HEALTH EDUCATION

GRADE 7 JUNIOR SECONDARY

LESSON NOTES

Re-inventing CBC for possible solutions

HEALTH AND NUTRITION

a. Introduction to health Education

Health* - *a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity"

Health education is a profession of educating people about health. Areas within this profession encompass:

- environmental health,
- physical health,
- social health,
- emotional health,
- intellectual health, and
- spiritual health, as well as
- sexual and reproductive health education.

Health education can be defined as the principle by which individuals and groups of people learn to behave in a manner conducive to the promotion, maintenance, or restoration of health. However, as there are multiple definitions of health, there are also multiple definitions of health education.

Importance of Health Education

The importance of health education impacts many areas of wellness within a community, including:

- Chronic disease awareness and prevention
- Injury and violence prevention
- Maternal and infant health
- Mental and behavioral health
- Nutrition, exercise and obesity prevention
- Tobacco use and substance abuse

- **It stimulates people's awareness and skills**– Health programs engage skilled professionals who meet the community to talk about simple ways to develop and sustain health. They learn from practised health workers and pick up skills such as first aid. Experts teach them about their weaknesses which make them

susceptible to diseases and infections. Deterioration of health is often unpredictable. Hence there is the requirement to search for skills to handle such challenges.

- **Health education elevates the student's understanding of health** – It allows them to develop their physical, social, and emotional health values. When students meet more well-informed people, they learn from them and are ready to metamorphose this knowledge. Some of the information they obtain includes precautions when engaging in acts such as sexual intercourse. Students can get this information from lectures at their institution and educate others when they are back in the community.
- **It inspires the youth to boost and keep up their health –** Being a part of health education programs lets the student see for themselves what it takes to be hale and hearty. They are inspired to eat healthy food and take part in the exercise. By learning that, they start thinking properly about their health principles. Young people have the liveliness to exercise and require an incentive to be active in improving their health and that of the general public at large.
- **Health education improves the quality of life –** It encompasses good health habits that are accepted by health experts to improve the quality of life. The people come to know about their wrong practices and realize that they need to change or improve their habits. They alter their habits and better them so that their standards can improve appreciably. For example, they learn to engage in protected sexual intercourse to avoid or minimize the spread of STDs.
- **It also reduces premature deaths –** The community must study about the diverse methods to stop the propagation of diseases and infections. People can set up sufficiently to battle epidemics and thwart deaths and suffering. The youth and children are most susceptible to early deaths when infections and diseases hit badly. Vaccinations may be administered at no cost during health education programs to prevent premature deaths. It is sensible to attend to such plans when the chance presents itself.

Career Opportunities in Health education

They include:

- Public health officer
- Nutritionist
- Health promotion officers
- Community health workers (CHW)
- Doctors
- Nurses
- Occupational therapist

- Psychologist
- Clinical officers
- Physiotherapist

Health Promotion activities

These activities may be many but limited. They include:

- Helping People Who Smoke Quit
- Increasing Access to Healthy Foods and Physical Activity
- Preventing Excessive Alcohol Use
- Promoting Lifestyle Change and Disease Management
- Promoting Women's Reproductive Health
- Promoting Clinical Preventive Services
- Promoting Community Water Fluoridation
- Promoting Mental Health and Emotional Well-Being
- Promoting Better Sleep
- Handwashing
- Physical exercise

b. <u>Health Promotion</u>

Health promotion is the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.

- As a core function of public health, health promotion supports governments, communities and individuals to cope with and address health challenges.
- This is accomplished by:
  - ✓ building healthy public policies,
  - ✓ creating supportive environments, and
  - ✓ strengthening community action and personal skills

Common health concerns in the community

- ***Physical Activity and Nutrition*** - Research indicates that staying physically active can help prevent or delay certain diseases, including some cancers, heart disease and diabetes, and also relieve depression

and improve mood. Inactivity often accompanies advancing age, but it doesn't have to. Check with your local churches or synagogues, senior centers, and shopping malls for exercise and walking programs. Like exercise, your eating habits are often not good if you live and eat alone. It's important for successful aging to eat foods rich in nutrients and avoid the empty calories in candy and sweets.

- ***Overweight and Obesity*** - Being overweight or obese increases your chances of dying from hypertension, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, dyslipidemia and endometrial, breast, prostate, and colon cancers.
- ***Tobacco*** - Tobacco is the single greatest preventable cause of illness and premature death
- Substance Abuse - Substance abuse usually means drugs and alcohol.
- HIV/AIDS -
- ***Mental Health*** - Dementia is not part of aging. Dementia can be caused by disease, reactions to medications, vision and hearing problems, infections, nutritional imbalances, diabetes, and renal failure. There are many forms of dementia (including Alzheimer's Disease) and some can be temporary. With accurate diagnosis comes management and help. The most common late-in-life mental health condition is depression. If left untreated, depression in the elderly can lead to suicide.
- Injury and Violence
- Environmental Quality
- Immunization
- Access to Health Care

Ways of promoting of promoting wellness in individuals

1. Take Proper Sleep:

It may seem to be the most common advice, but trust me most of the people don’t follow the basic strep towards their overall wellbeing. Our body needs

proper sleep and rest to heal and renew the energy to function properly. This healing is essential for physical and mental activity throughout the day.

Sufficient sleep regulates the hormones that are directly related to our mood and emotions. Most often when you feel an irritated or emotional imbalance, chances are high that your body lacks in taking enough sleep. An adult body needs nearly 6 to 7 hours of sleep per day. So make sure you take enough sleep.

2. Eat a Balanced Diet:

Sleep alone is not going to give you the required benefits. You need to eat a healthy and balanced diet and ensure your body receives enough amount of nutrition. The food you consume determines how healthy your inner system is. Moreover, it also helps in determining your emotional health and mental illnesses such as depression.

When your body lacks essential nutrients, it leads to serious health problems. Moreover, you end up facing emotional distress and anxiety. Health and wellness experts suggest that you should eat fruits and vegetables in sufficient amount. Moreover, eating nuts and lentil also strengthens your heart. Try to avoid caffeine, sugar and processed food as much as possible.

3. Expose Your Body to Sunlight:

Vitamin D deficiency leads to several problems such and Seasonal Affective Disorder or SAD. When you are exposed to sunlight, it causes the release of endorphins also called 'happiness hormones' that is responsible for the productivity of the brain.

So, take some time out of your routine and spend some time in sunlight. But makes sure you wear sunblock to prevent sunburn.

4. Deal with Stress:

Although it is difficult to avoid stress nowadays, however, it is definitely possible to deal with it. It is very important to learn to deal with stress in a

smart and effective way. For that, try to avoid the situations that cause stress. If your stress is unmanageable, note down the causes of stress as well as what actions can you take to improve your reaction, mood, and even situation?

5. Exercise Daily:

When you remain physically active and exercise daily, your blood flow improves in your entire body. With the increased blood flow, the number of oxygen increases and you feel more energetic, fresh and mentally active.

6. Stay Away from Smoking and Alcohol:

If you keep drinking and smoking, no matter how much you spend on your health and how hard you try, your efforts are going to be wasted.

Quit smoking and drinking to ensure you lead a healthy life.

7. Be Social, as Much as You Can:

Isolation and lack of communication are the two biggest reasons for depression, mental and physical illnesses. No matter how busy your family and work life is, try to dedicate some time to friends and socialize with them.

A man cannot stay healthy without interacting with other people. Communicating with others lowers the stress level. If you have heard of laughter therapy, it also has the same purpose to reduce the stress in which you laugh with other people. Everyone needs acceptance and friendship that is fulfilled only when you socialize with others.

8. use clean and safe water

9. Develop hygienic practices

Challenges to health promotion and solutions

- ***Lack of proper communication channels*** - To identify the best communication channels, and to understand the dynamics of the target

population, conduct focus groups, surveys, or other assessments about how they receive information.

- ***Lack of community motivation*** - Conduct education and outreach to identify community awareness of health concerns, determine community members' expectations, and to motivate individuals to achieve better health outcomes.
- ***Cultural and social issues*** - Many rural communities have deeply rooted traditions and cultures around food, lack of trust for medical professionals and outsiders, and/or social beliefs around certain behaviors. Make a conscious effort to recognize and understand these norms before implementing the program and develop strategies to address them. Involving members from the target population in this process can help achieve cultural competency and encourage participation.
- ***Resources and sustainability*** - Rural communities have finite financial, technological, and workforce resources. Program staff may be involved in other activities and commitments. To create sustainable support for the program, focus on a shared vision and involve partner organizations and a larger body of community stakeholders.
- ***Barriers to participation*** - Local circumstances such as geography can influence program implementation and operations. The program design should accommodate lengthy travel times, availability of (or lack of) transportation, childcare needs, and site availability to minimize potential barriers to program participation.

c. **Nutrients and their functions in the body**

Macro and micronutrients

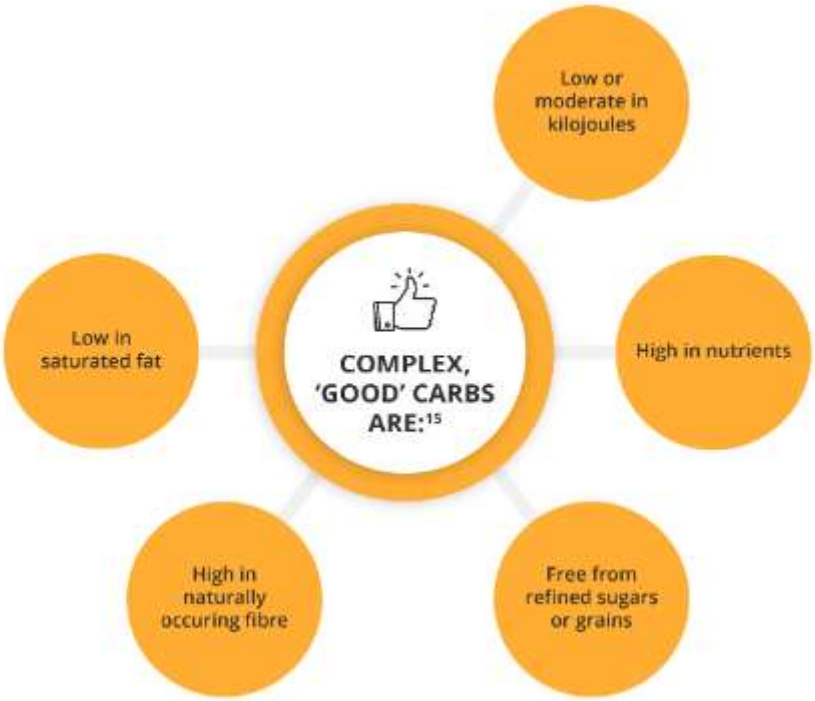
The nutrients your body needs to promote growth and development and regulate bodily processes can be divided into two groups: ***macronutrients and micronutrients.***

- ***Macronutrients*** are the nutrients your body needs in larger amounts, namely carbohydrates, protein, and fat. These provide your body with energy, or calories.

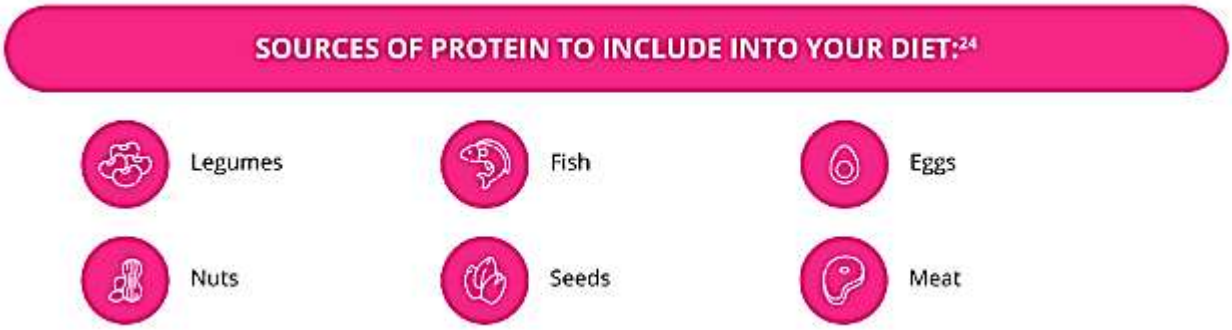
- ✓ Macronutrients are the elements in food that you need to grow and function normally.
- ✓ All macronutrients are obtained through the diet as the body can't produce them on its own. Carbohydrates, protein, and fat are the three main suppliers of nutrition in your diet.
- ✓ While all macros provide valuable energy to your body, they each fulfil different functions.

- Carbohydrates are the sugars, starches and fibers found in fruits, grains, and vegetables. They're the most important source of quick energy in your diet because they're easily broken down into glucose, which the muscles and brain use to function.
- While carbohydrates are found in healthy foods like vegetables, they're also found in unhealthy foods like cakes and doughnuts, which has given them a bad reputation in various diets.
- The important distinction to make in this instance is between simple and complex carbohydrates. The difference between the two is the chemical structure which affects how quickly the sugar is absorbed by the body.
- Simple carbohydrates, or 'bad' carbohydrates, generally release sugar faster because they are made with processed and refined sugar and don't contain any vitamins, minerals, or fibers. Complex, or 'good

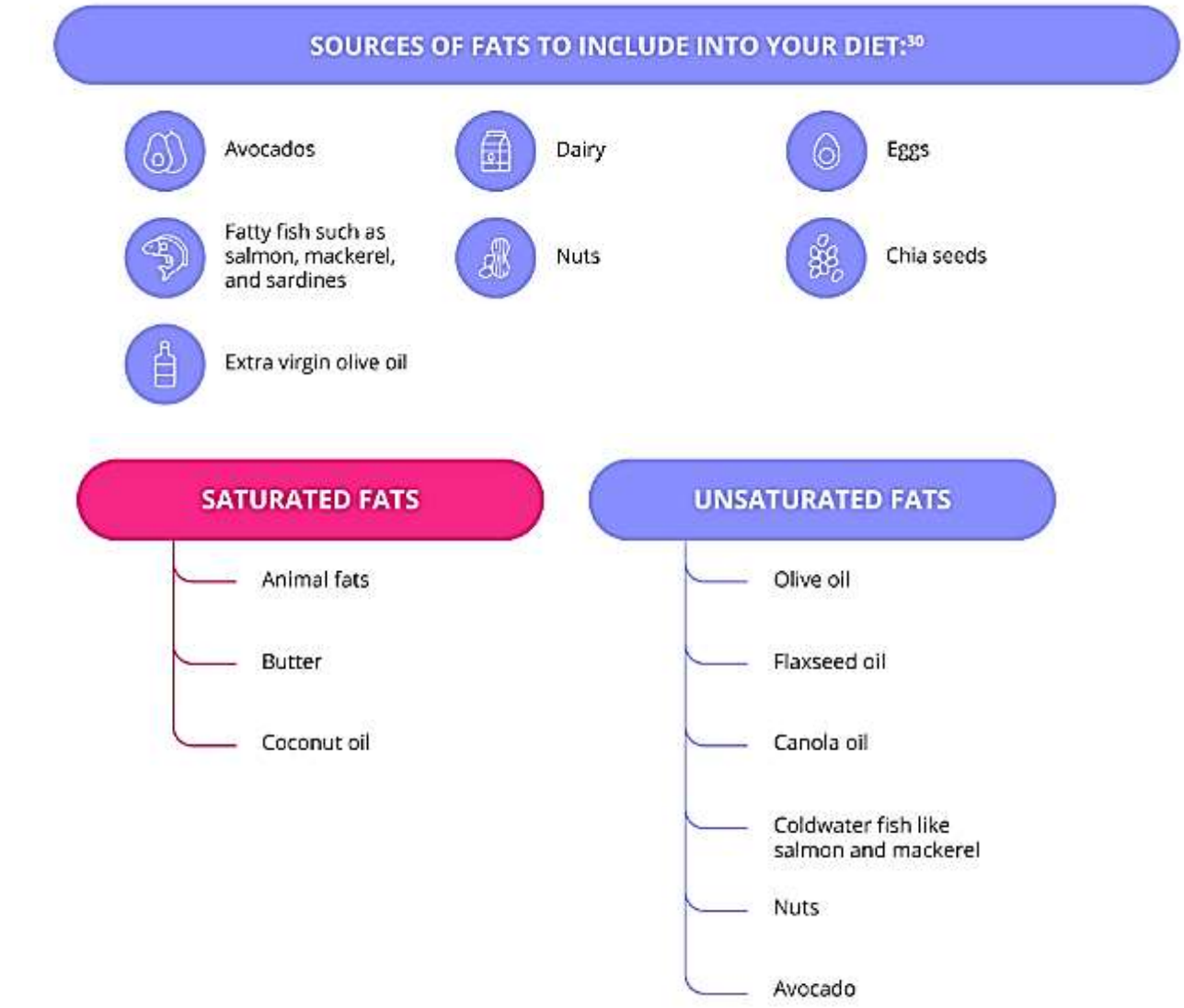
carbohydrates', are processed more slowly and are filled with various nutrients.

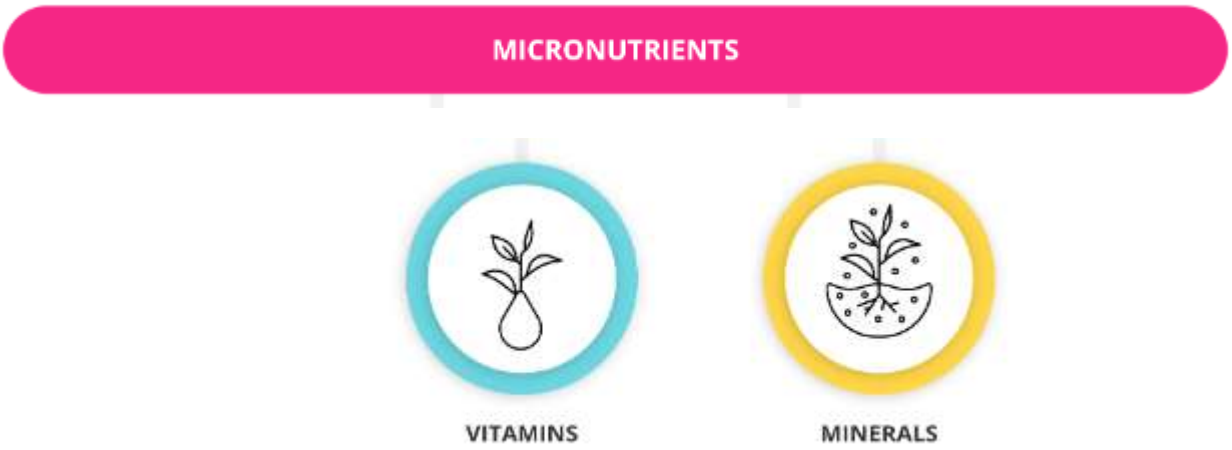


- Proteins are made up of amino acids and function as hormones, enzymes, and an antibody in the immune system. They make up parts of bodily structures like connective tissues, skin, hair, and muscle fibres.
- Unlike carbohydrates, proteins don't serve as a direct source of energy, but work like building blocks for other structures in the body. The nutritional value of a protein is measured by the quantity of essential amino acids that it contains, which varies depending on the food source.
- Animal products, such as meat and fish, contain all of the essential amino acids. Soy products, quinoa, and the seeds of a leafy green called Amaranth also contain all of the essential amino acids.
- Plant proteins usually lack at least one amino acid, so eating a combination of different plant proteins throughout the day is important for vegetarians and vegans.
- The recommended daily intake of protein is between 0.75 grams and 1 gram per kilogram of your body weight.



- The distinction between saturated and unsaturated fats is important because your body only needs the latter.
- Unsaturated fats –
  - ✓ regulate metabolism,
  - ✓ maintain the elasticity of cell membranes,
  - ✓ improve blood flow, and promote cell growth and regeneration. Fats are also important in
  - ✓ delivering fat-soluble vitamins, A, D, E and K into the body.
- While your body doesn't necessarily need saturated fats, they do provide your body with cholesterol, which plays an important ***role in hormone production***.
- Your body does produce its own cholesterol, but a small amount introduced through your diet can help build cell membranes, produce hormones like oestrogen and testosterone, help your metabolism work, produce vitamin D, and produce bile acids which help digest fat and absorb nutrients.
- However, a diet rich in cholesterol can increase the risk of heart disease.
- Fats should make up between 30–35 per cent of your daily caloric intake, with a maximum of 10 per cent of that being saturated fats.





- **Micronutrients** are the nutrients your body needs in smaller amounts, which are commonly referred to as vitamins and minerals.

> *We need macronutrients to help with energy and we need micronutrients to help our body be healthy and digest those macronutrients.*[6]

- Like macronutrients, your body doesn't produce micronutrients in the quantities that it needs, so eating a diet rich in vitamins and minerals is essential for a healthy body.
- Vitamins are organic and can be broken down by elements such as heat, air, or acid – which means they can denature when cooked or exposed to air, making it slightly more difficult to ensure you're getting them in your diet.
- Minerals on the other hand are inorganic and aren't broken down in this way. This means that your body absorbs the minerals in the soil and water your food has come from.
- Each vitamin and mineral has a specific role in your body, and the best way to ensure you're meeting all your bodily needs is by eating a healthy, varied diet. Not only are micronutrients crucial for nearly every process in your body, they can also act as antioxidants.
- In the right quantity, they protect your body against disease and deficiencies. Eating a balanced diet promotes this and improves your chances of getting a variety of minerals and vitamins through your food into your bloodstream. While they work together, vitamins and minerals have different tasks in the body.

- ✓ One of the main functions of vitamins is to help release the energy found in the food that you eat
- ✓ Vitamins help build protein and help your cells multiply
- ✓ They make collagen, which helps heal wounds, support blood vessel walls, and promote healthy bones and teeth

- ✓ Vitamins keep your eyes, skin, lungs, digestive tract and nervous system in good condition
- ✓ They build your bones, protect your vision, and interact with each other to help your body absorb the vitamins it needs to
- ✓ They protect you against diseases

- ✓ Minerals maintain the correct balance of water in your body
- ✓ They promote healthy bones and stabilise the protein structures that you get from the protein you eat, including those that make up your hair, skin, and nails
- ✓ They get the oxygen moving around your body
- ✓ Minerals assist in your ability to taste and smell

There are multiple food items that fulfil both macro and micronutrient functions. Incorporating these foods into your diet will allow your body to function at an optimal level. Other than oxygen and water, the food you eat is the only input your body has to perform the functions it needs for you to go about your daily life. The better quality the input, the better your body will be able to function and perform.

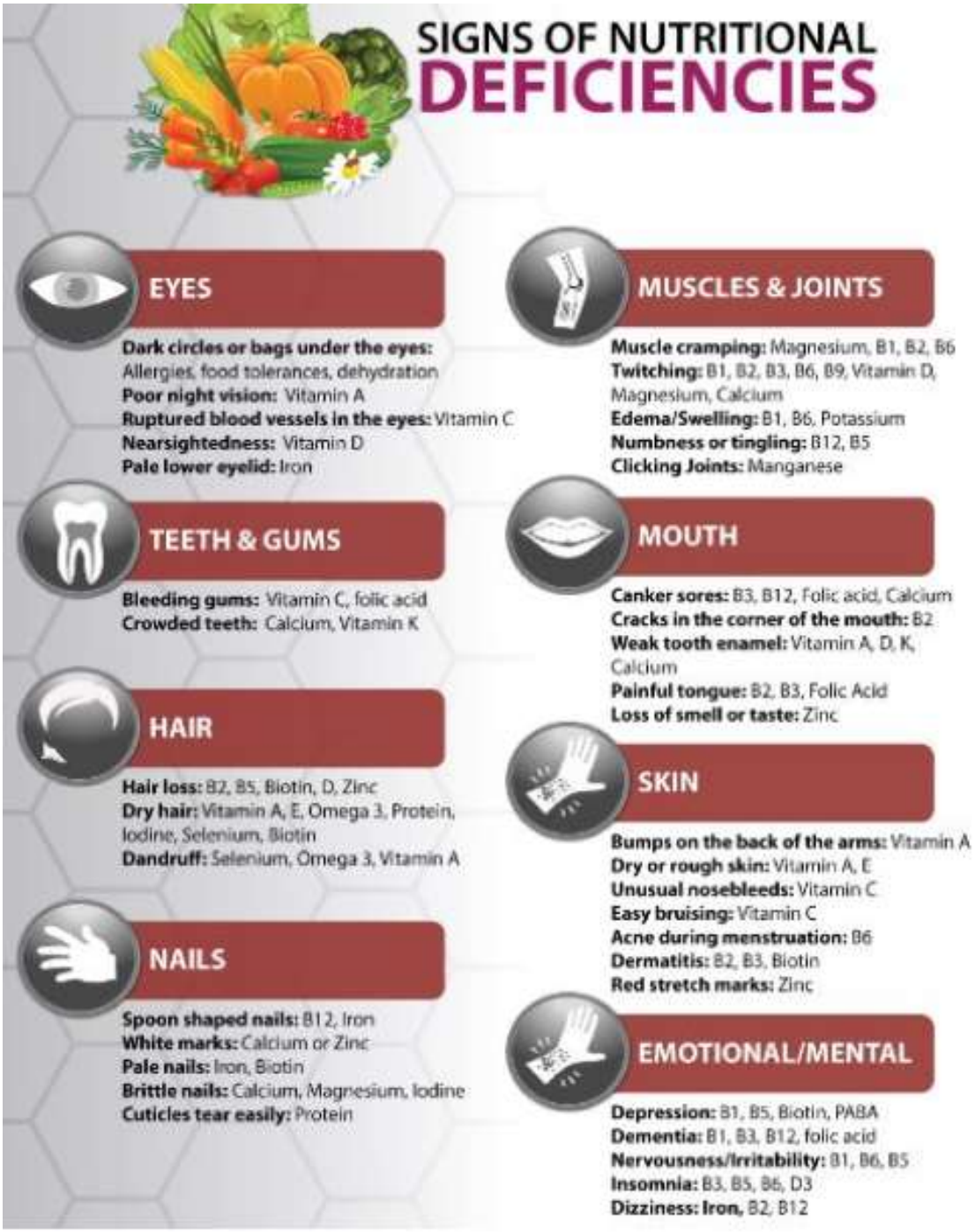
Signs and symptoms of common macro and micronutrient deficiencies and measures for intervention

Nutrients are the organic substances congregated inside the food and used by the body for the maintenance of life and growth.

We get nutrients needed for our body from the food we consume i.e. rich in nutrients, for the proper growth and functioning of body. In absence of nutritious food, various health problems and deficiency diseases collides in our bodies.

Some of the common results occurred due to nutritional deficiencies are:

- ✓ Marasmus
- ✓ Kwashiorkor
- ✓ Goiter
- ✓ Anemia
- ✓ Night blindness
- ✓ Scurvy
- ✓ Rickets etc
- ✓


SIGNS OF NUTRITIONAL
DEFICIENCIES
EYES
Dark circles or bags under the eyes: Allergies, food tolerances, dehydration
Poor night vision: Vitamin A
Ruptured blood vessels in the eyes: Vitamin C
Nearsightedness: Vitamin D
Pale lower eyelid: Iron
TEETH & GUMS
Bleeding gums: Vitamin C, folic acid
Crowded teeth: Calcium, Vitamin K
HAIR
Hair loss: B2, B5, Biotin, D, Zinc
Dry hair: Vitamin A, E, Omega 3, Protein, Iodine, Selenium, Biotin
Dandruff: Selenium, Omega 3, Vitamin A
NAILS
Spoon shaped nails: B12, Iron
White marks: Calcium or Zinc
Pale nails: Iron, Biotin
Brittle nails: Calcium, Magnesium, Iodine
Cuticles tear easily: Protein
MUSCLES & JOINTS
Muscle cramping: Magnesium, B1, B2, B6
Twitching: B1, B2, B3, B6, B9, Vitamin D, Magnesium, Calcium
Edema/Swelling: B1, B6, Potassium
Numbness or tingling: B12, B5
Clicking Joints: Manganese
MOUTH
Canker sores: B3, B12, Folic acid, Calcium
Cracks in the corner of the mouth: B2
Weak tooth enamel: Vitamin A, D, K, Calcium
Painful tongue: B2, B3, Folic Acid
Loss of smell or taste: Zinc
SKIN
Bumps on the back of the arms: Vitamin A
Dry or rough skin: Vitamin A, E
Unusual nosebleeds: Vitamin C
Easy bruising: Vitamin C
Acne during menstruation: B6
Dermatitis: B2, B3, Biotin
Red stretch marks: Zinc
EMOTIONAL/MENTAL
Depression: B1, B5, Biotin, PABA
Dementia: B1, B3, B12, folic acid
Nervousness/Irritability: B1, B6, B5
Insomnia: B3, B5, B6, D3
Dizziness: Iron, B2, B12

Macro nutrients	*Major deficiency disorder*	*Symptoms*	*Prevention*	*Mitigation measures*
Carbohydrates	Diabetic ketoacidosis, hyperosmolar coma, hypoglycemia	-Energy loss and fatigue -Weight loss, -Constipation	-Balanced diet. -Educate children on the importance of carbohydrates.	-Maintain a healthy body weight -Awareness on the importance of balanced diet
Fats	Heart disease, stroke, kidney problems, pediatric obesity, childhood obesity, metabolic syndrome	-Small bumps on back of upper arms. -Variation of skin. -Mixed oily and dry skin	-Regular exercise -Low intake of oily foods -Educate children on the effects of junk foods.	-Maintain a healthy body weight -Awareness on the importance of fats and its adequate intake.
Proteins	Kwashiorkor, marasmus and hypoalbuminemia	-Loss of muscle mass. -Increased risk of bone fractures. -Risk of infections. -Inhibit proper body growth in children	-Establishment of nutrition centers, therapeutic feeding centers.	-Counselling centers for effective breastfeeding and complementary feeding, Promotion of Vitamin A campaigns

Water	Dehydration, kidney failure	-Dry mouth -Eye, shortness of breath, heart palpitation, dizziness and confusion	-Continue a regular diet -Provide extra fluids to the child if he/she is vomiting,	-Provision of safe drinking water; discourage water pollution and drainage system, awareness campaign on importance of watery fluids in the body with its consequences.

Micro-nutrients	***Major deficiency disorder***	***Symptoms***	***Prevention***	***Mitigation measures***
Iodine	Goiter, hypothyroidism, increased risk of stillbirth & birth defects	-Fatigue and Weakness -Hair loss -Dry, Flaky Skin, -Feeling Colder than Usual -Changes in Heart Rate, -Trouble in Learning and Remembering. -Unexpected weight gain	-Optimal intake of dietary iodine during pregnancy -Lactation -Strict monitoring in the quality of iodized salt	Assessment techniques- -Goiter rates -Urinary iodine -Iodine in food and water
Iron	Iron deficiency, anemia, increased maternal and infant mortality, low birth weight	-Extreme fatigue -Pale skin -Inflammation or soreness of tongue -Brittle nails -Chest pain	-Diet high in iron rich foods -Supplementation of folic acid to child bearing aged women, — Treatment of iron deficiency for all ages	Assessment techniques -Screening for anemia among women childbearing age -Emphasize on sound iron nutrition for infants

Zinc	Poor pregnancy outcome, impaired growth	-Altered/loss of taste and smell. -Anorexia -Diarrhea. -Excessive hair loss.	-Increase intake of zinc-containing foods like: baked beans, yogurt. -Maximum zinc intake can cause symptoms that range from nausea and vomiting to impaired immune system functioning. For this reason, adults older than age 19 should not take more than 40 mg of zinc a day.	-Improving the processes by which Zn moves from the soil into the plant and eventually into the edible part of the grain that has the potential to mitigate problems associated with Zn deficiency in crops and humans. -Awareness of the importance of animal-source foods in the diet for infants and young children
Vitamin A	Night blindness, xerophthalmia,	-Slowing growth and development in fetus, raise risk of anemia in pregnant women, -Vision disturbances, joint pain.	-Behavior modification where high intake of vitamin A rich foods -Dietary modification: Home and community provisioning to increase availability of vitamin A rich foods.	-Gardening Project to Increase Production and Consumption of Vitamin A-Rich Foods -Small animal husbandry and fish Production to increase household and community availability of preformed Vitamin A Sources -Multi-Mix Complementary and Weaning Foods
Folate (Vitamin B6)	Megaloblastic anemia, neural tube and other birth defects, heart disease, stroke	-Mood Changes -Weakened immune function. – Tiredness and low energy	-Optimum amount intake of vitamin B6 rich foods. -Use of vitamin b6 drugs in correct way.	-Increase Production and Consumption of Vitamin B6-Rich Foods

		-Tingling and Pain in Hands and Feet -Seizures -Sore, Glossy Tongue.		
Cobolamine (Vitamin B12)	Megaloblastic anemia	-Constipation, diarrhea -Nerve problems like numbness or tingling, -Vision loss -Mental problems like depression, or behavioral changes	-Optimum amount intake of vitamin B12 rich foods. -RDA vitamin B12 is 2.4 mcg for men and women age 19 and over. Pregnant women have slightly higher requirements: 2.6 and 2.8 mcg per day, respectively.	-Since the body is able to store enough vitamin B12 to meet its needs for several months, vitamin B12 deficiency is extremely rare among healthy people whose daily diet includes foods that are naturally rich in or enriched with vitamin B12.
Thiamine (Vitamin B1)	Beriberi Wernicke and Korsakov syndromes	-Fatigue. -Irritability -Reduced Reflexes. -Tingling Sensation in Arms and Legs. -Muscle Weakness. -Blurry Vision. -Nausea	-Improved nutrition, removal alcohol consumption -Consumption of animal products.	-Increase production and consumption of vitamin B1-rich foods
Riboflavin (Vitamin B2)	Nonspecific – fatigue, eye changes, dermatitis, brain dysfunction, impaired iron absorption	-Dryness and cracking of the skin -Red, dry tongue called magenta tongue.	-Recommended Dietary Allowance (RDA) is 1.3 milligrams daily for men and 1.1 mg for women. A higher dose of 3 mg per day can help to prevent cataracts.	-Increase production and consumption of vitamin B2-rich foods

		-Skin rash. -Anemia. -Weakness and fatigue. -Vision problems		
Niacin (Vitamins B3)	Pellagra	-Thick, scaly-pigmented rash on skin when exposed to sunlight. -Swollen mouth and bright red tongue.	-RDA of niacin for adult males is 16 milligrams (mg) a day and for adult women who aren't pregnant, 14 mg a day	Increase production and consumption of vitamin B3-rich foods
Vitamin B6	Dermatitis, neurological disorders, convulsions	-Skin Rashes. -Mood Changes. -Weakened immune function. -Tiredness and Low Energy. -Seizures.	-Optimum amount intake of vitamin B6 rich foods. -Use of vitamin b6 drugs in correct way.	-Increase production and consumption of vitamin B6-rich foods
Vitamin C	Scurvy (fatigue, hemorrhages)	-Rough, Bumpy Skin. -Corkscrew-Shaped Body Hair -Bright Red Hair Follicles -Spoon-Shaped Fingernails with Red Spots or Lines -Dry, Damaged Skin -Slowly Healing Wounds	The United States (U.S.) Office of Dietary Supplements (ODS) advice the following intake of vitamin C: -Up to 6 months: 40 mg, as normally supplied though breastfeeding -During pregnancy, women should consume 85 mg of vitamin C, rising to 120 mg while breastfeeding.	-Promotion of health research projects on vitamin C deficiency and its associated factors. -Increase production and adequate consumption of vitamin C-rich foods

			-Smokers need 35 mg more than nonsmokers do every day.	
Vitamin D	Rickets, osteomalacia, osteoporosis, colorectal cancer	-Bone and Back Pain -Depression -Impaired Wound Healing -Bone Loss -Hair Loss -Muscle Pain	-Increase vitamin D supplement -Eat foods rich in vitamin D -Increase exposure to natural sunlight	-Maintain a healthy body weight -Monitoring and treating medical conditions: -Using vitamin D supplements
Calcium	Decreased bone mineralization, rickets, osteoporosis	-Tingling Fingers-Muscle cramps-Lethargy-Poor appetite	-Reducing intake of caffeine-Inclusion of dairy products in daily diet-Educate children on the importance of dairy products.	-Maintain a healthy body weight -Monitoring and treating medical conditions

Role of water and dietary fiber in promoting health

THE WAY FIBER ACTS

- ✓ Fiber strengthens the consistency to food which forces you to chew properly and break the food up.
- ✓ Fiber is, in general, non-digestible and will end up intact in the large intestine (colon).
- ✓ Fiber absorbs water (up to five times its weight) and expands as it passes through the bowel.
- ✓ In summary, fiber has a recognized role in regulating gastro-intestinal function, particularly in helping to prevent constipation.

SOURCES AND RECOMMENDED QUANTITIES

There are three food groups which are excellent sources of fiber, they are :

- Cereals e.g. : All Bran, Bran buds, Shreddies, Shredded Wheat, Whole grain breads and pastas.
- Fruits and vegetables e.g. : Cooked prunes, raisins, dates, raspberries, pears.
- Meat, fish and poultry substitutes e.g. : Legumes and nuts : Baked beans, red kidney beans, split peas, lentils, chickpeas, peanuts, almonds.

WATER

THE ROLE OF WATER

- Water transports nutrients in the digestive system, the blood and inside cells.
- The organism needs water to eliminate waste in urine and feces (stools).
- Water regulates the body temperature.
- The combination of water and fiber prevents constipation.

Recommended quantities

A minimum of 6 to 8 glasses of water per day.

Water in various forms

- Water from the tap and bottled mineral or non-mineral water.
- All flavours of herbal teas (not more than 3 to 4 cups per day).
- Soups and broths.
- Fruit or vegetable juices.
- Cereal beverages (ovaltine, postum…).

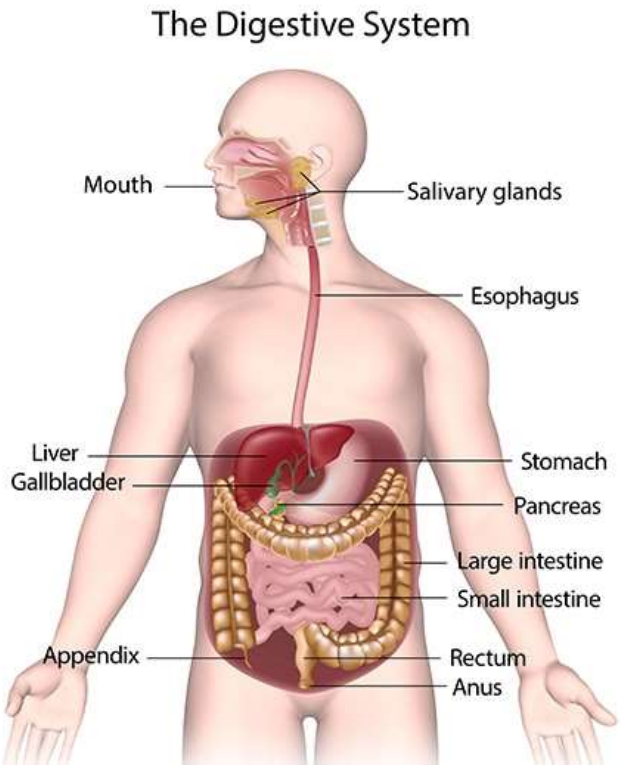
HUMAN BODY SYSTEM

a. <u>Digestive system</u>

Parts of a human digestive system

The digestive system is made up of the gastrointestinal tract—also called the GI tract or digestive tract—and the liver, pancreas, and gallbladder. The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. The hollow organs that make up the GI tract are the mouth, esophagus, stomach, small intestine, large intestine, and anus. The liver, pancreas, and gallbladder are the solid organs of the digestive system.

The small intestine has three parts. The first part is called the duodenum. The jejunum is in the middle and the ileum is at the end. The large intestine includes the appendix, cecum, colon, and rectum. The appendix is a finger-shaped pouch attached to the cecum. The cecum is the first part of the large intestine. The colon is next. The rectum is the end of the large intestine.



Functions of the various parts of the human digestive system

The digestive process

Organ	Movement
Mouth	Chewing

Organ	Movement
Esophagus	Peristalsis
Stomach	Upper muscle in stomach relaxes to let food enter, and lower muscle mixes food with digestive juice
Small intestine	Peristalsis
Pancreas	None
Liver	None
Large intestine	Peristalsi

Mouth. Food starts to move through your GI tract when you eat. When you swallow, your tongue pushes the food into your throat. A small flap of tissue, called the epiglottis, folds over your windpipe to prevent choking and the food passes into your esophagus.

Esophagus. Once you begin swallowing, the process becomes automatic. Your brain signals the muscles of the esophagus and peristalsis begins.

Lower esophageal sphincter. When food reaches the end of your esophagus, a ringlike muscle—called the lower esophageal sphincter —relaxes and lets food pass into your stomach. This sphincter usually stays closed to keep what's in your stomach from flowing back into your esophagus.

Stomach. After food enters your stomach, the stomach muscles mix the food and liquid with digestive juices. The stomach slowly empties its contents, called chyme, into your small intestine.

Small intestine. The muscles of the small intestine mix food with digestive juices from the pancreas, liver, and intestine, and push the mixture forward for further digestion. The walls of the small intestine absorb water and the digested nutrients into your bloodstream. As peristalsis continues, the waste products of the digestive process move into the large intestine.

Large intestine. Waste products from the digestive process include undigested parts of food, fluid, and older cells from the lining of your GI tract. The large intestine absorbs water and changes the waste from liquid into stool. Peristalsis helps move the stool into your rectum.

Rectum. The lower end of your large intestine, the rectum, stores stool until it pushes stool out of your anus during a bowel movement.

How does my digestive system break food into small parts my body can use?

As food moves through your GI tract, your digestive organs break the food into smaller parts using:

- motion, such as chewing, squeezing, and mixing
- digestive juices, such as stomach acid, bile, and enzymes

Mouth. The digestive process starts in your mouth when you chew. Your salivary glands make saliva, a digestive juice, which moistens food so it moves more easily through your esophagus into your stomach. Saliva also has an enzyme that begins to break down starches in your food.

Esophagus. After you swallow, peristalsis pushes the food down your esophagus into your stomach.

Stomach. Glands in your stomach lining make stomach acid and enzymes that break down food. Muscles of your stomach mix the food with these digestive juices.

Pancreas. Your pancreas makes a digestive juice that has enzymes that break down carbohydrates, fats, and proteins. The pancreas delivers the digestive juice to the small intestine through small tubes called ducts.

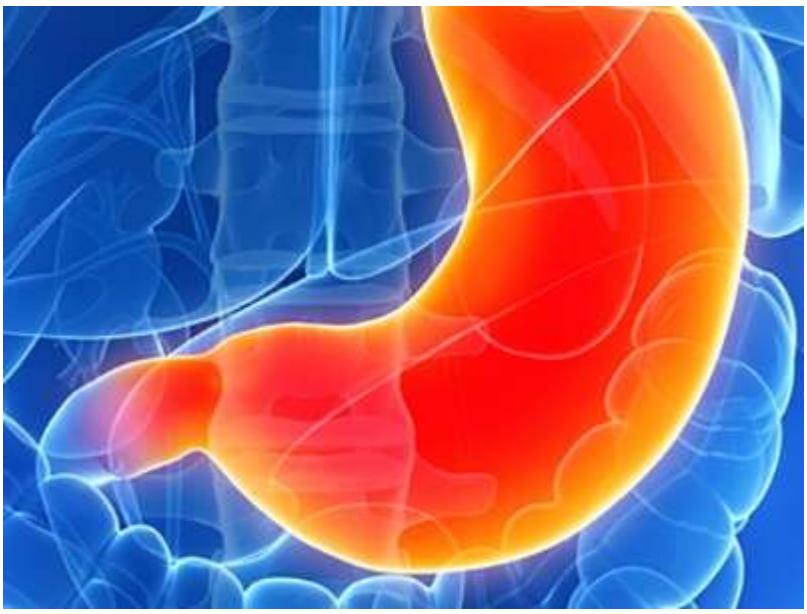
Liver. Your liver makes a digestive juice called bile that helps digest fats and some vitamins. Bile ducts carry bile from your liver to your gallbladder for storage, or to the small intestine for use.

Gallbladder. Your gallbladder stores bile between meals. When you eat, your gallbladder squeezes bile through the bile ducts into your small intestine.

Small intestine. Your small intestine makes digestive juice, which mixes with bile and pancreatic juice to complete the breakdown of proteins, carbohydrates, and fats. Bacteria in your small intestine make some of the enzymes you need to digest carbohydrates. Your small intestine moves water from your bloodstream into your GI tract to help break down food. Your small intestine also absorbs water with other nutrients.

Large intestine. In your large intestine, more water moves from your GI tract into your bloodstream. Bacteria in your large intestine help break down remaining nutrients and make vitamin K. Waste products of digestion, including parts of food that are still too large, become stool.

Common conditions and diseases affecting the digestive system



Some digestive diseases and conditions are acute, lasting only a short time, while others are chronic, or long-lasting. They include

- acid reflux(heartburn) - Gastroesophageal reflux (GER) happens when your stomach contents come back up into your esophagus. Gastroesophageal reflux disease (GERD) is a more severe and long-lasting condition in which GER causes repeated symptoms or leads to complications over time.

  Symptoms & Causes

  Gastroesophageal reflux (GER) and gastroesophageal reflux disease (GERD) commonly cause symptoms such as heartburn and regurgitation. GERD may develop when your lower esophageal sphincter becomes weak or relaxes when it shouldn't.
- constipation - Constipation is a condition in which you may have fewer than three bowel movements a week; stools that are hard, dry, or lumpy; stools that are difficult or painful to pass; or a feeling that not

all stool has passed. You usually can take steps to prevent or relieve constipation.

- Diarrhoea - Diarrhea is loose, watery stools three or more times a day. Diarrhea may be acute, persistent, or chronic. Acute diarrhea is more common than persistent or chronic diarrhea. Complications of diarrhea are dehydration and malabsorption.
- Indigestion (dyspepsia) - Indigestion is a general term that describes a group of gastrointestinal symptoms that occur together, including pain, a burning feeling, or discomfort in your upper abdomen; feeling full too soon while eating; and feeling uncomfortably full after eating.
- Food poisoning - Food poisoning is an infection or irritation of your digestive tract that spreads through foods or drinks. Food poisoning is most often acute, and most people get better on their own without treatment. In some cases, food poisoning leads to serious complications, such as dehydration.

- Liver disease - The liver has many important functions, including digesting your food and processing and distributing nutrients.There are many kinds of liver diseases and conditions. Some, like hepatitis, are caused by viruses. Others can be the result of drugs or drinking too much alcohol. Long-lasting injury or scar tissue in the liver can cause cirrhosis. Jaundice, or yellowing of the skin, can be one sign of liver disease.
- Stomach and duodenal ulcers - A peptic ulcer, or stomach or duodenal ulcer, is a sore on the lining of your stomach or duodenum. Peptic

ulcers can lead to complications such as bleeding, perforation, penetration, or blockage in your stomach or duodenum.

- Gas in the digestive tract - A gas is a substance that has no fixed size or shape. The gas inside your digestive tract is made of air and other gases. Gas typically leaves your digestive tract through your mouth when you belch or through your anus when you pass gas. Gas normally enters your digestive tract when you swallow air and when bacteria in your large intestine break down certain undigested carbohydrates.

Others include:

- Worms
- Hernia
- Pancreatitis
- Crohns disease

Ways of preventing common conditions and diseases affecting the human digestive system.

1. Eat small, frequent meals

Prevent indigestion, bloating and heartburn by changing how often you eat without increasing your overall calorie intake.

Instead of three meals a day, enjoy four to five smaller meals and eat them slowly. Taking time to chew food properly makes you feel full, which can help prevent overeating that can cause gas, bloating, heartburn and indigestion.

2. Drink plenty of water and limit alcohol

Water helps your body flush waste and toxins, and helps your colon eliminate waste, which prevents constipation.

The amount of water you need every day may depend on numerous factors, such as activity level, geographic location and temperature. If you have questions about how much water you need per day, check with your doctor.

“Make sure you also limit your alcohol consumption,”. Alcohol interferes with acid secretion and nutrient absorption. Too much alcohol can contribute to heartburn, diarrhea and liver issues.

3. Exercise regularly

Daily physical activity can help your body’s digestive system move things along and eliminate waste. Try walking, cycling, swimming, using an elliptical trainer or hiking.

4. Maintain a healthy body weight

Extra kilograms, especially around the midsection, can make digestive issues, such as heartburn, gas and burping, worse.

If you need to lose weight, you don’t need to rush it. Make easy, small changes for healthy weight loss.

5. Eat a balanced diet

“Stay away from fried, greasy foods that are hard to digest,” “Instead, fill your plate with fiber-rich foods, like cherries, grapes, bell peppers, beans, whole grains and nuts.”

Add fish to your list of healthy foods as well. The omega-3 fatty acids in fish can improve digestive issues by stabilizing cell walls to reduce inflammation.

Probiotic-containing foods also help with digestion. Probiotics, such as yogurt and kefir, contain good bacteria that can fight any bad bacteria lurking in your gut.

6. Manage your stress level

Stress can cause "butterflies in your stomach." A sad experience can be "gut-wrenching." The reason is because your brain has a direct impact on your stomach.

b. Excretory System

The excretory system is a passive biological system that removes excess, unnecessary materials from the body fluids of an organism, so as to help maintain internal body reactions and prevent damage to the body.

The organs include:

- Kidney
- Skin
- Respiratory system

Functions of the skin

- Provides a protective barrier against mechanical, thermal and physical injury and hazardous substances.
- Prevents loss of moisture.
- Reduces harmful effects of UV radiation.
- Acts as a sensory organ (touch, detects temperature).
- Helps regulate temperature.
- An immune organ to detect infections etc.
- Production of vitamin D.

Causes of common skin conditions and diseases

- Bacteria trapped in your pores or hair follicles.
- Conditions that affect your thyroid, kidneys or immune system.
- Contact with environmental triggers, such as allergens or another person's skin.
- Genetics
- Fungus or parasites living on your skin.
- Medications, such as the ones that treat inflammatory bowel disease (IBD).
- Viruses.
- Diabetes.
- Sun.

Signs and symptoms of skin diseases

- Discolored skin patches (abnormal pigmentation).
- Dry skin.
- Open sores, lesions or ulcers.
- Peeling skin.
- Rashes, possibly with itchiness or pain.
- Red, white or pus-filled bumps.
- Scaly or rough skin.

Ways of preventing skin diseases

- Avoid sharing utensils, personal items or cosmetics.
- Disinfect objects you use in public spaces, such as gym equipment.
- Drink plenty of water and eat a nutritious diet.
- Limit contact with irritants or harsh chemicals.
- Sleep seven to eight hours per night.
- Use sun protection to prevent sunburn and other sun damage.
- Wash your hands regularly with soap and water.

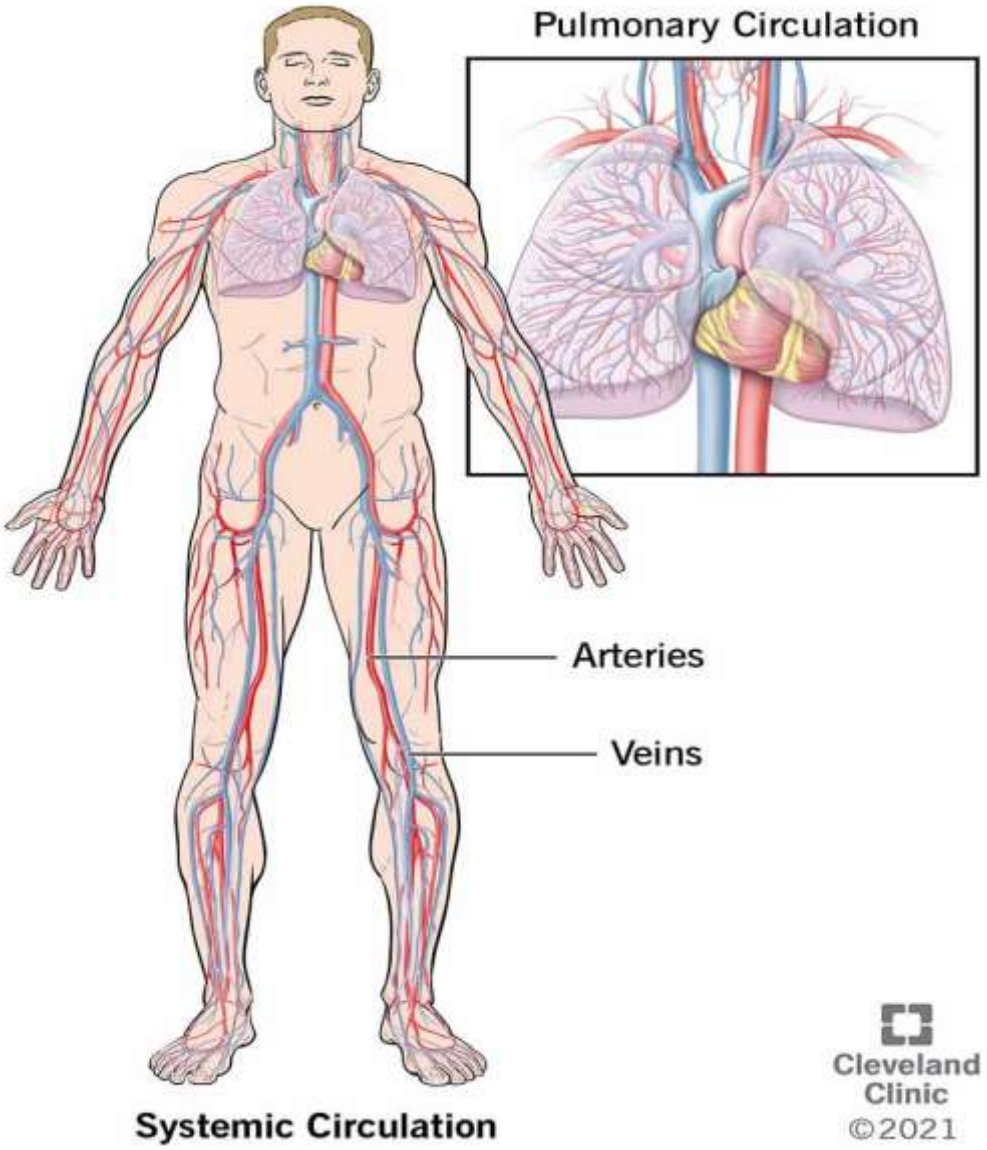
Importance of a healthy skin

As the largest organ of your body, the skin plays the role of first line of defense in keeping you safe from infections and other unfriendly elements. It is for this reason that your skin needs to be in good health always. The following are benefits of a healthy skin.

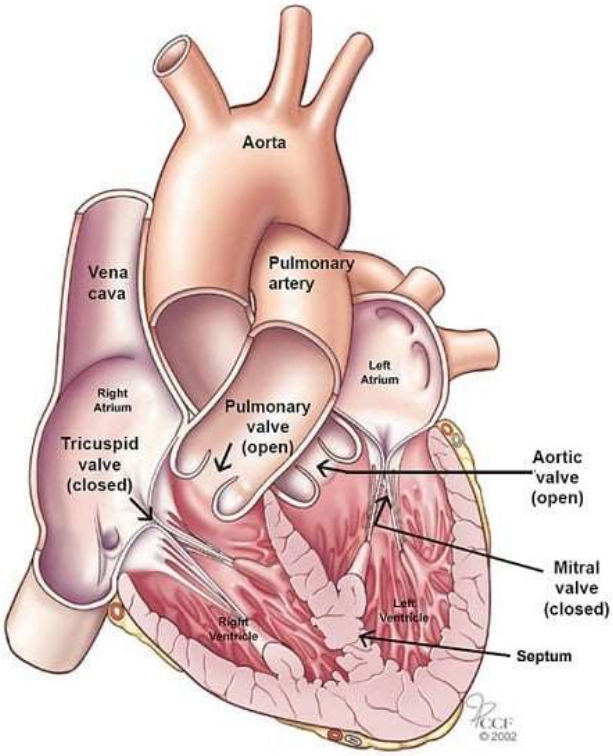
- Protection from infection: Your skin protects your body from the many viruses and bacteria you are exposed to daily. Healthy skin also helps you react better to important changes around you by feeling pain or pressure.
- Protection against UV: It also protects you from the rays of the sun – specifically ultraviolet light – that can damage cells
- The supply of vitamin D: Healthy skin produces vitamin D when exposed to the sun, and vitamin D is important for many body functions.

c. <u>Circulatory system</u>

The circulatory system (cardiovascular system) pumps blood from the heart to the lungs to get oxygen. The heart then sends oxygenated blood through arteries to the rest of the body. The veins carry oxygen-poor blood back to the heart to start the circulation process over. Your circulatory system is critical to healthy organs, muscles and tissues.



Structure and function of the heart


Aorta
Vena cava
Pulmonary artery
Left Atrium
Right Atrium
Pulmonary valve (open)
Tricuspid valve (closed)
Aortic valve (open)
Mitral valve (closed)
Left Ventricle
Right Ventricle
Septum
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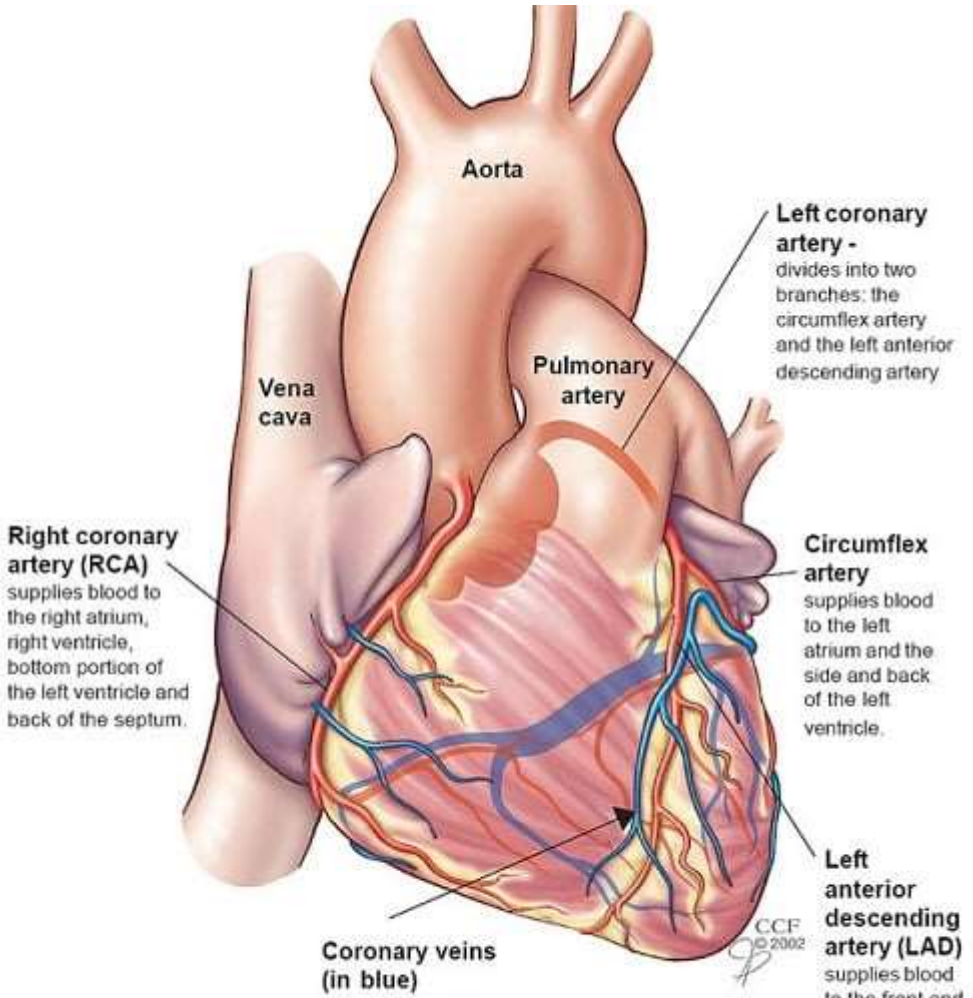
Aorta
Left coronary artery - divides into two branches: the circumflex artery and the left anterior descending artery
Pulmonary artery
Vena cava
Right coronary artery (RCA) supplies blood to the right atrium, right ventricle, bottom portion of the left ventricle and back of the septum.
Circumflex artery supplies blood to the left atrium and the side and back of the left ventricle.
Left anterior descending artery (LAD) supplies blood to the front and bottom of the left ventricle and the front of the septum
Coronary veins (in blue) bring blood back to the heart from other parts of the body
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Blood vessels

Your heart pumps blood through three types of blood vessels:

- Arteries carry oxygen-rich blood from your heart to your body's tissues. The exception is your pulmonary arteries, which go to your lungs.
- Veins carry oxygen-poor blood back to your heart.
- Capillaries are small blood vessels where your body exchanges oxygen-rich and oxygen-poor blood.
- The right atrium receives blood from the veins that has already circulated through the body and pumps it over to the right ventricle.
- The right ventricle passes the blood on to the pulmonary artery, which sends it to the lungs to pick up oxygen.
- The left atrium receives the now oxygen-rich blood from the lungs and pumps it into the left ventricle.
- The left ventricle pumps the oxygen-rich blood to the body through a large network of arteries. The contractions of the left ventricle, the strongest of the four chambers, are what create blood pressure in the body.

Your heart's main function is to move blood throughout your body. Your heart also:

- Controls the rhythm and speed of your heart rate.
- Maintains your blood pressure.

Causes of common conditions and diseases of the circulatory system.

Cardiovascular disease is a group of diseases affecting your heart and blood vessels. These diseases can affect one or many parts of your heart and/or blood vessels. A person may be symptomatic (physically experiencing the disease) or asymptomatic (not feeling anything at all).

Cardiovascular disease includes heart or blood vessel issues, including:

- Narrowing of the blood vessels in your heart, other organs or throughout your body.

- Heart and blood vessel problems present at birth.
- Heart valves that aren't working right.
- Irregular heart rhythms.

What are cardiovascular disease risk factors?

You may be more likely to develop cardiovascular disease if you have risk factors such as:

- High blood pressure (hypertension).
- High cholesterol (hyperlipidemia).
- Tobacco use (including vaping).
- Type 2 diabetes.
- Family history of heart disease.
- Lack of physical activity.
- Having excess weight or obesity.
- Diet high in sodium, sugar and fat.
- Overuse of alcohol.
- Misuse of prescription or recreational drugs.
- Gestational diabetes.
- Chronic inflammatory or autoimmune conditions.
- Chronic kidney disease.

Symptoms of heart issues

- Chest pain (angina).
- Chest pressure, heaviness or discomfort, sometimes described as a "belt around the chest" or a "weight on the chest."
- Shortness of breath (dyspnea).
- Dizziness or fainting.
- Fatigue or exhaustion.

Symptoms of blockages in blood vessels throughout your body

- Pain or cramps in your legs when you walk.

- Leg sores that aren't healing.
- Cool or red skin on your legs.
- Swelling in your legs.
- Numbness in your face or a limb. This may be on only one side of your body.
- Difficulty with talking, seeing or walking.

Conditions and diseases of the circulatory system

- Valve disease: Tightening or leaking in your heart valves (structures that allow blood to flow from one chamber to another chamber or blood vessel).
- Coronary artery disease: Problem with your heart's blood vessels, such as blockages.
- Heart failure: Problem with heart pumping/relaxing functions, leading to fluid buildup and shortness of breath.
- Aortic disease: Problem with the large blood vessel that directs blood from your heart to your brain and the rest of your body, such as dilatation or aneurysm.
- Cerebrovascular disease: Issue with the blood vessels that deliver blood to your brain, such as narrowing or blockages.

Ways of preventing common conditions and diseases of the circulatory system

- Avoiding all tobacco products.
- Managing other health conditions, such as Type 2 diabetes, high cholesterol or high blood pressure.
- Achieving and maintaining a healthy weight.
- Eating a diet low in saturated fat and sodium.
- Exercising at least 30 to 60 minutes per day on most days.
- Reducing and managing stress.

Importance of a healthy circulatory system

1. To maintain cholesterol and blood pressure

High cholesterol levels increase your risk for developing cardiovascular disease, but that's not all. Unhealthy cholesterol in the blood can also lead to heart attack and stroke, according to the American Heart Association.

High blood pressure levels are even more threatening to your overall health. Besides a heightened risk for heart attack, stroke and heart failure, you're also more likely to develop peripheral artery disease, angina, vision loss and kidney disease or failure.

2. To reduce feelings of depression

Did you know that cardiovascular disease can increase your chance of feeling depressed? Research shows that 33 percent of heart attack victims end up showing depressive symptoms.

3. To lower your risk of developing dementia

There's a connection between heart health and mental well-being, but it goes beyond feelings of depression. Research shows that poor heart health is also associated with dementia. When you don't properly take care of your heart – with smart lifestyle decisions – you're narrowing your blood vessels, which then limits the amount of blood that can get to the brain. Without proper blood flow, your brain can't work the way it's supposed to and you may have trouble making decisions, reasoning with others and remembering familiar faces and places.

MENTAL AND EMOTIONAL HEALTH

a. Mental health

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

Over the course of your life, if you experience mental health problems, your thinking, mood, and behavior could be affected. Many factors contribute to mental health problems, including:

- Biological factors, such as genes or brain chemistry
- Life experiences, such as trauma or abuse
- Family history of mental health problems

Mental illness, also called mental health disorders, refers to a wide range of mental health conditions — disorders that affect your mood, thinking and behavior. Examples of mental illness include depression, anxiety disorders, schizophrenia, eating disorders and addictive behaviors.

Importance of mental health

- Positive mental health allows people to:
- Realize their full potential
- Cope with the stresses of life
- Work productively
- Make meaningful contributions to their communities

Ways to maintain positive mental health include:

- Getting professional help if you need it
- Connecting with others
- Staying positive
- Getting physically active
- Helping others
- Getting enough sleep
- Developing coping skills

Signs and symptoms of mental illness and disorders

- Feeling sad or down
- Confused thinking or reduced ability to concentrate
- Excessive fears or worries, or extreme feelings of guilt
- Extreme mood changes of highs and lows
- Withdrawal from friends and activities

- Significant tiredness, low energy or problems sleeping
- Detachment from reality (delusions), paranoia or hallucinations
- Inability to cope with daily problems or stress
- Trouble understanding and relating to situations and to people
- Problems with alcohol or drug use
- Major changes in eating habits
- Sex drive changes
- Excessive anger, hostility or violence
- Suicidal thinking

Measure to prevent mental health

- Seek help from your primary care provider.
- Reach out to a close friend or loved one.
- Contact a minister, spiritual leader or someone else in your faith community.
- Being active
- Eating well
- Staying in touch
- Quality sleep
- Self-acceptance

b. Mental health in the community

Factors affecting mental health

These factors are both psychological and social

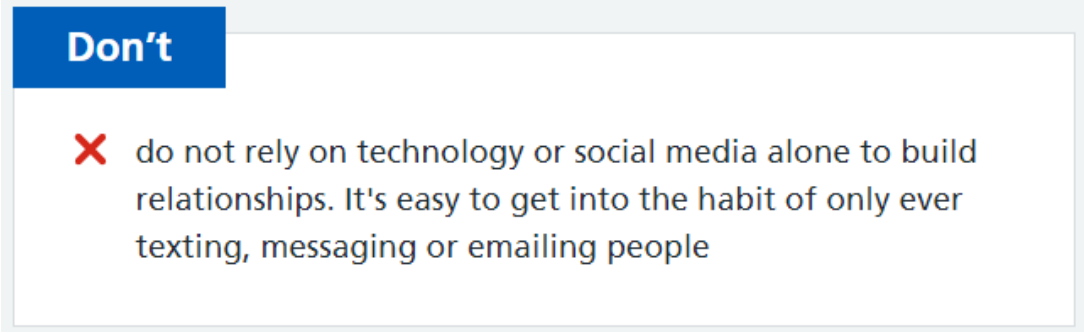
- childhood abuse, trauma, or neglect
- social isolation or loneliness
- experiencing discrimination and stigma, including racism
- social disadvantage, poverty or debt
- bereavement (losing someone close to you)
- severe or long-term stress
- having a long-term physical health condition
- unemployment or losing your job

- homelessness or poor housing
- being a long-term carer for someone
- drug and alcohol misuse
- domestic violence, bullying or other abuse as an adult
- significant trauma as an adult, such as military combat, being involved in a serious incident in which you feared for your life, or being the victim of a violent crime
- physical causes – for example, a head injury or a neurological condition such as epilepsy can have an impact on your behaviour and mood. (It's important to rule out potential physical causes before seeking further treatment for a mental health problem).

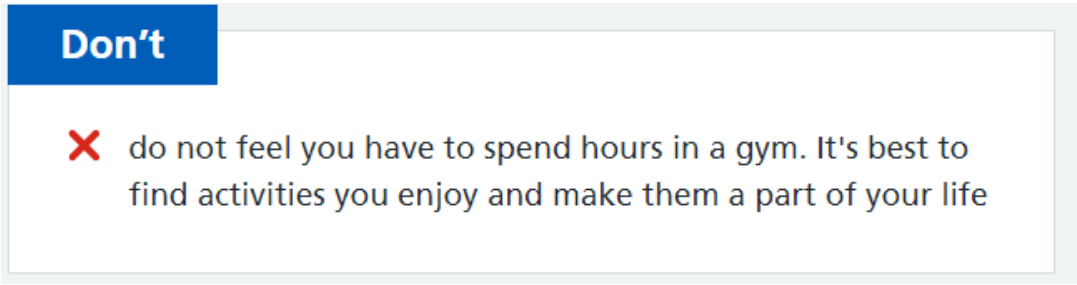
Although lifestyle factors including work, diet, drugs and lack of sleep can all affect your mental health, if you experience a mental health problem there are usually other factors as well.

Life style activities that promote positive mental wellbeing/strategies

- Getting professional help if you need it
- Connecting with others



- Staying positive
- Getting physically active



- Helping others
- Getting enough sleep
- Developing coping skills
- Participating in health clubs
- Journaling

USE OF MEDICINE

a. Safe use of medicine

Medicines, often referred to as drugs, are used to prevent or treat diseases and other health conditions. Medicines can be obtained by a prescription or over the counter (OTC).

Prescribed and prescribed medicine

Prescribed medication is medicine that you can only have if the doctor has given you a prescription for it, such as antibiotics. Non-prescribed medication is medicine that you can buy over the counter from the chemist or pharmacist, for example aspirin or cough medicine. Non-prescribed medicines are sometimes called 'homely remedies'.

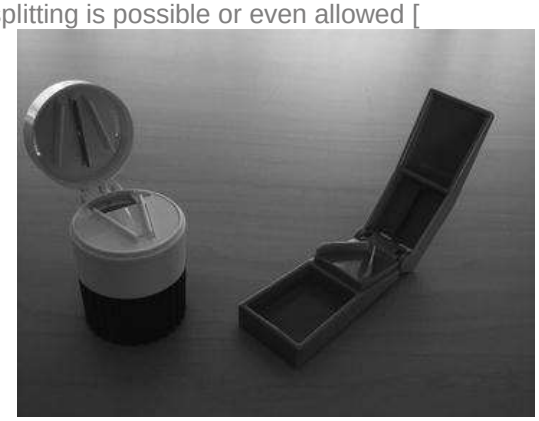
Instructions on a prescription

- Labelling and Package Leaflet in More Detail
- Route of Administration
- Name of the Pharmacist or Pharmacy
- Ingredients of the Medicine
- Content of Active Substance in Pharmaceutical Preparations
- Units - For the indication of strength or amounts of active substances and excipients the following physical parameters are used: volume, mass and or quantity, with units according to the

international system (SI). The following units and derived units are used:

- Dose - Dose and frequency are indicated, if necessary at what times of the day. In case of variable doses ('on demand') the maximum use per 24 h and sometimes a maximum per week should be stated. Additional instructions may be needed, i.e. 'Shake well before use', or 'Take with meals', depending on the type of medicine.
- Expiry Date and Beyond-Use Date - Expiry date and storage instructions are legally required on the label of all medicines. After the expiry date the manufacturer cannot guarantee the quality and safety of the product, no matter whether the package has been opened or not
- Storage - Storage instructions that are important for the usage period should be on the label (e.g. Keep refrigerated, or Store at room temperature).
- Instructions on Use
- Oral and Written Instructions
- When dispensing medicines, oral instructions on use should be given in the pharmacy together with additional written information as appropriate. The way patients (or caregivers) receive instructions is one of the factors determining the quality of their manipulations with the medicine. Also it is important to try to understand a patient's capabilities, language skills and situation. Research has shown that demonstrating, followed by copying by the patient, and additional written instructions all lead to better results, compared to just oral instructions.
- Packaging
- Opening a package in the right way may require explanation (e.g. eye drop bottles, suppository strips, orally disintegrating tablets). Sometimes a user may prefer a specific container, for instance a jar instead of a tube for ointments.
- Way of Use
- Tablet Types
- Solid oral dosage forms need explanation on the type. An effervescent tablet has to be dissolved before use, but small dispersible tablets could also be swallowed as a whole, with a glass of water. Taking the medicine with water is allowed, but not necessary in orally disintegrating tablets, which are designed to disintegrate on the tongue.
- Dividing Tablets
- Dividing or breaking tablets is another point of interest, and not only when it is mentioned in the prescription, or as a means of obtaining the prescribed dose. In many cases patients divide tablets on their own initiative, to ease swallowing or because they want to take a lower dose.

- The package leaflet does not always indicate whether a tablet may be divided, and the presence of a score line does not guarantee that splitting is possible or even allowed [



- Measuring Liquids
- In pharmacy preparations packaging and measuring devices are part of the design of a product. In other words, attention should be paid to the feasibility of measuring the expected quantities with the supplied device from the container chosen.

Dangers of using unprescribed medicine on human health or Over the Counter medicine

- You don't know how this medication may interact with prescription medications or over the counter aids that you are also currently taking
- This medication may be dangerous for an individual with your specific medical conditions (ie, if you have liver damage, kidney dysfunction or heart disease)

- You may think the medication is one drug while it's actually another due to similarities in names (ie, sertraline and cetirizine)
- You could simply be allergic to the medication
- The medication could be in the wrong dose for someone of your age, weight, or sex or for someone with your medical history
- You may not know whether the medication needs to be taken with or without food
- The medication may have serious short term or even long lasting side effects that you are unaware of
- The medication may have the potential to be habit-forming (ie, have a risk of causing addiction)

Common effects of medicine in the body

Some common examples mild adverse effects related to drugs include:

- Constipation
- Skin rash or dermatitis
- Diarrhea
- Dizziness
- Drowsiness
- Dry mouth
- Headache
- Insomnia
- Nausea

Examples of more serious effects include:

- Suicidal thoughts
- Abnormal heart rhythms
- Internal bleeding

- Cancer

Correct use of medicine

- ***Follow instructions.*** Read all medicine labels and be sure to follow instructions. Don't take a larger dose of a medicine, thinking it will help you more. This could be very dangerous and even deadly. And don't skip or take half doses of a prescription drug to save money. Talk with your doctor or pharmacist if you can't afford the medicine.
- ***Take medicine on time.*** Some people use meals or bedtime as reminders to take their medicine. Other people use charts, calendars, or weekly pill boxes. You can also set timers and write reminders to take your medication. Medication reminder apps for smartphones are becoming more popular; these apps can help you remember when and how to take your medications each day.
- ***Turn on a light.*** Don't take medicine in the dark; you might make a mistake.
- ***Report problems.*** Call your doctor right away if you have any trouble with your prescriptions, OTC medicines, or supplements. There may be something else you can take.
- ***Ask your loved ones for help.*** Take a friend or relative with you to your doctor's appointments if you think you may need help understanding or remembering what the doctor tells you.
- ***Check before stopping.*** Take prescription medicine until it's finished, or your doctor says it's all right to stop. Note that some medicines are supposed to be taken only "as needed."
- ***Don't share.*** Do not take medicines prescribed for another person or give yours to someone else.

Proper ways of storing medicine

- Know that heat, air, light, and moisture may damage your medicine.
- Store your medicines in a cool, dry place. For example, store it in your dresser drawer or a kitchen cabinet away from the stove, sink, and any hot appliances. You can also store medicine in a storage box, on a shelf, or in a closet.

- If you are like most people, you probably store your medicine in a bathroom cabinet. But the heat and moisture from your shower, bath, and sink may damage your medicine. Your medicines can become less potent, or they may go bad before the expiration date.
- Pills and capsules are easily damaged by heat and moisture. Aspirin pills break down into vinegar and salicylic acid. This irritates the stomach.
- Always keep medicine in its original container.
- Take the cotton ball out of the medicine bottle. The cotton ball pulls moisture into the bottle.
- Ask your pharmacist about any specific storage instructions.

Keep children safe.

- Always store your medicine out of reach and out of sight of children.
- Store your medicine in a cabinet with a child latch or lock.

FIRST AID AND BASIC LIFE SUPPORT

a. First aid

Emergency care or treatment given to an ill or injured person before regular medical aid can be obtained

Contents of the first aid kit and their uses

A basic first aid kit may contain:

- plasters in a variety of different sizes and shapes
- small, medium and large sterile gauze dressings
- at least 2 sterile eye dressings
- triangular bandages
- crêpe rolled bandages
- safety pins
- disposable sterile gloves
- tweezers
- scissors
- alcohol-free cleansing wipes
- sticky tape
- thermometer (preferably digital)
- skin rash cream, such as hydrocortisone or calendula
- cream or spray to relieve insect bites and stings
- antiseptic cream
- painkillers such as paracetamol (or infant paracetamol for children), aspirin (not to be given to children under 16), or ibuprofen
- antihistamine cream or tablets
- distilled water for cleaning wounds
- eye wash and eye bath

precautions to observe while offering first aid to an injured person

- washing hands and other skin surfaces;
- wearing gloves, masks, and protective eyewear;
- wearing protective suits, gowns or aprons;
- Being careful with sharp objects;
- disinfecting all contaminated surfaces;
- using designated disposal containers;
- using protective resuscitation masks for cardiopulmonary resuscitation (CPR);
- not eating, drinking, applying cosmetics or lip balm, smoking, or handling contact lenses where exposure may occur; and
- contacting the environmental services staff who is trained to clean spills of bodily fluids.

Methods for safe disposal of first aid materials

A clearly labelled first aid waste bin will be supplied and maintained in the following way:

- Fitted with a bag that can be sealed and removed each day (if required);
- Cleaned and sanitized daily (if required);
- Located in a suitable place that is not readily accessible to children.

b. <u>First aid for common accidents and injuries</u>

Common accidents and emergencies

Below is a list

- anaphylaxis (or anaphylactic shock)
- bleeding
- burns and scalds
- choking
- drowning
- electric shock (domestic)
- fractures
- heart attack

- poisoning
- shock
- stroke

Anaphylaxis

Anaphylaxis (or anaphylactic shock) is a severe allergic reaction that can occur after an insect sting or after eating certain foods. The adverse reaction can be very fast, occurring within seconds or minutes of coming into contact with the substance the person is allergic to (allergen).

- During anaphylactic shock, it may be difficult for the person to breathe, as their tongue and throat may swell, obstructing their airway.
- Check if the person is carrying any medication. Some people who know they have severe allergies may carry an adrenaline self-injector, which is a type of pre-loaded syringe. You can either help the person administer their medication or, if you're trained to do so, give it to them yourself.
- After the injection, continue to look after the person until medical help arrives. All casualties who have had an intramuscular or subcutaneous (under the skin) injection of adrenaline must be seen and medically checked by a healthcare professional as soon as possible after the injection has been given.
- Make sure they're comfortable and can breathe as best they can while waiting for medical help to arrive. If they're conscious, sitting upright is normally the best position for them.

Bleeding

If someone is bleeding heavily, the main aim is to prevent further blood loss and minimize the effects of shock.

- If you have disposable gloves, use them to reduce the risk of any infection being passed on.
- Check that there's nothing embedded in the wound. If there is, take care not to press down on the object.

- Instead, press firmly on either side of the object and build up padding around it before bandaging, to avoid putting pressure on the object itself.
- If nothing is embedded: apply and maintain pressure to the wound with your gloved hand, using a clean pad or dressing if possible; continue to apply pressure until the bleeding stops use a clean dressing to bandage the wound firmly
- if bleeding continues through the pad, apply pressure to the wound until the bleeding stops and then apply another pad over the top and bandage it in place; don't remove the original pad or dressing, but continue to check that the bleeding has stopped
- If a body part, such as a finger, has been severed, place it in a plastic bag or wrap it in cling film and make sure it goes with the casualty to hospital.
- Always seek medical help for bleeding unless it's minor.

Burns and scalds

If someone has a burn or scald:

- cool the burn as quickly as possible with cool running water for at least 10 minutes, or until the pain is relieved
- while cooling the burn, carefully remove any clothing or jewellery, unless it's attached to the skin
- if you're cooling a large burnt area, particularly in babies, children and elderly people, be aware that it may cause hypothermia (it may be necessary to stop cooling the burn to avoid hypothermia)
- cover the burn loosely with cling film; if cling film isn't available, use a clean, dry dressing or non-fluffy material; don't wrap the burn tightly, because swelling may lead to further injury don't apply creams, lotions or sprays to the burn
- For chemical burns, wear protective gloves, remove any affected clothing, and rinse the burn with cool running water for at least 20 minutes to wash out the chemical. If possible, determine the cause of the injury.

- In certain situations where a chemical is regularly handled, a specific chemical antidote may be available to use.
- Be careful not to contaminate and injure yourself with the chemical, and wear protective clothing if necessary.

Choking

The information below is for choking in adults and children over one year old.

Mild choking

If the airway is only partly blocked, the person will usually be able to speak, cry, cough or breathe. In situations like this, a person will usually be able to clear the blockage themselves.

If choking is mild: encourage the person to cough to try to clear the blockage

ask them to try to spit out the object if it's in their mouth don't put your fingers in their mouth to help them because they may accidentally bite you

If coughing doesn't work, start back blows

Severe choking

If choking is severe, the person won't be able to speak, cry, cough or breathe, and without help they'll eventually become unconscious.

To help an adult or child over one year old: Stand behind the person and slightly to one side. Support their chest with one hand. Lean the person forward so that the object blocking their airway will come out of their mouth, rather than moving further down.

Give up to five sharp blows between the person's shoulder blades with the heel of your hand (the heel is between the palm of your hand and your wrist).

Check if the blockage has cleared. If not, give up to five abdominal thrusts

Abdominal thrusts shouldn't be used on babies under one year old, pregnant women or obese people.

To perform abdominal thrusts on a person who is severely choking and isn't in one of the above groups:

Stand behind the person who is choking. Place your arms around their waist and bend them well forward.

Clench one fist and place it just above the person's belly button. Place your other hand on top of your fist and pull sharply inwards and upwards.

Repeat this up to five times.

The aim is to get the obstruction out with each chest thrust, rather than necessarily doing all five.

If the obstruction doesn't clear after three cycles of back blows and chest thrusts, ask for an ambulance, and continue until help arrives.

The person choking should always be seen by a healthcare professional afterwards to check for any injuries or small pieces of the obstruction that remain.

Drowning

If someone is in difficulty in water, don't enter the water to help unless it's absolutely essential.

Once the person is on land, if they're not breathing, open the airway and give five initial rescue breaths before starting CPR. If you're alone, perform CPR for one minute before phoning for emergency help.

If the person is unconscious but still breathing, put them into the recovery position with their head lower than their body and phone an ambulance immediately.

Continue to observe the casualty to ensure they don't stop breathing or that their airway becomes obstructed.

Electric shock (domestic)

If someone has had an electric shock, switch off the electrical current at the mains to break the contact between the person and the electrical supply.

If you can't reach the mains supply: don't go near or touch the person until you're sure the electrical supply has been switched off

once the power supply has been switched off, and if the person isn't breathing, call for an ambulance

Afterwards, seek medical help - unless the electric shock is very minor.

Fractures

It can be difficult to tell if a person has a broken bone or a joint, as opposed to a simple muscular injury. If you're in any doubt, treat the injury as a broken bone.

If the person is unconscious, has difficulty breathing or is bleeding severely, these must be dealt with first, by controlling the bleeding with direct pressure and performing CPR.

If the person is conscious, prevent any further pain or damage by keeping the fracture as still as possible until you get them safely to hospital.

Assess the injury and decide whether the best way to get them to hospital is by ambulance or car. For example, if the pain isn't too severe, you could transport them to hospital by car. It's always best to get someone else to drive, so that you can deal with the casualty if they deteriorate – for example, if they lose consciousness as a result of the pain or start to vomit.

However, if:

they're in a lot of pain and in need of strong painkilling medication, don't move them and phone an ambulance

it's obvious they have a broken leg, don't move them, but keep them in the position you found them in and phone an ambulance

you suspect they have injured or broken their back, don't move them and phone an ambulance

Don't give the casualty anything to eat or drink, because they may need an an aesthetic (numbing medication) when they reach hospital.

Heart attack

Symptoms of a heart attack include:

chest pain – the pain is usually located in the centre or left side of the chest and can feel like a sensation of pressure, tightness or squeezing

pain in other parts of the body – it can feel as if the pain is travelling from the chest down one or both arms, or into the jaw, neck, back or abdomen (tummy)

Sit the person down and make them comfortable.

If they're conscious, reassure them and ask them to take a 300mg aspirin tablet to chew slowly (unless you know they shouldn't take aspirin – for example, if they're under 16 or allergic to it).

If the person deteriorates and becomes unconscious, open their airway, check their breathing and, if necessary, start CPR. Re-alert the emergency services that the casualty is now in cardiac arrest.

Poisoning

Poisoning is potentially life-threatening. Most cases of poisoning in the UK happen when a person has swallowed a toxic substance, such as bleach, taken an overdose of a prescription medication, or eaten wild plants and fungi. Alcohol poisoning can cause similar symptoms.

If you think someone has swallowed a poisonous substance, call to get immediate medical help and advice.

The effects of poisoning depend on the substance swallowed, but can include vomiting, loss of consciousness, pain or a burning sensation. The following advice is important:

Find out what's been swallowed, so you can tell the paramedic or doctor.

Do not give the person anything to eat or drink unless a healthcare professional advises you to.

Do not try to cause vomiting.

Stay with the person, because their condition may get worse and they could become unconscious.

If the person becomes unconscious while you're waiting for help to arrive, check for breathing and, if necessary, perform CPR.

Don't perform mouth-to-mouth resuscitation if the casualty's mouth or airway is contaminated with the poison.

Don't leave them if they're unconscious because they may roll onto their back, which could cause them to vomit. The vomit could then enter their lungs and make them choke.

If the casualty is conscious and breathing normally, put them into the recovery position and continue to monitor their conscious state and breathing.

Shock

In the case of a serious injury or illness, it's important to look out for signs of shock.

Shock is a life-threatening condition that occurs when the circulatory system fails to provide enough oxygenated blood to the body and, as a result, deprives the vital organs of oxygen.

This is usually due to severe blood loss, but it can also occur after severe burns, severe vomiting, a heart attack, bacterial infection or a severe allergic reaction (anaphylaxis).

The type of shock described here isn't the same as the emotional response of feeling shocked, which can also occur after an accident.

Signs of shock include:

- pale, cold, clammy skin
- sweating
- rapid, shallow breathing
- weakness and dizziness
- feeling sick and possibly vomiting
- thirst
- yawning
- sighing

Seek medical help immediately if you notice that someone has any of the above signs of shock.

lie the person down if their injuries allow you to and, if possible, raise and support their legs

- use a coat or blanket to keep them warm
- don't give them anything to eat or drink
- give them lots of comfort and reassurance
- monitor the person – if they stop breathing, start CPR and re-alert the emergency services

Stroke

The FAST guide is the most important thing to remember when dealing with people who have had a stroke. The earlier they receive treatment, the better. Phone for emergency medical help straight away.

If you think a person has had a stroke, use the FAST guide:

Facial weakness – is the person unable to smile evenly, or are their eyes or mouth droopy?

Arm weakness – is the person only able to raise one arm?

Speech problems – is the person unable to speak clearly or understand you?

Time to phone– for emergency help if a person has any of these symptoms

(CPR- cardiopulmonary resuscitation)

What to do after an incident

If someone is injured in an incident, first check that you and the casualty aren't in any danger. If you are, make the situation safe.

When it's safe to do so, assess the casualty and, if necessary, call for an ambulance. You can then carry out basic first aid.

Assessing a casualty

The 3 priorities when dealing with a casualty are commonly referred to as ABC, which stands for:

- Airway
- Breathing
- Circulation

Airway

If the casualty appears unresponsive, ask them loudly if they're OK and if they can open their eyes. If they respond, you can leave them in the position they're in until help arrives. While you wait, keep checking their breathing, pulse and level of response:

- are they alert?
- do they respond to your voice?
- do they respond to pain?
- is there no response to any stimulus (are they unconscious)?

If there's no response, leave the casualty in the position they're in and open their airway. If this isn't possible in the position they're in, gently lay them on their back and open their airway.

To open the airway, place one hand on the casualty's forehead and gently tilt their head back, lifting the tip of the chin using two fingers. This moves the tongue away from the back of the throat. Don't push on the floor of the mouth, as this will push the tongue upwards and obstruct the airway.

If you think the person may have a spinal injury, place your hands on either side of their head and use your fingertips to gently lift the angle of the jaw forward and upwards, without moving the head, to open the airway. Take care not to move the casualty's neck. However, opening the airway takes priority over a neck injury. This is known as the jaw thrust technique.

Breathing

To check if a person is still breathing:

- look to see if their chest is rising and falling
- listen over their mouth and nose for breathing sounds
- feel their breath against your cheek for 10 seconds

If they're breathing normally, place them in the recovery position so their airway remains clear of obstructions and continue to monitor normal breathing. Gasping or irregular breathing is not normal breathing.

If the casualty isn't breathing, phone for an ambulance and then begin CPR.

Circulation

If the casualty isn't breathing normally, then you must start chest compressions immediately.

Agonal breathing is common in the first few minutes after a sudden cardiac arrest (when the heart stops beating). Agonal breathing is sudden, irregular gasps of breath. This shouldn't be mistaken for normal breathing and CPR should be given straight away.

Safety precautions to observe for prevention of accidents and injuries

- **Avoid slips and falls**

Repair damage to flooring that could cause someone to trip and keep hallways clear of clutter. Outside, ensure all walkways are shoveled and salted immediately after snow falls.

- **Be aware of electrical hazards**

If you have several items plugged in at desks, make sure you invest in an Uninterruptible Power Supply to protect computers and keep the power from spiking. If renovations are being done that involve electrical systems, move staff to a safe work area.

- **Limit manual handling and lifting**

If jobs require people to lift items regularly, ensure a system is in place to get at hard-to-reach items. If they need to lift heavy objects, make sure employees have the tools they need and know how to operate them safely.

- Keep a well-stocked first aid kit in plain sight

If you have a large office, place several kits throughout the area and make sure someone on staff is trained in first aid.

- **Create an emergency action plan**

Outlines emergency exits, practice fire drills, co-ordinate safe meeting places and create a system to account for employees' whereabouts.

- **Promote fire safety**

Identify potential fire hazards in your office and train staff how to use fire extinguishers.

- **Avoid injuries by storing items safely**

Place heavier items lower to the ground and distribute weight evenly in cabinets and on shelves.

- **Help reduce back pain and repetitive strain injuries**

Make sure desk chairs are properly adjusted, and computer monitors are at the right height for each user. Proper ergonomics will aid the longevity and health at desks all day.

c. <u>Road safety</u>

Road safety, pedestrians and passengers

Road safety - teaching people how to behave safely when driving or crossing the road:

Pedestrian - a person who is walking, especially in an area where vehicles go

Passenger - a person who is travelling in a vehicle but is not driving it, flying it, or working on it:

<u>Factors that contribute to road accidents</u>

Over Speeding:

Most of the fatal accidents occur due to over speeding. It is a natural psyche of humans to excel. If given a chance man is sure to achieve infinity in speed.

Drunken Driving:

Consumption of alcohol to celebrate any occasion is common. But when mixed with driving it turns celebration into a misfortune. Alcohol reduces concentration. It decreases reaction time of a human body. Limbs take more to react to the instructions of brain. It hampers vision due to dizziness. Alcohol dampens fear and incite humans to take risks.

Distraction to Driver:

Though distraction while driving could be minor but it can cause major accidents.

Distractions could be outside or inside the vehicle. The major distraction now a days is talking on mobile phone while driving. Act of talking on phone occupies major portion of brain and the smaller part handles the driving skills. This division of brain hampers reaction time and ability of judgement. This becomes one of the reasons of crashes. One should not attend to telephone calls while driving. If the call is urgent one should pull out beside the road and attend the call. Some of the distractions on road are:

1.Adjusting mirrors while driving

2.Stereo/Radio in vehicle

3.Animals on the road

4.Banners and billboards.

The driver should not be distracted due to these things and reduce speed to remain safe during diversions and other kind of outside distractions.

Avoiding Safety Gears like seat belts and helmets:

Use of seat belt in four-wheeler is now mandatory and not wearing seat belt invites penalty, same in the case of helmets for two wheeler drivers. Wearing seat belts and helmet has been brought under law after proven studies that these two things reduce the severity of injury during accidents. Wearing seat belts and helmets doubles the chances of survival in a serious accident. Safety Gears keep you intact and safe in case of accidents. Two wheeler deaths have been drastically reduced after use of helmet has been made mandatory. One should use safety gears of prescribed standard and tie them properly for optimum safety.

Direct Consequences of Accidents:

1 Fatality (Death) 2. Injury 3. Property Damage

Ways of preventing road accidents

- Education and awareness about road safety
- Strict Enforcement of Law
- Engineering:

  (a) Vehicle design (b) Road infrastructure

- Keep distance
- Don't drive while dizzy or under the influence of alcohol
- Drive at the right speed

- Do not use your phone while driving.

Road safety signs and signals

MUTCD Stop Sign


Pedestrian Crossing Sign

Bump Sign


No Pedestrian Traffic Sign

Speed Limit 5 MPH Sign

Do Not Enter Sign

men at work - used to alert drivers of upcoming road work. Orange is used on this sign because it is one of the most visible colors to the human eye, and can be noticed above other traffic signs on the road.


U- turn


pedestrian crossing


Dual carriageway ends


Junction on bend ahead

Roundabout

Falling or fallen rocks

Slippery road

ENVIRONMENTAL HEALTH AND SANITATION

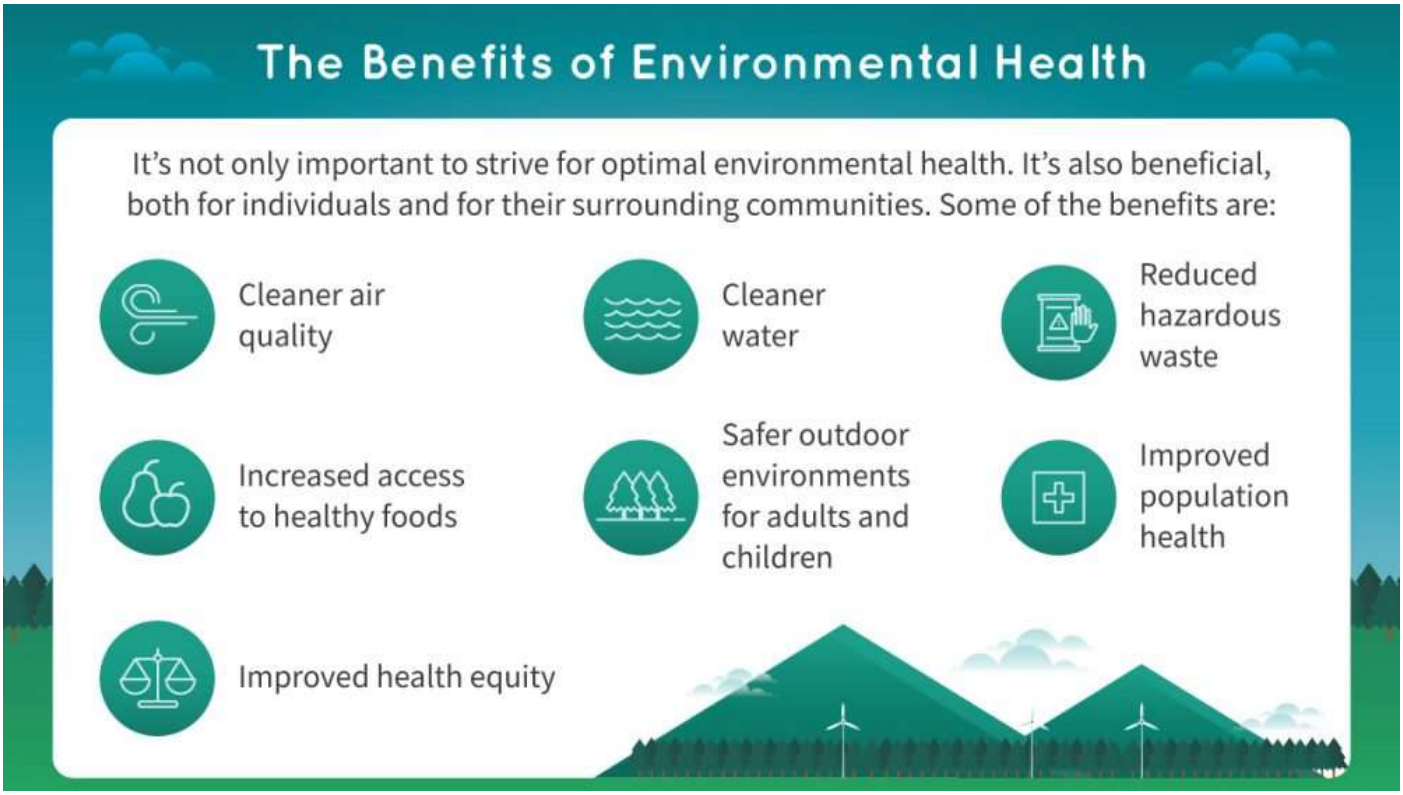
a. Environmental health

Environmental health is the branch of public health that: focuses on the relationships between people and their environment; promotes human health and well-being; and fosters healthy and safe communities. Environmental health is a key part of any comprehensive public health system. The field works to advance policies and programs to reduce chemical and other environmental exposures in air, water, soil and food to protect people and provide communities with healthier environments.

The major causes of environmental issues are:

- Pollution
- Solid Waste
- Deforestation
- Global Warming
- Depletion of Natural Resource

Importance of environmental health



1. Reduces risk of diseases

Over the past two years, we have seen the severe damage that harmful microbes and pathogens (such as the coronavirus pandemic) can cause. Environmental health awareness can prevent disease outbreaks and reduce the burden of disease.

2. Enhances quality and length of life

When all of the criteria for human life, such as food safety and shelter, are provided and maintained, length and quality of life increase.

3. Increases biodiversity and habitat protection

We need biodiversity for our ecosystems and animal kingdoms to thrive. By raising environmental health awareness, we can enforce better protection for the creatures and plants around us.

4. Limits global warming

The gradual increase of global temperatures is not something we can outrun. But there are specific measures that we can put in place to slow it down and find solutions.

Human activities are responsible for almost all of the increase in greenhouse gases in the atmosphere over the last 150 years.

How can the environment affect our health?

If we want to survive and thrive as a species, it is vitally important that we tend to the environment's needs just as much as our own.

Here are just some ways that environmental health hazards can trigger poor human health.

1. Respiratory diseases

Air-borne pollutants and toxins can filter into our lungs and cause severe respiratory diseases. Ensuring a high level of air quality will prevent these kinds of diseases.

2. Increased risk of waterborne diseases

Cholera, diarrhea, dysentery, hepatitis A, typhoid, and polio can all be transmitted by poor water and sanitation.

Contaminated drinking water is estimated to cause 485 000 diarrhoeal deaths each year.

People living in low-income communities are most at risk for infectious diseases, especially waterborne diseases.

3. Danger from natural disasters

Even the healthiest environment cannot escape the occasional natural disaster. But environmental health procedures can reduce their impact significantly.

4. Lack of nutrition

Lack of nutrition often looks like a lack of healthy and affordable grocery stores near homes. This is called a food desert.

Without proper access to nutrient-dense food, our bodily systems cannot function optimally. Every human has a right to live in an environment that supports their health, not degrades it.

Environmental factors affecting human health

1. Chemical Safety

Different chemicals can impact human health in different ways, and often, exposure to dangerous or foreign substances creates health vulnerabilities. The chemical safety field is concerned with minimizing the effects of both natural and synthetic chemicals.

2. Air Pollution

Studies have shown that air pollution effects on humans are a significant public health concern, not only because of their role in climate change, but also because exposure to air pollution can increase morbidity and mortality.

3. Climate Change and Natural Disasters

Another environmental issue with serious ramifications for human health is climate change, along with the increase in natural disasters that has accompanied the shift in Earth's climate.

4. Diseases Caused by Microbes

Diseases caused by microbes — also known as microorganisms — present another area of public health concern. Trillions of microbes exist within the human body, and they also live in water, soil, and air.

5. Infrastructure Issues

Infrastructure issues can also have a major impact on community health. Examples include the following:

- Poorly maintained roads (increasing risk of car accidents)
- Lack of access to clean drinking water
- Lack of local health care infrastructure, such as clinics capable of giving vaccinations

6. Poor Water Quality

A number of factors can contribute to poor water quality, including industrial waste and pollution, lack of access to proper water treatment and sanitation services, and outdated plumbing infrastructure.

Measures to curb environmental factors affecting health

As we all know, the primary cause of environmental issues is human activity. Therefore, the following are the specific measures taken to reduce the environmental issues:

- Plant more trees
- Reduce the use of automobiles
- Use renewable sources of energy
- Reuse and recycle waste products
- Disposal of solid and harmful waste properly
- Sensitization and advocacy
- Environmental clean up

Importance of a healthy environment

- Limits effects of respiratory diseases
- Reduces risk to waterborne diseases
- Reduces occurrence of natural disasters like drought
- More of nutritive foods

b. Types of Environmental contaminants

- ***Environmental contaminants*** are chemicals that accidentally or deliberately enter the environment, often, but not always, as a result of human activities. Some of these contaminants may have been manufactured for industrial use and because they are very stable, they do not break down easily.
- If released to the environment, these contaminants may enter the food chain. Other environmental contaminants are naturally-occurring chemicals, but industrial activity may increase their mobility or increase the amount available to circulate in the environment, allowing them to enter the food chain at higher levels than would otherwise occur.

They include:

- ***Biological contaminants*** - Biological contaminants include bacteria, viruses, animal dander and cat saliva, house dust, mites, cockroaches, and pollen.

- ✓ There are many sources of these pollutants. By controlling the relative humidity level in a home, the growth of some sources of biologicals can be minimized.
- ✓ A relative humidity of 30-50 percent is generally recommended for homes. Standing water, water-damaged materials or wet surfaces also serve as a breeding ground for molds, mildews, bacteria and insects. House dust mites, the source of one of the most powerful biological allergens, grow in damp, warm environments.

Sources

- pollens, which originate from plants
- viruses, which are transmitted by people and animals
- mold
- bacteria, which are carried by people, animals, and soil and plant debris
- household pets, which are sources of saliva and animal dander (skin flakes)
- droppings and body parts from cockroaches, rodents and other pests or insects
- viruses and bacteria
- The protein in urine from rats and mice is a potent allergen. When it dries, it can become airborne.
- Contaminated central air handling systems can become breeding grounds for mold, mildew and other sources of biological contaminants and can then distribute these contaminants through the home

Many of these biological contaminants are small enough to be inhaled.

Biological contaminants are, or are produced by, living things. Biological contaminants are often found in areas that provide food and moisture or water. For example:

- damp or wet areas such as cooling coils, humidifiers, condensate pans or unvented bathrooms can be moldy
- draperies, bedding, carpet and other areas where dust collects may accumulate biological contaminants

Health Effects from Biological Contaminants

Some biological contaminants trigger allergic reactions, including:

- hypersensitivity pneumonitis
- allergic rhinitis
- some types of asthma

Infectious illnesses, such as influenza, measles and chicken pox are transmitted through the air. Molds and mildews release disease-causing toxins. Symptoms of health problems caused by biological pollutants include:

- sneezing
- watery eyes
- coughing
- shortness of breath
- dizziness
- lethargy
- fever
- and digestive problems

- ***Chemical contaminants*** - Chemical contaminants are substances that are unintentionally present in food or feed. These substances may be present in food as a result of various stages of its production, processing or transport. They might also result from environmental contamination. Chemical contaminants may be harmful to humans and animals.

The most relevant food and feed contaminants include:

- ✓ Natural toxins – naturally occurring substances that are produced by different organisms. Examples include plant toxins such as alkaloids or mycotoxins.
- ✓ Environmental contaminants – substances that are released into air, water or soil often as a result of industrial or agricultural activities. They can also enter the food and feed chain. Environmental contaminants include polychlorinated biphenyls (PCBs), dioxins, persistent chlorinated pesticides, and brominated flame retardants but also metals such as arsenic, cadmium, lead and mercury.
- ✓ Process contaminants – chemicals that naturally form in food and feed during industrial processes or cooking, such as acrylamide and furan.

- **Gases** – this includes: Nitrogen oxides, Sulphur dioxide, carbon monoxide, lead among others.
- ***Heavy metals*** - The main threats to human health from heavy metals are associated with exposure to lead, cadmium, mercury and arsenic.

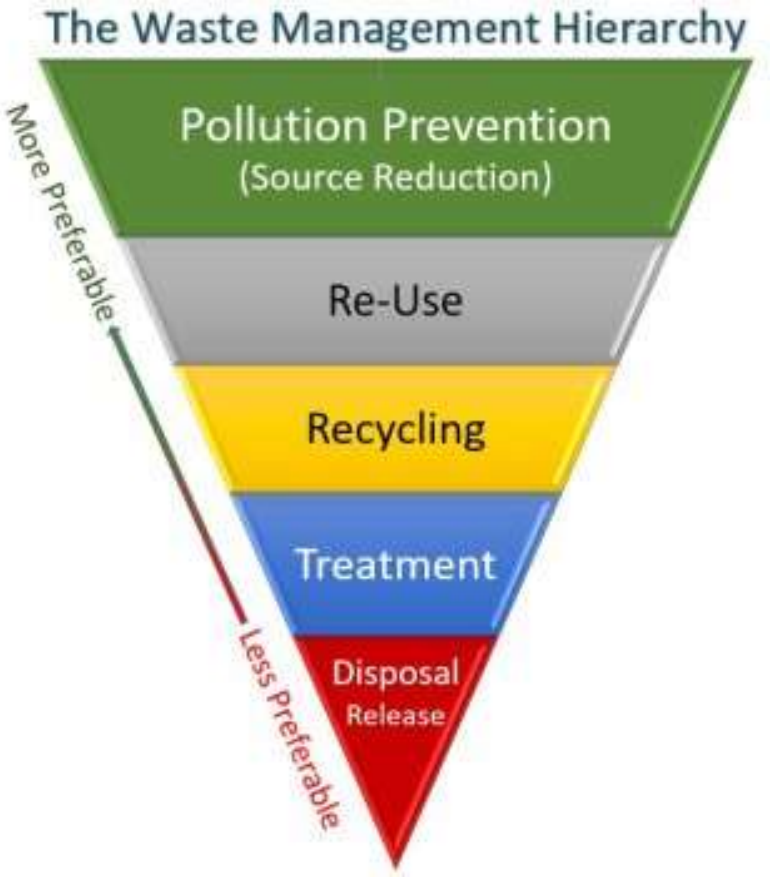
  Mercury, lead, chromium, cadmium, and arsenic have been the most common heavy metals that induced human poisonings.

Effects of Environmental on human health

Environmental contaminants can make people sick. Different contaminants can cause a variety of health problems. Common health problems from

environmental contaminants include breathing problems (such as asthma), heart disease, and some types of cancer.

Ways of preventing and controlling environmental contamination



In the energy sector, pollution prevention can reduce environmental damages from extraction, processing, transport and combustion of fuels. Pollution prevention approaches include:

- increasing efficiency in energy use;
- use of environmentally benign fuel sources.

In the agricultural sector, pollution prevention approaches include:

- Reducing the use of water and chemical inputs;
- Adoption of less environmentally harmful pesticides or cultivation of crop strains with natural resistance to pests; and
- Protection of sensitive areas.

In the industrial sector, examples of practices include:

- Modifying a production process to produce less waste
- Using non-toxic or less toxic chemicals as cleaners, degreasers and other maintenance chemicals
- Implementing water and energy conservation practices
- Reusing materials such as drums and pallets rather than disposing of them as waste

In homes and schools examples of practices include:

- Using reusable water bottles instead of throw-aways
- Automatically turning off lights when not in use
- Repairing leaky faucets and hoses
- Switching to "green" cleaners

c. Infection prevention and control

Infection prevention and control (IPC) is a practical, evidence-based approach preventing patients and health workers from being harmed by avoidable infections.

PPE such as gowns, gloves, masks, and goggles provide physical barriers that prevent the hands, skin, clothing, eyes, nose, and mouth from coming in contact with infectious agents.

- **Gloves**
  Gloves help protect you when directly handling potentially infectious materials or contaminated surfaces.

- **Gowns**
  Gowns help protect you from the contamination of clothing with potentially infectious material.

- **Shoe and Head Covers**
  Shoe and head covers provide a barrier against possible exposure within a contaminated environment.

- **Masks and Respirators**
  Surgical masks help protect your nose and mouth from splattered of body fluids, respirators filter the air before you inhale it.

- **Other Face and Eye Protection**
  Goggles help protect only your eyes from splatters. A face shield provides splatter protection to facial skin, eyes, nose, and mouth.

Difference between cleaning and disinfection of equipment and surfaces for infection control

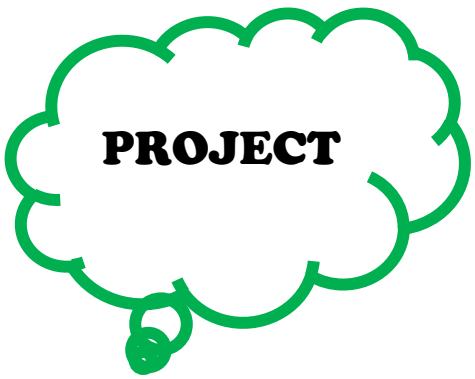
Cleaning – removes dirt, dust and other soils from surfaces.

Sanitizing – removes bacteria from surfaces.

Disinfecting – kills harmful bacteria and viruses from surfaces.

Infection control prevention measures

- Hand hygiene
- Environmental hygiene
- Cleaning and disinfecting equipment's
- Safe handling and disposal of wastes
- Respiratory hygiene and Cough etiquette
- Use of protective gear
- Vaccination
- Body screening



Making a personal protective Equipment

HUMAN REPRODUCTIVE HEALTH

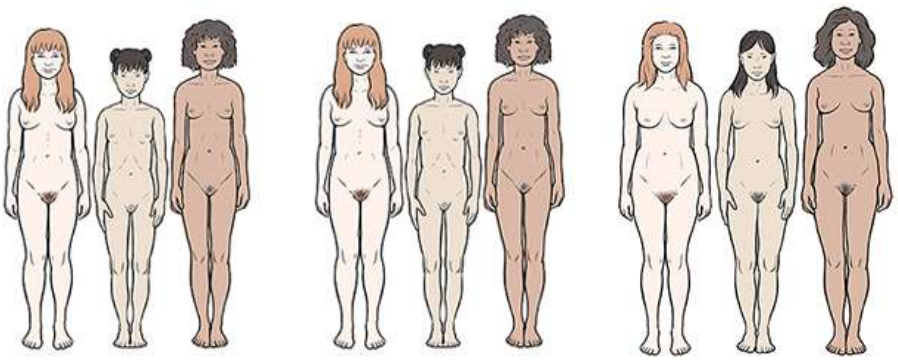
a. Pubertal growth and development

Puberty is the time in life when a boy or girl becomes sexually mature. It is a process that usually happens between ages 10 and 14 for girls and ages 12 and 16 for boys. It causes physical changes, and affects boys and girls differently.

Girls may start normal puberty as early as age 7 or not start at all until age 15. For boys it is usually anywhere between ages 9 and 15.

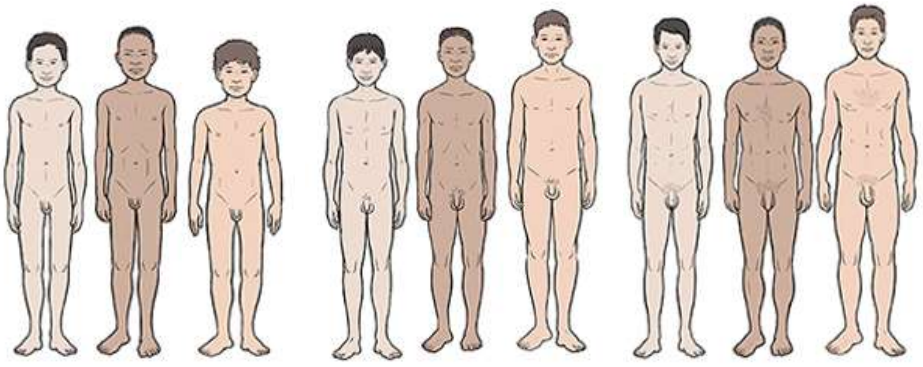
Physical changes

i. Girls



- The first sign of puberty is usually breast development.
- Then hair grows in the pubic area and armpits.
- Menstruation (or a period) usually happens last.

ii. Boys



- Puberty usually begins with the testicles and penis getting bigger.
- Then hair grows in the pubic area and armpits.
- Muscles grow, the voice deepens, and facial hair develops as puberty continues.

- Your voice deepens.
- You may have nighttime emissions or "wet dreams."

Emotional changes in girls and boys during Puberty

1. Feeling overly sensitive

During puberty, since your body undergoes many changes, it is common to feel uncomfortable about them and become overly sensitive about your physical appearance. As a result you may feel irritated quite easily, lose your temper or feel depressed. It will be useful to be aware of the changes in your behaviour and talk about it with someone that you're comfortable talking to.

2. Looking for an identity

Since you are in the process of becoming an adult, you may feel inclined to figure out what makes you unique as a person. There is also a general tendency that you associate more with your friends than your family members. Psychologically, it may be because your friends are going through a similar phase as you. You may try to figure out how you are different from

others and how you fit into the world. This may eventually lead to some sort of a struggle to become more independent of your parents and family.

3. Feeling uncertain

Since you're not completely an adult and are not a child anymore, puberty can potentially lead to uncertain times. As a transition phase, you may begin to wonder and think about new and unfamiliar aspects of life such as career, livelihood and marriage. Since, all of this is new and unfamiliar when you start thinking along these directions, you may feel uncertain about the future.

This uncertainty becomes more evident when the expectations that people close to you have from you also change. You may be expected to take on greater responsibilities than what was expected from you as a child. Eventually you will grow into your new roles and become more certain about yourself, but this process will take its own time depending on how you respond to this situation.

4. Peer pressure

With the onset of puberty, your conversations with your friends will increase. Your peer group and you are likely to be influenced by what you see around you in popular media and the culture that is represented through them. You might often pick up on what's in and what's out in terms of the way you dress, your language and even your behaviour depending upon what you see.

This maybe uncomfortable at times and would probably even change your likes and dislikes. It's also one of the ways in which you struggle to fit in with your peers. These events can lead to a gap between what is perceived as appropriate by your parents and your friends.

5. Conflicting thoughts

Since you are somewhere in between as a teenager during puberty, you may feel stuck between how you were as a child and how you wish to be as an adult. For example, you might want to be more independent and at the same time, might also look for support from your parents. Another example could be along the lines of whether you wish to give up on your interests that you had as a child to be able to fit in with your friends. As a result you may feel conflicted and look for clarity.

6. Mood swings

To add to the uncertainty and conflicting thoughts, you may also experience frequent and sometimes extreme changes in your mood. For example, sometimes your mood will swing between feeling confident and happy to feeling irritated and depressed in a short span of time. These frequent swings in how you feel are called mood swings. They may occur due to shifting levels of hormones in your body and other changes taking place during puberty.

7. Feeling conscious about self

The onset of puberty can vary on an individual basis. Therefore the way you grow maybe different from the way your friends grow. This can make you conscious about the way you're growing up and your body.

These experiences are more pronounced for girls because they develop faster and earlier than boys. Also the changes in their bodies such as development of breasts and widening of hips are more noticeable. This may make them feel more conscious about their body in presence of their peers of the same age group

8. Getting sexual feelings

Puberty is also the phase after which you develop sexual maturity. Sexual maturity is the stage of your life when you can have children. One aspect of sexual maturity is being curious about sex and also about bodies of people that you are attracted to. With the onset of puberty, it is normal for a boy or a girl to be sexually attracted to people that they would want be more than 'just friends' with.

You may also feel sexually excited by normal everyday activities such as reading a romantic novel or watching a romantic scene on television. These feelings are normal and there is nothing to feel guilty about. You may have many questions about sex. It is a good idea to talk to a mature adult (like your mother, doctor or a counselor) with whom you're comfortable discussing sex.

Social changes in boys and girls during puberty

Identity

Young people are busy working out who they are and where they fit in the world. You might notice your child trying out new things like clothing styles, subcultures, music, art or friendship groups. Friends, family, media and culture are some of the influences on your child's choices in these years.

Independence

Your child will probably want more independence about things like how they get around and where they go, how they spend their time and who with, and what they spend money on. As your child becomes more independent, it'll probably mean some changes in your family routines and relationships, as well as your child's friendships.

Responsibility

Your child might be keen to take on more responsibility both at home and at school. This could include things like cooking dinner once a week or being on the school council. Sometimes you might need to encourage a move towards more responsibility.

New experiences

Your child is likely to look for new experiences, including risky experiences. This is normal as your child explores their own limits and abilities, as well as the boundaries you set. Your child also needs to express themselves as an individual. But because of how teenage brains develop, your child might sometimes struggle with thinking through consequences and risks before they try something new.

Values

This is the time your child starts to develop a stronger individual set of values and morals. Your child will question more things. Your words and actions help shape your child's sense of right and wrong.

Influences

Friends and peers might influence your child, particularly your child's behaviour, appearance, interests, sense of self and self-esteem. You still have a big influence on long-term things like your child's career choices, values and morals.

Sexual identity

Your child might start to have romantic relationships or go on 'dates'. But these aren't always intimate relationships. For some young people, intimate or sexual relationships don't occur until later on in life.

Media

The internet and social media can influence how your child communicates with friends and learns about the world. They have many benefits for your child's social development, but also some risks. Talking with your child is the best way to protect them from social media risks and ensure their internet safety.

Personal Hygiene needs during puberty

Personal hygiene is the practice of keeping your body clean and healthy.

- Bathing at least twice a day.

- Avoid picking, popping, or squeezing pimples. This can lead to scars and infection.
- Wear clean clothes every day. Change socks and underwear daily. If clothes smell bad, we smell bad.

- Wear protective clothing, including a hat and sunglasses that block UV light.
- Avoid the sun when its rays are strongest, between 10 am and 4 pm.
- Keep hands and fingernails clean. Wash hands before and after eating, after using the bathroom, after sneezing or coughing into the hand, and whenever dirty.
- Trim nails every week or two. Cut them straight across. Then, round them in a small curve. Use manicure scissors, clippers, and/or nail file.

Once your child reaches puberty, they will begin to menstruate or have nocturnal emissions. You can help your child manage these rites of passage by talking about them before they happen. Here are tips for personal care:

- Explain menstruation (periods) to your child. Provide menstrual products and explain how to use them. Discuss how often to change them, how to dispose of them, and how to clean the vulva from front to back to avoid infection.
- Explain nocturnal emissions (wet dreams) to your child. Teach them how to wash up and change damp bedsheets. Assure your child that this is a typical part of puberty and is different than bed-wetting.
- Discuss pleasure and masturbation with your child. Explain that self-touching is an activity that is done in private.
- Expect your child to want more privacy and time in the bathroom. Discuss family rules about sharing the bathroom and the importance of asking for consent before entering a private space, such as a bathroom or bedroom.

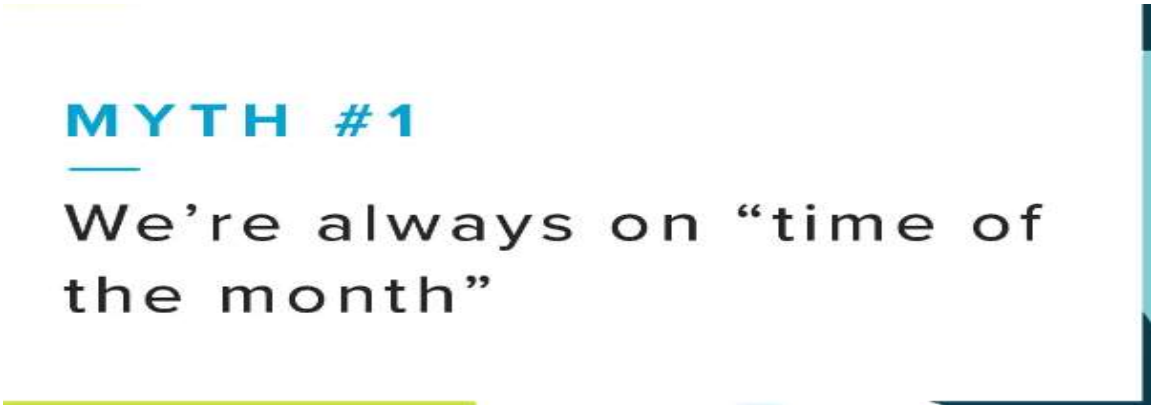
Measures for management of menstrual hygiene

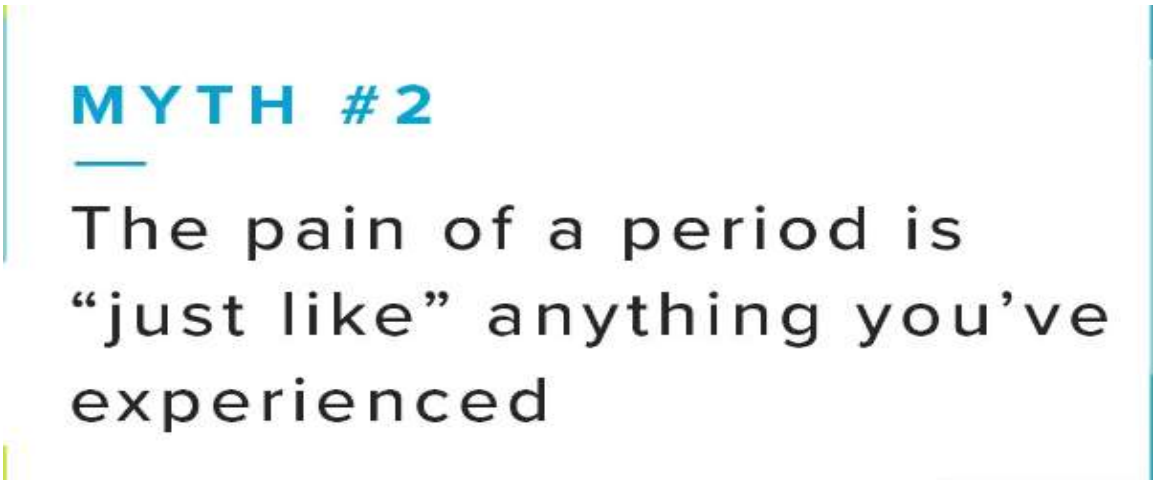
These hygiene practices can help you stay healthy and comfortable during your period:

- **Wear lightweight, breathable clothing** (such as cotton underwear). Tight fabrics can trap moisture and heat, allowing germs to thrive.
- **Change your menstrual products regularly.** Trapped moisture provides a breeding ground for bacteria and fungi. Wearing a pad or period underwear for too long can lead to a rash or an infection.
- **Keep your genital area clean.** Wash the outside of your vagina and bottom every day. When you go to the bathroom, wipe from the front of your body toward the back, not the other way. Use only water to rinse your vulva. The vagina is a self-cleaning organ. Changing the natural pH balance of your vagina by washing or using chemicals to cleanse out the vagina can be harmful and may result in yeast infection or bacterial vaginosis.
- **Use unscented toilet paper, tampons, or pads.** Scented hygiene products can irritate the skin and impact your natural pH balance.
- **Drink enough liquids.** This can help wash out your urinary tract and help prevent infections, like vaginal candidiasis.
- **Track and monitor your period.** Your menstrual cycle is a valuable marker for your overall health. Irregular periods can be a sign of conditions like diabetes, thyroid dysfunction, and celiac disease. You can track your period on a calendar or with an app on your phone designed for this purpose.

- **Visit a healthcare provider for your annual check-up.** An annual well-woman exam is a full check-up includes a pap smear, a pelvic exam, and a breast exam. These exams are essential for good reproductive health as they can catch early signs of cancer or other health issues.

Myths and Misconceptions on menstrual experience in the community





MYTH #3

It's okay to dismiss our feelings when we're on our period

MYTH #4

Hormones define women

MYTH #5

Period blood is dirty blood

Not every woman gets her period and not every female who gets a period considers themselves a woman. Transgender men and nonbinary people may get their periodsTrusted Source, just as transgender women and nonbinary people might not have periods.

Menstruation isn't always just a "woman's" issue. It's a human issue.

Identifying an intersex Person

Intersex people are born with biological characteristics that don't fit inside the strict binary of "female" and "male."

At birth

- a clitoris that's larger than expected
- a penis that's smaller than expected
- no vaginal opening
- a penis without a urethra opening at the tip (the opening might instead be on the underside)

At Puberty

Monthly pains increased, and breasts grew significantly.

Closed vagina

At adulthood

- identifying with the same sex
- growth of two organs (male and female)
- Two gender characteristics showing at the same time
- One organ is inactive

b. Reproductive Health

Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so.

The three components of reproductive health are - family planning, sexual health, and maternal health.

1. **Family planning** - Family planning is one of the most important components of reproductive health. As defined by the WHO, family planning is the ability of a couple to anticipate and attain their desired number of offspring with proper spacing and timing between their births. This can be achieved via taking proper precautions and birth control methods. The use of contraceptives and treatment of involuntary infertility is an important part of family planning.

2. **Sexual Health:** This component of reproductive health deals with sexual relationships with a positive approach. It does not only deal with the proper use of contraceptives for unwanted pregnancies but also with the prevention of Sexually Transmitted Diseases (STDs) or sexually transmitted infections (STI).

3. **Maternal health:** It mainly refers to taking care of a woman's health during the period of her pregnancy and to providing her the proper access to all the medical care and assistance that might be needed in cases of emergency.

Importance of reproductive health

1. It aids in making the youth understand sexual health.

2. It helps in creating awareness among the crowd that falls under the category of adolescence as this is the phase when hormonal changes in the body take place leading to the development of reproductive interest.

3. It helps in the prevention of sexually transmitted infections such as AIDS or HIV.

4. It keeps the mother and the child away from infectious diseases and helps in delivering a healthy baby.

5. Complete knowledge regarding early pregnancy, problems like infertility or problems to conceive, male sexual problems, birth control methods,

pregnancy, and post-childbirth care of the mother and baby can be achieved and taken care of.

6. Adolescents can follow safe sexual practices and not get involved in wrong methods and illegal practices.

Practices that enhance reproductive health

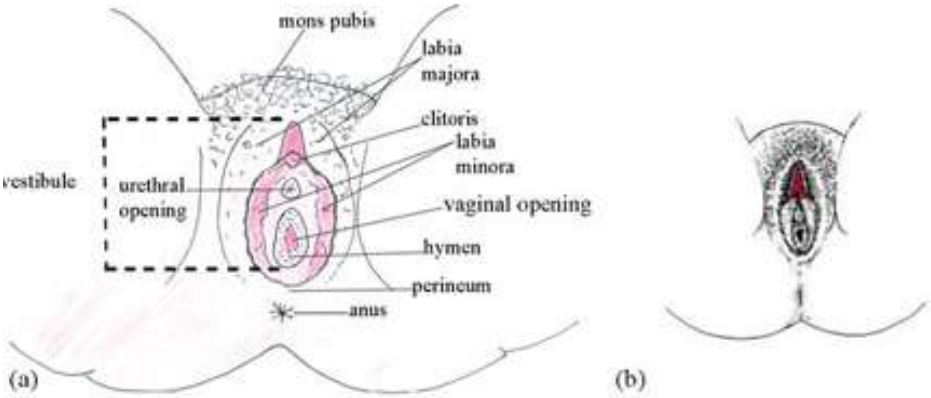
- Have frequent intercourse, especially 5 days before and after ovulation.
- Don't smoke.
- Limit alcohol.
- Cut back on caffeine if you're a woman.
- Stay at a healthy weight. Women who are too heavy or too thin may have reduced fertility.
- Heat exposure can lower sperm count in men, so wear loose underwear, avoid hot tubs, and don't rest your laptop computer near your scrotum.
- Get plenty of sleep.
- Try to avoid night shift work, which can disrupt hormone production.
- Exercise regularly, but don't overdo it! Excess exercise can interfere with ovulation. Limit vigorous exercise to 5 hours or less per week if you're trying to get pregnant.
- Take folic acid supplements to improve ovulation and, if you conceive, prevent birth defects.
- Limit meat in your diet. Eat more fish rich in omega-3 fatty acids or plant-based proteins, which may improve ovulation.

Practices that affect reproductive health

- **Female genital mutilation (FGM)**

female genital mutilation (also called 'female genital cutting' or 'female circumcision') as any procedure which involves the partial or total removal of the external female genitalia (see Figure 5.1) or which causes any other injury to the female genital organs whether for cultural or any other non-therapeutic reasons. Instruments used include knives, scissors, razors, and

pieces of glass. Occasionally sharp stones and cauterization (burning) are used.



- **Early marriage**

Early marriage is a common practice in many regions. Parents often wish to see their daughters married and to see grandchildren before they die. People also practice early marriage for traditional reasons. If a girl is not married at an early age, other members of the community may think she must be too unattractive or ill-behaved to get a husband. This attitude usually causes shame to both the girl and her family.

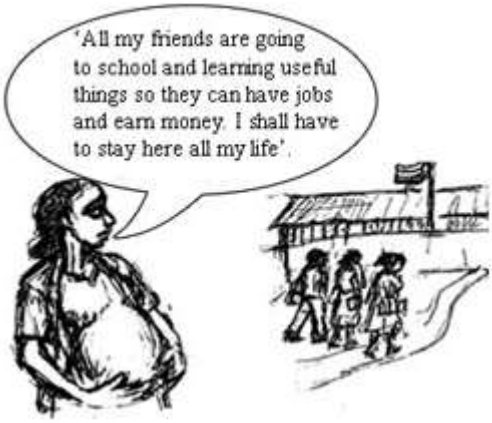
igure 5.3 A young woman suffering from obstetric fistula.

Early marriage is associated with many health and social consequences. These include:

Health impacts of early marriage:

- Early pregnancy, which may lead to nutritional deficiencies for the mother and child
- Increased risk of death due to pregnancy-related causes

- Risks to baby include premature birth, low birth weight (reflecting poor nutritional status), fetal loss, and **neonatal mortality** (death of the newborn within the first 28 days of life)
- Vaginal tear and fistula
- Sexual abuse
- Young married girls are less likely to participate in decision making.



Social impacts of early marriage:

- Disrupts life of the victim
- Limited opportunity for education and employment
- Higher likelihood of broken marriage
- Rural-urban migration (which may predispose them to prostitution, STIs, HIV and AIDS)
- Stigma, and low self-esteem.

- **Polygamy**

It is a form of marriage in which a person marries more than one spouse. Polygyny (from Greek words: poly = many; gyny = woman) refers to a polygamy in which a man has two or more wives. About 25% of married women in Kenya are in polygynous unions . It is usual for a young girl to be married to an older married man.

Myths and misconceptions about reproductive health in the community

1. ***Infertility is much more common among women*** -Infertility doesn't just affect women. In the Kenya, 10–15 percent of couples are infertile, and both men and women can equally contribute to infertility.

Causes of infertility in males may include:

- Abnormal sperm production or function
- Problems with the delivery of sperm
- Overexposure to certain environmental factors
- Damage related to cancer and its treatment

Causes of infertility **in females may include:**

- Ovulation disorders
- Uterine or cervical abnormalities
- Fallopian tube damage or blockage
- Endometriosis
- Primary ovarian insufficiency (early menopause)
- Pelvic adhesions
- Damage related to cancer and its treatment

2. ***Men reach their sexual peak at a younger age than women*** - Many people believe that men and women have different "sexual peaks" or ages where they can perform at their "sexual best. However, sexual desire, performance, and frequency constantly fluctuate and are related to many factors beyond just your age.
3. ***Sperm can only live for a short time after it's released*** - After ejaculation, a male's sperm can actually live in the female reproductive tract for up

to five days, even if you thoroughly wash yourself after sex. For this reason, if a man has sex with a woman, even a few days before she ovulates or before she's in her "fertility window," there's still a chance a pregnancy could occur.

4. ***You can't get an STI from oral or anal sex*** - You can get an STI from any kind of sex (vaginal, oral, or anal) or by close intimate contact with a partner. However, using protection (like a latex condom) during any type of sexual activity is proven to significantly lower your risk of getting or transmitting STIs.
5. ***STIs can only be transmitted when symptoms are present*** - This is false. In many cases, an STI may not cause symptoms, but can still exist in your body and be spread to sexual partners. Even without symptoms, STIs can harm one's health. That's one reason why it's important to get regularly tested for STIs as there may not be any obvious warning signs of an infection.
6. ***You can get an STI from sitting on a toilet seat*** - STIs are transmitted through sexual intercourse, close intimate contact, or the exchange of bodily fluids. STIs can only live on surfaces for a short amount of time so it's very unlikely that someone could receive an infection from sitting on a toilet seat—unless they had an open sore or cut touching the seat.
7. ***You can't get HIV from getting a tattoo*** - Though often less common than other routes of transmission, it is possible to contract HIV from getting a tattoo or body piercing if the instrument (in this case the needle) is not sterile and has someone else's blood on it or the ink has been shared.
8. ***You can't get pregnant on your period*** - While conception is most likely when intercourse occurs a few days before or during ovulation, it is still possible to get pregnant during your period. Sperm can live in the female body for up to five days after sexual intercrouse under the right conditions, so in some cases sperm can fertilize an egg a few days after it has been released in ovulation.
9. ***The withdrawal method is effective in preventing pregnancy***- Yes, you can get pregnant from the withdrawal or "pull out" method, so it's preferred to always use protection (like a condom) during intercourse if pregnancy is not desired. One reason why? A male's pre-ejaculatory

fluid can contribute to a pregnancy as this fluid contains sperm cells—making conception possible even if the withdrawal method is used.

10. ***You can't get an STI if you use a condom*** - While condoms are 98% effective in preventing STIs, it's still possible for sexually active individuals to get an STI any time they have sex, even if a condom is used. That's why it's a good idea to regularly test for STIs—even if you make sure to always use condoms during sex.

Effects of harmful practices on reproductive health

Health impacts of early marriage:

- Early pregnancy, which may lead to nutritional deficiencies for the mother and child
- Increased risk of death due to pregnancy-related causes
- Risks to baby include premature birth, low birth weight (reflecting poor nutritional status), fetal loss, and neonatal mortality (death of the newborn within the first 28 days of life)
- Vaginal tear and fistula
- Sexual abuse
- Young married girls are less likely to participate in decision making.
- Disrupts life of the victim

- Limited opportunity for education and employment (see Figure 5.4)
- Higher likelihood of broken marriage
- Rural-urban migration (which may predispose them to prostitution, STIs, HIV and AIDS)
- Stigma, and low self-esteem.

Consequences of FGM

Short-term physical consequences

- Severe pain
- Injury to the adjacent tissue of urethra, vagina, perineum and rectum
- Bleeding
- Infection
- Failure to heal.

Long-term physical consequences

- Difficulty in passing urine
- Recurrent urinary tract infection
- Difficulties in menstrual flow
- Fistula.

Psychosocial consequences

- Mutilation is an occasion marked by fear, and the suppression of feelings. More often the bad memory never leaves the victims.
- Some women report that they suffer pain during sexual intercourse and menstruation.
- The experience is associated with sleeplessness, nightmares, loss of appetite, weight loss or excessive weight gain.
- As they grow older, women may develop feelings of incompleteness, loss of self-esteem/confidence, and depression/sadness.

THE END TEACH WITH UTMOST CARE AND LOVE