity doc (The Pioneer: 23-12-2010)

Yoga may be an ancient holistic science of healing and a way to maintain good health, but Yoga enthusiasts must also consider its downfall, warned Dr Ashok Rajgopal, chairman of Medanta Bone and Joint Institute on Wednesday.

"There is much scientific evidence to prove that extreme yoga postures lead to localised concentrations of stress and pressure in the knees which cause the degeneration of cartilages in the knees and bones.

This can ultimately develop into arthritis and other ailments," said Dr Rajgopal, speaking on the first customised knee joint replacement in India at Medanta — the Medicity Hospital.

While announcing a new surgery for total knee replacement using patient specific instruments, Dr Rajgopal said replacement surgery alignment is a crucial factor in the functioning and longevity of the replaced joint and patient

specific instruments (PSI) combine advancements in instrument technology with proven orthopedic alignments.

He said there is a high incidence of people developing problems in the knees and joints where they have used their knees extensively. Both in the case of yoga and namaaz, the person gives too much pressure on the knees. Health studies show that certain exercises can cause wear and tear of bone joints forcing people to undergo surgeries. "Many yoga gurus have undergone knee replacement surgeries with us because of this exces

sive wear and tear," Dr Rajgopal said.

Explaining, how the person can dislocate his knee joints by doing deep knee bends, Dr Rajgopal said, "This is especially witnessed among yogic gurus while doing vajrasana. He further said when a person bends his knees, he does not bend it only but also rotates slides and rolls the joints too.

Throwing light on the advantages of the new Virtual Total Knee Replacement Surgery (VTKRS), Dr Rajgopal said while patients have been opting for total knee replacement since a long time but they often complain about difficulty in walking or bending the knee post surgery but the VTKRS as compared to the old surgery can certainly reduce the recovery time, pain and the time of hospitalisation of the patient in the hospital to a great extent.

"The standard implant used earlier would not replicate the original bone that existed before surgery.

Ultimately, the alignment of the hip, knee and the ankle necessary for comfortable walking does not happen, ” Dr Naresh Trehan, chairman and managing director of the Medanta said. Trehan added that customised knee joint is a success because it is a carbon copy or the identical reproduction of the original joint.

Trehan further said, “It is of exact size, shape and fits into the position of the lost joint bones. This gives good alignment and there is no post surgical complaints”.

Rajgopal informed that so far six surgeries using PSI have been performed in the hospital and they are also planning to conduct another 14 surgeries in two weeks time. Discussing the cost of the new surgery, orthopedic surgeons at the hospital said though it costs `30,000 more than the conventional surgery, the virtual total displacement surgery for knees cuts down the cost on less hospitalisation time. Notably, the conventional surgery costs between `one lakh — `1.5lakh. Trehan said, “We are working on the cost too.”

Fitness

Take the stairs to tone lower body’ (World Newspaper: 4.1.2011)

Our fitness expert answers questions related to working out and staying fit.

My work requires me to travel a lot. I have to sleep in all kinds of hotel rooms and lug a heavy laptop around too. I have a persistent backache. Can you please suggest something?

Indrashish, Bangalore

A good exercise regime will solve your problem. Please buy a light laptop bag with good shoulder support. If you can, switch to a lighter laptop. Try and hit the hotels’ gyms or at least squeeze in a 2-30 minute walk outside and do the following back strengthening exercises everyday:

Back extension

Lie face down with hands behind your head, and legs together. Slowly, lift your face and feet off the ground, so your body forms an arc. You will feel the tension in your lower back. Lower your face and feet. Do not jerk or move suddenly. Repeat for 3-4 minutes.

Stomach crunches

Lie on your back and bend your knees. Rest your feet firmly on the ground. To avoid neck strain, do not cradle your head with your hands. Instead, use only your abdominal muscles to curl your body up slowly. Hold for two counts and descend slowly. If you do it right, you should be able to feel the tension in your abdominal muscles. Do your crunches as long as possible, until you feel a positive “burn”.

I have long working hours and work pretty late. So I can't get up very early and make my way to the gym or hit the treadmill after work as I'm often too tired. Can you suggest a simple routine I can follow at home to stay fit?

Nandini G, Bangalore

Any exercise is better than no exercise. Small changes lead to big differences. Here are simple tips you can follow:

While on the phone, stand and converse instead of sitting and try to walk up to your colleagues' desks instead of calling or mailing.

Do mini 10-minute workout sessions by either walking around the office block during lunch break or taking the stairs while going to work. The higher the building, better the chances of squeezing in workouts. Take two flights of stairs and for the next two floors use the elevator. Keep alternating. As you get fitter, take the stairs all the way. You will soon see yourself shedding weight and have a toned lower body.

While watching TV at home, try and do some crunches, sit-ups and lunges during commercial breaks. On the weekends, either mall walk or head to a park and brisk-walk or jog for 40-60 minutes.

Maintain a healthy diet. Eat on time and stick to home-cooked food. Drink plenty of water thorough out the day. Carry healthy snacks like whole wheat bread sandwiches, fruits and veggies etc.

I have two small children and have no time to go for a gym or an exercise class. I have a real problem with a spare tire around my middle, as I often have to finish up the leftovers from their plates. Please help me trim down a bit.

Soma, Bangalore

Please try and do some simple exercises everyday. When the kids are at school, try and alternate with stair climbing, walking or jogging on spot for about 20 minutes, wearing good shoes and socks. You can also take your children to the park in the evening.

While the kids play, you can get at least 20-30 minutes' walk. If your children are too young to be left alone in the park, then push the pram or run behind them when they are on their tricycle. Also when feeding your children, start with small servings. Do not pile up their plates with huge quantities at a time. Give away the excess food instead of dumping it on yourself.

Exercise

Exercise cuts death risk for men with prostate cancer (World Newspaper: 7.1.2011)

Physical activity is associated with a lower risk of overall mortality and of death due to prostate cancer, a new study has found.

Researchers at the Harvard School of Public Health and University of California, San Francisco also found that men who did more vigorous activity had the lowest risk of dying from the disease.

It is the first study in men with prostate cancer to evaluate physical activity after diagnosis in relation to prostate cancer-specific mortality and overall mortality.

"Our results suggest that men can reduce their risk of prostate cancer progression after a diagnosis of prostate cancer by adding physical activity to their daily routine," said Stacey Kenfield, lead author of the study and a Harvard School of Public Health researcher.

"This is good news for men living with prostate cancer who wonder what lifestyle practices to follow to improve cancer survival."

The study was conducted in 2,705 men diagnosed with prostate cancer in the Health Professionals Follow-Up Study over an 18-year period. The participants reported the average time per week they spent doing physical activity, including walking, running, bicycling, swimming and other sports and outdoor work.

The results showed that both non-vigorous and vigorous activity were beneficial for overall survival. Compared with men who walked less than 90 minutes per week at an easy pace, those who walked 90 or more minutes per week at a normal to very brisk pace had a 46% lower risk of dying from any cause.

Only vigorous activity-defined as more than three hours per week-was associated with reduced prostate cancer mortality. Men who did vigorous activity had a 61% lower risk of prostate cancer-specific death compared with men who did less than one hour per week of vigorous activity.

"We observed benefits at very attainable levels of activity and our results suggest that men with prostate cancer should do some physical activity for their overall health, even if it is a small amount, such as 15 minutes of activity per day of walking, jogging, biking or gardening," said Kenfield. "However, doing vigorous activity for three or more hours per week may be especially beneficial for prostate cancer, as well as overall health," she said

Perfect Posture

The Perfect Posture 'Can Make You Act and Think Powerful' (Med India: 10.1.2011)

An erect posture while sitting or standing is indicative of whether people act as though they are in charge, says a new study.

A Kellogg School of Management at Northwestern University study finds that positioning oneself in a way that opens up the body and takes up space, triggers a sense of power that produces behavioral changes in a person independent of their actual rank or hierarchical role in an organization.

The team found that posture had a strong effect in making a person think and act in a more powerful way.

"The December 5, 2005 cover of the New Yorker is a classic example for how indicative posture can be in determining whether people act as though they are in charge," said Adam Galinsky.

In the study, one group of participants was asked to place one arm on the armrest of a chair and the other arm on the back of a nearby chair, while also crossing their legs so the ankle of one leg rested on the thigh of the other leg and stretched beyond the leg of the chair.

People in the other group were asked to place their hands under their thighs, drop their shoulders and place their legs together.

This experiment demonstrated only posture activated power-related behaviours.

During various tasks such as a word completion exercise and a blackjack game, participants with open body postures were thinking about more power-related words and generally took more action than those with closed body postures.

30-second bursts exercise

30-second bursts of exercise may help fight childhood obesity (New Kerala: 11.1.2011)

New research suggests that short bursts of exercise may be better than long drawn-out PE classes in fighting childhood obesity.

In a study of Scottish schoolkids, researchers found that those who did 30-second sprints interspersed with breaks for just a few minutes produced better results than youngsters exercising more moderately for 30 minutes.

According to experts, this approach could be used in schools to improve the fitness of pupils, with the time saved spent teaching them about health and nutrition.

Professor Julien Baker and Duncan Buchan, from the University of the West of Scotland, conducted tests with teenagers at Holy Cross High School in Hamilton.

The pupils were split into three groups of 25. One group carried out high intensity activity, exercising three times a week for four minutes, with 30 seconds of sprinting followed by 30 seconds of rest.

The next group carried out moderate activity, exercising three times a week for 30 minutes. The last control group just did their usual PE lessons.

At the start and end of the eight-week study, the researchers measured body fat, blood pressure, activity and agility as well as testing blood for signs of good cardiovascular health.

Baker said the short bursts of exercise appeared more effective at improving health.

"The high intensity exercise group exercised for about 80 per cent less time," the Scotsman quoted him as saying.

"But this group improved more than the moderate intensity group.

"There was significantly reduced blood pressure in the high intensity group than the other groups. The blood profiles were better and body fat went down in this group, too," he added.

Yoga

Are you exercising too much? (The Tribune: 12.1.2011)

In the modern world, with sedentary lifestyles becoming the rule, and the definition of malnutrition changing from "starving, underweight" people to today's "overweight" population, the new mantra to regain health is exercise. This is prescribed by doctors, by trainers, by newspaper columns, and even your milkman, so to speak! Many over-enthusiastic exercisers then come to me with knee pain, especially if they start their exercise later than the age of 40; what happens in these cases is something that we all need to know about.

Exercise is good; that goes without saying. But sometimes one can have too much of a good thing. Generally speaking, physical activity, including exercise improves your cardiovascular status and joint health, reduces osteoporosis and is always recommended for better health. However, this is somewhat more complicated than just getting up and starting to run or exercise.

The question that arises is whether physical activity can also be excessive, when it becomes damaging rather than health promoting? Is there such a thing as too much physical activity? For example, do joggers increase their risk of knee osteoarthritis? Do weekend spurts of energetic activity increase injury risk? A new study claims that the answer maybe “yes”.

All middle-aged men and women who participate in excessively high levels of physical activity may actually be damaging their knees and increasing their risk of osteoarthritis. According to a study presented at the annual meeting of the Radiological Society of North America, people at risk for developing osteoarthritis may be able to delay or prevent the disease by simply changing their level of physical activity. These results indicated that participating in high-impact physical activity for more than one hour at least three times a week increases the risk of developing osteoarthritis. However, light exercise and avoiding the activities that require a great deal of knee-bending appeared to prevent or protect against osteoarthritis. This leaves middle-aged people with a very thin dividing line between good and bad exercise!

So, who or what decides? Judicious medical advice is often much better than an aggressive fitness trainer; your age, previous activity levels, associated medical issues, etc, all are deciding factors. Remember the other points that are bad for your knees: being excessively over-weight, having a knee injury, frequent knee-bending like squatting, and strenuous activities like jogging are considered risk factors for cartilage degeneration. Patients are thus counselled to make correct choices.

As you age, rather than high-impact activities like running or tennis, choose to walk or swim, or use an elliptical trainer. When you have joint pains, think of light exercise — not heavy exercise. Do some exercise nevertheless. Remember that walking is not the only exercise. If you can’t walk due to some reason, ask for advice to exercise your joints without aggravating pain. Just don’t give it up, as doing no exercise is the worst thing that you can possibly do.

Laughter

It’s no joke, clowns help IVF hit the bulls-eye (The Times of India: 14.1.2011)

Is laughter the best medicine? Perhaps not always — but it may help women who are trying to become pregnant through invitro fertilization (IVF), an Israeli study found.

In a study of 219 women undergoing IVF published in Fertility and Sterility, an Israeli team led by Shevach Friedler found that the odds of success were greater among women who were entertained by a professional “medical clown” just after the embryos were transferred to their wombs.

Overall, 36% became pregnant, as compared to 20% of women who'd had a comedy-free recovery after the transfer procedure. Friedler said he got the idea for the study after reading about the potential physiological impact of laughter as a "natural anti-stress mechanism."

"Patients suffering from infertility undergoing IVF are incredibly stressed," said Friedler, based at Assaf Harofeh Medical Center in Zrifin, Israel, in an email.

High physical activity

High physical activity helps people with knee osteoarthritis walk faster (World Newspaper: 20.1.2011)

People with knee osteoarthritis are more likely to walk fast enough if they lead physically active lives, a new Northwestern Medicine research has shown.

"The more active people are, the faster they can walk," said Dorothy Dunlop, associate professor of medicine at Northwestern University Feinberg School of Medicine and lead author of the study.

"This is strong evidence that even a small increase in activity is related to better walking function. The bar for improvement isn't that high. This should motivate people to get moving, even if they have pain or stiffness."

Federal guidelines recommend adults with arthritis should participate in at least 2.5 hours a week of moderate intensity, low-impact activity in sessions lasting 10 minutes or more. Even if people can't meet these levels, Dunlop said they should be as physically active as possible.

The Osteoarthritis Initiative, an observational study, surveyed 2,500 participants with knee osteoarthritis. Participants filled out self-reported questionnaires about their physical activity at sites in Columbus, Ohio, Baltimore, Md, Providence, RI, and Pittsburgh, Pa.

Researchers divided participants into four physical activity groups, from lowest to highest, using a general activity score. In the lowest physical activity group, less than half, or 49%, walked fast enough to cross the street before the light changed. (Traffic lights generally allow a walking speed of four feet per second.) In the next three higher physical activity groups, 63%, 71% and 81%, respectively, walked fast enough to cross the street.