Pathways to Higher Education Project

Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Faculty of Engineering - Cairo University (CAPSCU)

Cairo University

Wellness Guidelines: Healthful Life

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Acknowledgment

On behalf of Pathways to Higher Education Management Team in Egypt, the Project Coordinator wishes to extend his thanks and appreciation to the Ford Foundation (FF) for its full support to reform higher education, postgraduate studies and research activities in Egypt. The Management Team extend their special thanks and appreciation to Dr. Bassma Kodmani, Senior Project Officer at the Ford Foundation office in Cairo, who helped initiate this endeavor, and who spared no effort to support the Egyptian overall reform activities, particularly research and quality assurance of the higher education system. Her efforts were culminated by the endorsement to fund our proposal to establish the Egyptian Pathways to Higher Education project by the Ford Foundation Headquarters in New York.

The role of our main partner, the Future Generation Foundation (FGF), during the initial phase of implementation of the Pathways to Higher Education Project is also acknowledged. The elaborate system of training they used in offering their Basic Business Skills Acquisition (BBSA) program was inspiring in developing the advanced training program under Pathways umbrella. This partnership with an NGO reflected a truly successful model of coordination between CAPSCU and FGF, and its continuity is mandatory in support of our young graduates interested in pursuing research activities and/or finding better job opportunities.

The contribution of our partner, The National Council for Women (NCW), is appreciated. It is worth mentioning that the percentage of females graduated from Pathways programs has exceeded 50%, which is in line with FF and NCW general objectives. The second phase of the project will witness a much more forceful contribution from the NCW, particularly when implementing the program on the governorates level as proposed by CAPSCU in a second phase of the program.

We also appreciate the efforts and collaborative attitude of all colleagues from Cairo University, particularly the Faculties of Commerce, Art, Mass Communication, Law, Economics and Political Sciences, and Engineering who contributed to the success of this project.

Finally, thanks and appreciation are also extended to every member of the Center for Advancement of Postgraduate Studies and Research in Engineering Sciences (CAPSCU), Steering Committee members, trainers, supervisors and lecturers who were carefully selected to oversee the successful implementation of this project, as well as to all those who are contributing towards the accomplishment of the project objectives.

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CU Cairo University **NCW National Council for Women**
FF Ford Foundation **FGF Future Generation Foundation**
CAPSCU Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Faculty of Engineering - Cairo University

Publisher Introduction

The Faculty of Engineering, Cairo University is a pioneer in the field of learning and continual education and training. The Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Faculty of Engineering - Cairo University (CAPSCU) is one of the pillars of the scientific research centers in the Faculty of Engineering. CAPSCU was established in 1974 in cooperation with UNIDO and UNESCO organizations of the United Nations. Since 1984, CAPSCU has been operating as a self-financed independent business unit within the overall goals of Cairo University strategy to render its services toward development of society and environment.

CAPSCU provides consultation services for public and private sectors and governmental organizations. The center offers consultation on contractual basis in all engineering disciplines. The expertise of the Faculty professors who represent the pool of consultants to CAPSCU, is supported by the laboratories, computational facilities, library and internet services to assist in conducting technical studies, research and development work, industrial research, continuous education, on-the-job training, feasibility studies, assessment of technical and financial projects, etc.

Pathways to Higher Education (PHE) Project is an international grant that was contracted between Cairo University and Ford Foundation (FF). During ten years, FF plans to invest 280 million dollars to develop human resources in a number of developing countries across the world. In Egypt, the project aims at enhancing university graduates' skills. PHE project is managed by CAPSCU according to the agreement signed in September 22nd, 2002 between Cairo University and Ford Foundation, grant No. 1020 - 1920.

The partners of the project are Future Generation Foundation (FGF), National Council for Women (NCW) and Faculties of Humanities and Social Sciences at Cairo University. A steering committee that includes representatives of these organizations has been formed. Its main tasks are to steer the project, develop project policies and supervise the implementation process.

Following the steps of CAPSCU to spread science and knowledge in order to participate in society development, this training material is published to enrich the Egyptian libraries. The material composes of 20 subjects especially prepared and developed for PHE programs.

Dr. Mohammad M. Megahed
CAPSCU Director
April 2005

Foreword by the Project Management

Pathways to Higher Education, Egypt (PHE) aims at training fresh university graduates in order to enhance their research skills to upgrade their chances in winning national and international postgraduate scholarships as well as obtaining better job.

Pathways steering committee defined the basic skills needed to bridge the gap between capabilities of fresh university graduates and requirements of society and scientific research. These skills are: mental, communication, personal and social, and managerial and team work, in addition to complementary knowledge. Consequently, specialized professors were assigned to prepare and deliver training material aiming at developing the previous skills through three main training programs:

1. Enhancement of Research Skills
2. Training of Trainers
3. Development of Leadership Skills

The activities and training programs offered by the project are numerous. These activities include:

1. Developing training courses to improve graduates' skills
2. Holding general lectures for PHE trainees and the stakeholders
3. Conducting graduation projects towards the training programs

Believing in the importance of spreading science and knowledge, Pathways management team would like to introduce this edition of the training material. The material is thoroughly developed to meet the needs of trainees. There have been previous versions for these course materials; each version was evaluated by trainees, trainers and Project team. The development process of both style and content of the material is continuing while more courses are being prepared.

To further enhance the achievement of the project goals, it is planned to dedicate complete copies of PHE scientific publications to all the libraries of the Egyptian universities and project partners in order to participate in institutional capacity building. Moreover, the training materials will be available online on the PHE website, www.Pathways-Egypt.com.

In the coming phases, the partners and project management team plan to widen project scope to cover graduates of all Egyptian universities. It is also planned that underprivileged distinguished senior undergraduates will be included in the targeted trainees in order to enable their speedy participation in development of society.

Finally, we would like to thank the authors and colleagues who exerted enormous efforts and continuous work to publish this book. Special credit goes to Prof. Fouad Khalaf for playing a major role in the development phases and initiation of this project. We greatly appreciate the efforts of all members of the steering committee of the project.

Dr. Sayed Kaseb

Project Manager

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Chapter 1: Self Responsibility for Wellness

Introduction

1.1 Introduction

A study by the centers for disease control shows that **53%** *of an individual's ability to cope with disease is determined by* **his lifestyle**, **21%** by **his environment**, and **10%** by **his physician**. *Thus fully **84%** of the ability to cope with, and reduce the risk of disease and premature mortality is under the control of the individual and his society*. Only **16%** is beyond this control or determined by **heredity.** This percentage may further be reduced by the possibility to replace defective genes inherited from parents through genetic engineering.

- **Acquiring the knowledge** and skill to become an independent adult and to achieve optimum health is an individual responsibility.

- **Health:** is a quality of life that includes an individual's physical, mental, and social well-being.

- **Wellness:** is a holistic concept that includes all areas of life and how they interact through positive and/or negative feedback loops.

- **healthful behavior**; action that 1) helps prevent illness or accident 2) promotes health, yours and others and/or 3) improves the quality of the environment.

- **Risk behavior:** the opposite of healthful behavior.

- **Health promotion**: informing and motivating people to adopt/maintain healthful behaviors.

Definition

1.2 Definition

Health is not just absence of disease. It is part of **a wider concept of wellness** which emphasizes: 1) **being well physically** (condition of the body), **mentally** (condition of the mind), and **socially** (relation to others); and 2) the interrelatedness of all aspects of life and how behavior in one area can affect other areas.

Self Responsibility Health

1.3 Self-Responsibility for Health

An individual who is informed and motivated to **adopt/maintain healthful behavior** is more likely to **achieve optimum health** (by **choosing healthful behavior** and making the most of his heredity and environment).

The wellness approach to health implies **that the individual is responsible for choosing healthful behavior** *(e.g., wearing seat belt, exercising regularly, eating judiciously…)*, **avoiding risk behavior** *(e.g., smoking cigarettes, using illegal drugs*…), and **adopting a balanced life-style** *as illustrated in Figure 1.1 of the health triangle.*

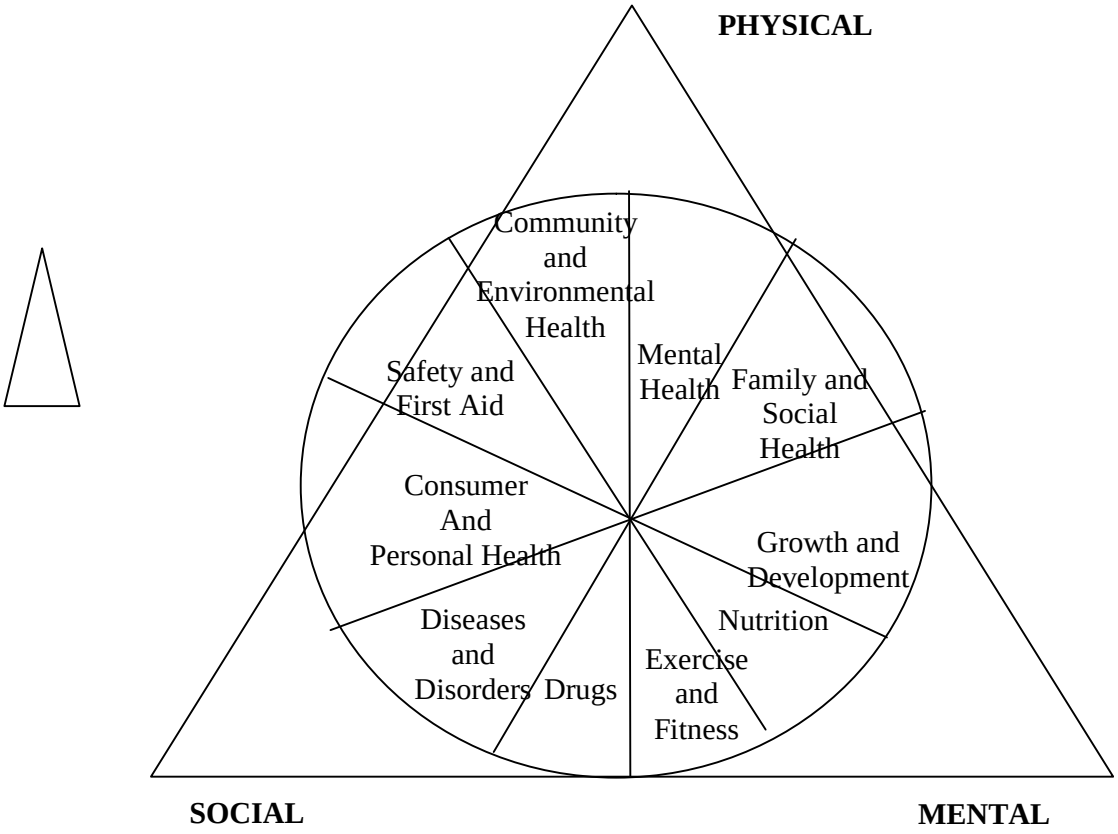


Figure 1.1: Health triangle

The **triangle** has three **points—physical, mental, and social**, representing the components of a **balanced lifestyle**, and an **inscribed circle** (behavior wheel) divided into **10 sectors** related to wellness. The centre where the sectors *intersect symbolizes the holistic effect of a single healthful or risk factor on one's lifestyle*; e.g., **exercising regularly** *affects*: 1**) mental health** (by releasing endorphins which relieve stress and create a feeling of well-being), 2) **nutrition** (by burning calories and helping to control weight) and 3) **diseases and disorders** (by strengthening the heart and improving its capacity to use oxygen.

Achieving Optimum Health

1.4 Achieving Optimum Health

1.4.1 The Four Steps towards Achieving the Optimum Health

1) **Acquire** health knowledge (to know which behaviors are healthy and which are not).

2) **Examine** your behaviors to develop health awareness through health appraisal (one way is to set up a health behavior inventory, as shown in Table 1.1).

3) **Set** personal health goals and design specific plans to reach each goal, (to reinforce/acquire healthful behaviors and avoid/eliminate risk ones).

4**)** **Make** responsible health decisions, using a problem-solving approach, to choose the **most healthful behavior**, (i.e., a behavior that is also safe, legal, shows respect for self and others and follows accepted guidelines), if several alternatives are available.

Table 1.1: Health behavior inventory

Mental Health
1. I have a plan to relieve the effects of stress
2. I like myself
Family and Social Health
3. I have at least one close friend
4. I am able to share some of my feelings with my parents
Growth and Development
5. I maintain my desirable weight
6. I have correct sitting posture
Nutrition
7. I eat a well-balanced diet from the four healthful food groups
8. I limit my intake of fatty foods
Exercise and Fitness
9. I get at least six to height hours of sleep each night
10. I Participate in a regular exercise program to strengthen my heart
Drugs
11. I refrain from drinking alcohol
12. I avoid smoking

Table 1.1: Health behavior inventory (Cont.)

Diseases and Disorders 13. I know the seven warning signals for cancer 14. I avoid spreading germs when I have a cold
Consumer and Personal Health 15. I read labels on food cans and packages to determine the ingredients 16. I select television shows that promote mental health and stimulate my mind
Safety and First Aid 17. I wear a seat belt when riding in an automobile 18. I have smoke detectors in my home
Community and Environmental Health 19. I buy returnable bottles whenever possible 20. I properly dispose of trash

Achieving Optimum Health: National Goals

1.4.2 Achieving Optimum Health: National Goals

Health authorities should identify the major health problems in the country and set goals and plans to overcome them. **Sanitation measures and effective mass vaccination programmers** have reduced **mortality from infectious diseases**. The leading causes of death in **advanced countries** are **heart disease, strokes, and cancer (72%),** followed by **accidents.**

National goals and strategies to achieve them could include:

1) **Preventive health services** delivered to individuals by health providers:
   a-family planning
   b-pregnancy and infant care
   c-immunizations
   d-high blood pressure control
   e-sexually-transmitted disease service

2) **Health protection measures** used by governmental and other agencies as well as industry to protect people from harm:
   a-toxic agent control
   b-occupational safety and health
   c-accidental injury control
   d-fluoridation of community water supplies
   e-infectious agent control

3) **Health promotion activities** that individuals and communities can use to promote healthy lifestyles:
   a-eliminate use of tobacco
   b-reduce misuse of alcohol and drugs
   c-improve nutrition
   d-encourage exercise and fitness
   e-control stress

Focus on Life Management Skills

1.5 Focus on Life Management Skills

Focus on Life Management Skills

1) **Set health goals** and make and follow plans to reach them.

2) **Be aware of current health information** and regularly engage in health appraisal.

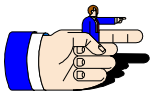
3) **Use the problem-solving** approach to make responsible decisions that lead to actions that are healthful, safe, legal, and show respect for self and others.

4) **Use commitment and self-discipline** in your lifestyle to engage in healthful behaviors and to avoid risk behaviors.

Chapter 2: Understanding the Human Body

Introduction

2.1 Introduction



One of the first steps to achieve good health **knows the importance of caring for your body systems**. Are you familiar with those systems? Do you know when your body is not functioning as it should? Your body has many systems that work together. Broadly speaking, you can divide body systems as the following:

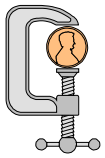
1-**Support and Control Systems** include:
- The skeletal and muscular systems.
- The integumentary system [skin].
- The nervous system.

2-**Energy and Transport Systems** include:
- The digestive system.
- The circulatory system.
- The respiratory system.
- The urinary system.

3-**Endocrine and Reproductive Systems**:
- The endocrine system.
- The male and female reproductive systems.

Support and Control System

2.2 Support and Control Systems



Objectives: you will be able to describe the functions of the skeletal and muscular systems and their relationship to health.

Think about **a car**. It is made of **many different parts**. The **framework** gives the car a **definite style** and also protects the engine and other inner structures. The car has an **ignition system** for **starting the engine**. **Other systems** work together to keep the **engine running smoothly**. Some **mechanical parts** in the car are capable of **motion.** These parts will move only if other factors are present and functioning properly. One of these factors is a source of energy, which is gasoline in most cars. Another factor is the engine. In the engine, the **stored chemical energy** in the **gasoline** is converted to **mechanical energy**, as a result the car moves.

Skeletal and Muscular Systems

2.2.1 Skeletal and Muscular Systems

Your body's mechanical parts are bones and muscles. Your body also has a **source of energy**. It is **food**. Food provides the energy necessary to move the mechanical parts of your body.

The Skeletal System

The Skeletal System

The skeletal system consists of **bones, ligaments and cartilages**. Your body has over **200 bones**, each serving many purposes, as shown in Figure 2.1. Bones serve as a **framework for your body**. Your **bones work** in harmony with your **muscles**. Bones also protect you. **Ribs and breast bones protect the heart and lungs**. The **skull protects the brain**.

Bone marrow is a special kind of tissue in the **hollow center area of some bones. Red blood** cells are produced **in marrow**.

At birth, most skeletal system was composed of **cartilage**. *Cartilage is a connective tissue that is rigid but softer than bone*. As you grew older, *ossification took place*. Ossification is a process by which **bone cells and minerals replace cartilage**. This process continues through childhood and into early adulthood. However after ossification is complete, **some body parts remain as cartilage**; e.g*. the tip of nose and outside of ears*. Cartilage is also present as a **cushion in many joints.**

The Skeletal System and the Health

The Skeletal System and the Health

Bones must receive sufficient amount of minerals*; e.g. calcium and phosphorous to help bone formation.* They need **vitamin d and some hormones and regular exercise** to help bone formation and to keep bones strong.

Osteoporosis is a bone disease in which bone tissue becomes **brittle and porous** due to deficiency of many nutrients and lack of exercise, as a result bone fractures are likely to occur.

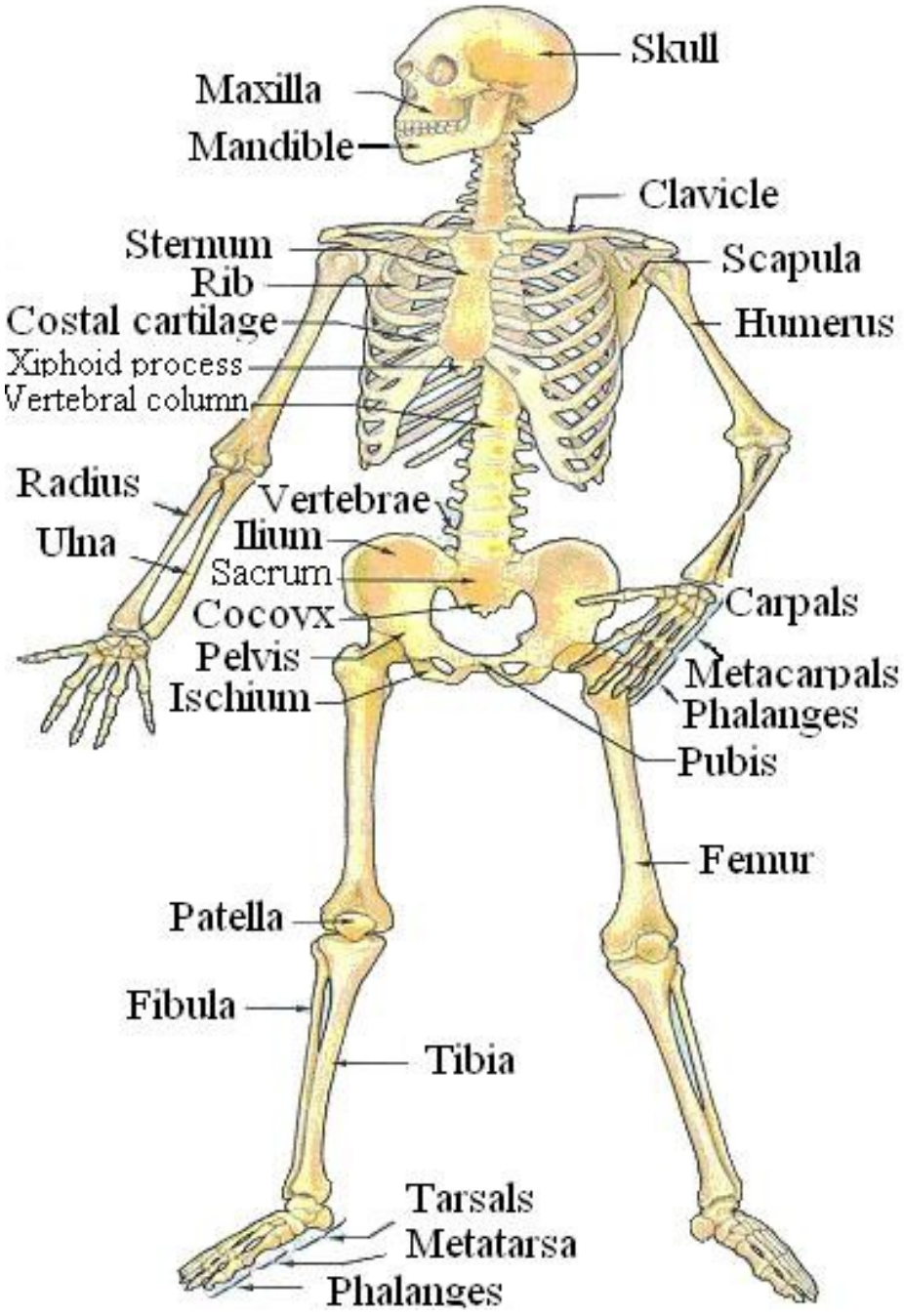


Figure 2.1: Skeletal system

The Muscular System

2.2.2 The Muscular System

Body movement is controlled by a network of over **600 muscles**. These muscles make up the **muscular system**; see Figure 2.2**.** All muscle tissue **doesn't have the same appearance**. However, all muscles have **one unique characteristic**, *the ability to shorten, or contract*, this ability allows body movement. There are **three types of muscles** in your body: **skeletal, smooth and cardiac muscles**:

- **Skeletal muscles** move the bones of the skeleton, they are **attached to bones by** tough bands of tissue called **tendons**, they are voluntary, and i.e. person has control over them.
- **Smooth muscles** form the walls of many internal organs such as **the stomach**, their action is **involuntary**, and you have no control over them.
- **Cardiac muscle** has character of skeletal and smooth muscles, but it is regarded as a distinct kind of muscle. Cardiac muscle is also involuntary muscle. It **pumps blood** at an average of **70 times/min., 40 million times a year** for a life time.

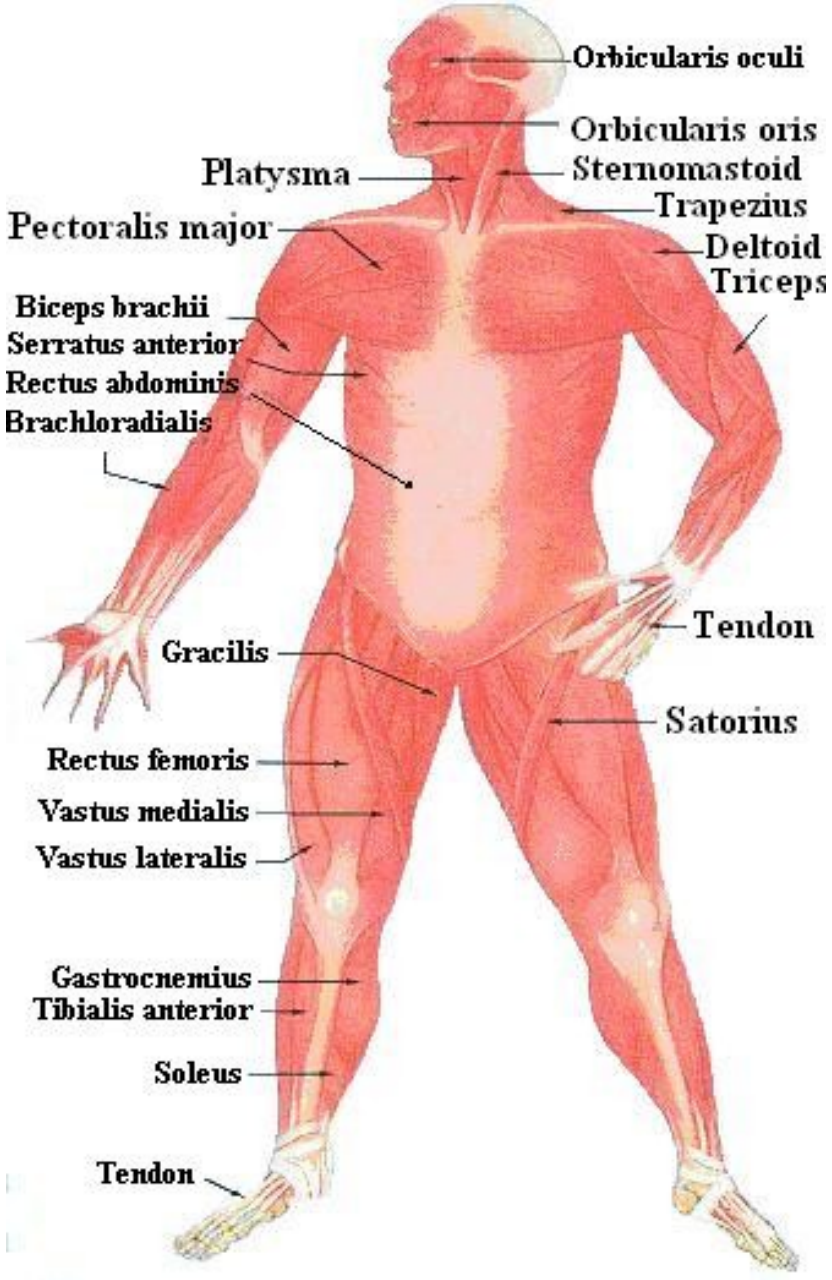
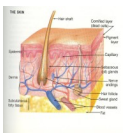


Figure 2.2: Muscular system

The integumentary System (Skin)



2.2.3 The Integumentary System (Skin)

The system that **covers and protects the body** is the integumentary system, see Figure 2.3. It is composed of **skin, hair follicles, nails, glands** that are **outgrowths of the skin layers**. The skin is the largest organ in the body consisting of **epidermis and dermis**. The skin protects by preventing **harmful micro organisms from entering the body** and by **regulating body temperature**. Skin contains nerve endings. Some **nerve endings** make you aware of **changes in your environment**. Other nerve endings are sensitive to **pressure, pain and temperature**.

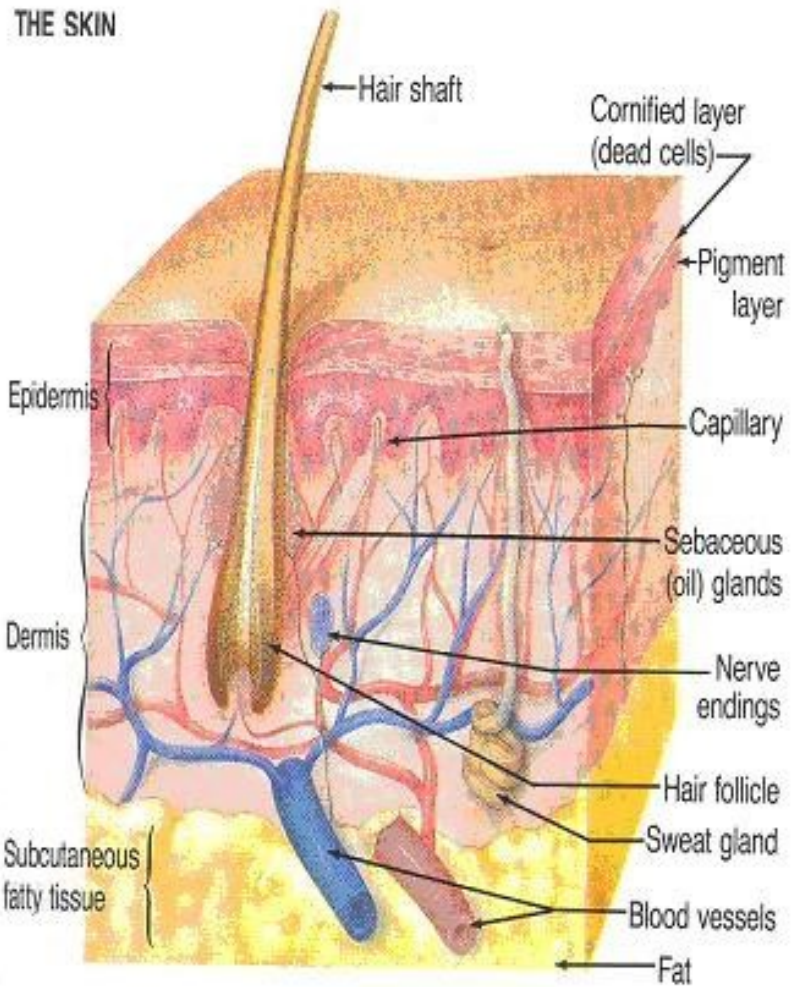
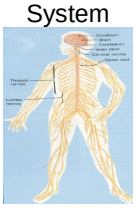


Figure 2.3: Cross section of the layers of the skin

The Nervous System



2.2.4 The Nervous System

It is the network of **nerve cells** that **carries messages or impulses to and from the brain and spinal cord to all parts of the body.** The nervous system is divided into **two major parts**, the **central and the peripheral** nervous systems as shown in Figure 2.4.

- **Central nervous** system is composed of **brain and spinal cord.** The **brain** is the **most complex part** of the central nervous system and is protected in many ways from injury. It has its **own kind of helmet** called the **cranium**. Brain is also **protected** and nourished by **three cushions** called **meninges. Spaces between meninges** all filled with **cerebrospinal fluid. Inner spaces** of the brain are called **ventricles,** it also hold fluid that protects the brain. The **spinal cord** is like a thin cable that **extends from the base of the brain.**
- **Peripheral nervous** system consists of many nerves that **branch from the brain and spinal cord** to the periphery of the body. **Twelve pairs** of **cranial nerves**. **Thirty -one pairs** of **spinal nerves.** The **peripheral nervous** system can be further **subdivided into two main divisions**; the **somatic** and **autonomic** nervous systems. The **somatic** is concerned with a **person's external environment**. This system consists of **sensory and motor neurons**. The **autonomic** involves a **person's internal environment**. This part of peripheral nervous system **controls involuntary actions** and **regulates heart rate and body temperature**. The **autonomic** system is a **two-part system**. One part, the **sympathetic** nervous system, prepares the body for emergencies. The other part, **parasympathetic** system, **counterbalances** the **sympathetic system.** This system **maintains the body's normal** state and restores balance after an emergency.

Sense Organs

Sense Organs

Your body senses play a role in everything you do. There are **five senses**. You are able to experience each sense because of **special neurons** that act as **receptors**. Receptor neurons receive information and transmit it on sensory neurons to your spinal cord and brain. Your brain sends back impulses on motor neurons and you respond to the initial information. The **five senses** are **vision, hearing, taste, smell and touch.**

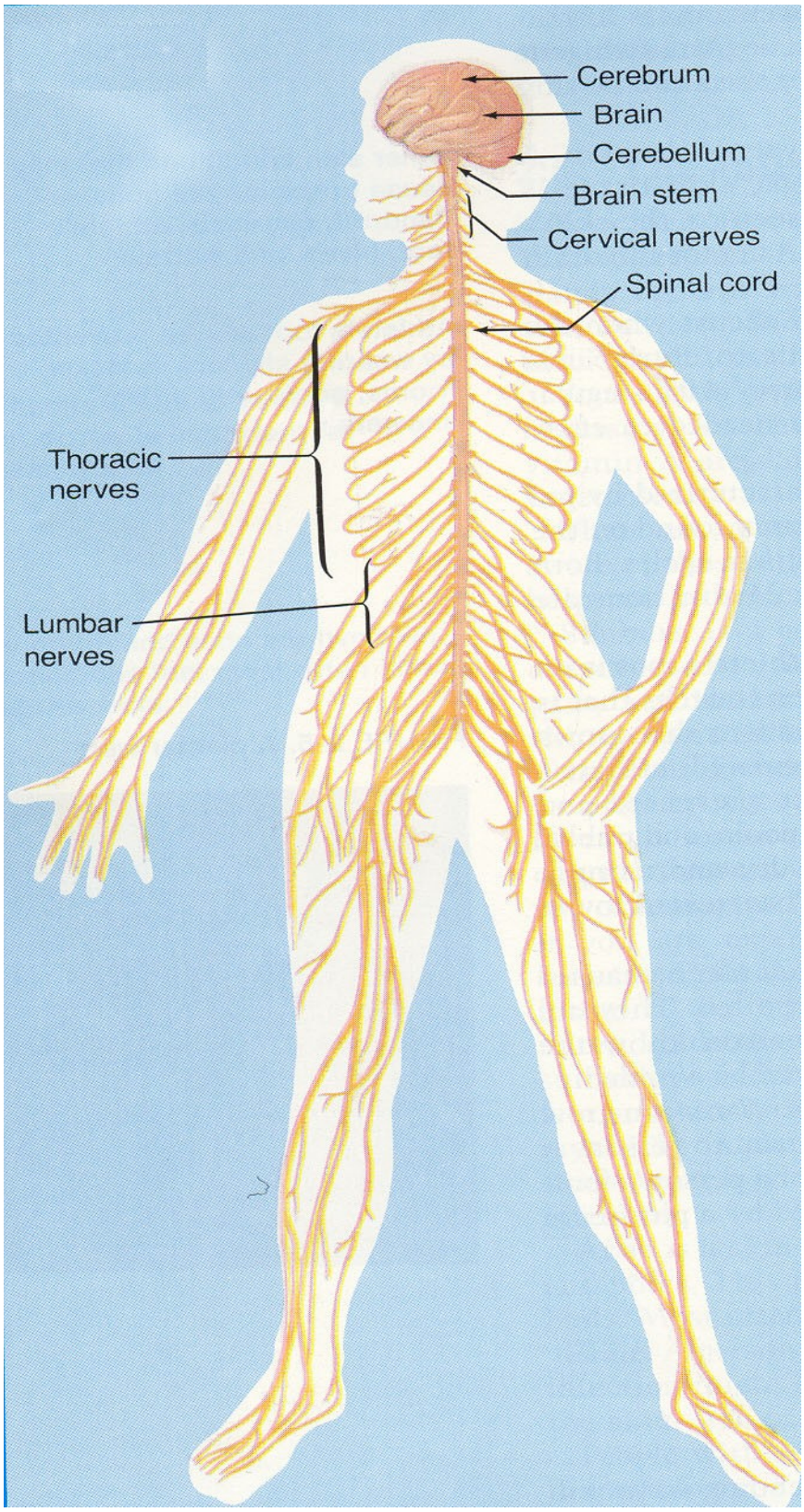
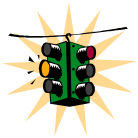


Figure 2.4: Nervous system

Energy and Transport Systems

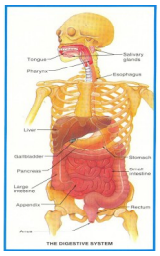


2.3 Energy and Transport Systems

The body has systems that are involved with the use of **energy and the disposal of waste** products in the body cells.

- Digestive system
- Circulatory system
- Respiratory system
- Urinary system

Digestive System



2.3.1 Digestive System

All cells need energy in order to function. **Energy comes from fuel**. The fuel your body uses for energy **is food**. Food must be processed in your body to **provide nutrients**. **Digestion** is the process in which **food is chemically changed to** a form that can pass through cell membrane, see Figure 2.5. When you **chew solid food**, **teeth** in your mouth help **break the food into smaller pieces**. As food is chewed, it is **mixed** with **saliva**. Saliva **moistens** the food and helps **break down food** into **simpler substances.**

After **food** is chewed and swallowed, it **moves** through the **esophagus** by **peristalsis into the stomach**. The **stomach** is like an **elastic pouch** that acts as a **temporary storage place for food**. **Food remains** in the stomach about **four hours**. The **churning action** of peristalsis and the digestive juices **change the food** into a **thick paste called chyme**. **Food** in this state moves into **the small intestine.**

Digestion is completed in the **small intestine**. The small intestine is a **coiled tube measuring about 7 meters (23 feet) in length**. **Additional enzymes are produced in glands** in the lining of small intestine. **The lining** of the small intestine also contains **millions of tiny finger-like projections called villi**, which **increase its surface area**. Digested food is absorbed into **blood vessels of the villi**.

Food that is **not digested pass into the large intestine (colon),** where water is absorbed. **The remaining material** forms a semisolid mass called **feces. The expelling of feces** from the rectum is called a **bowel movement (defication). Other organs** involved in digestion and not part of the digestive tract are **liver, pancreas and gall bladder.**

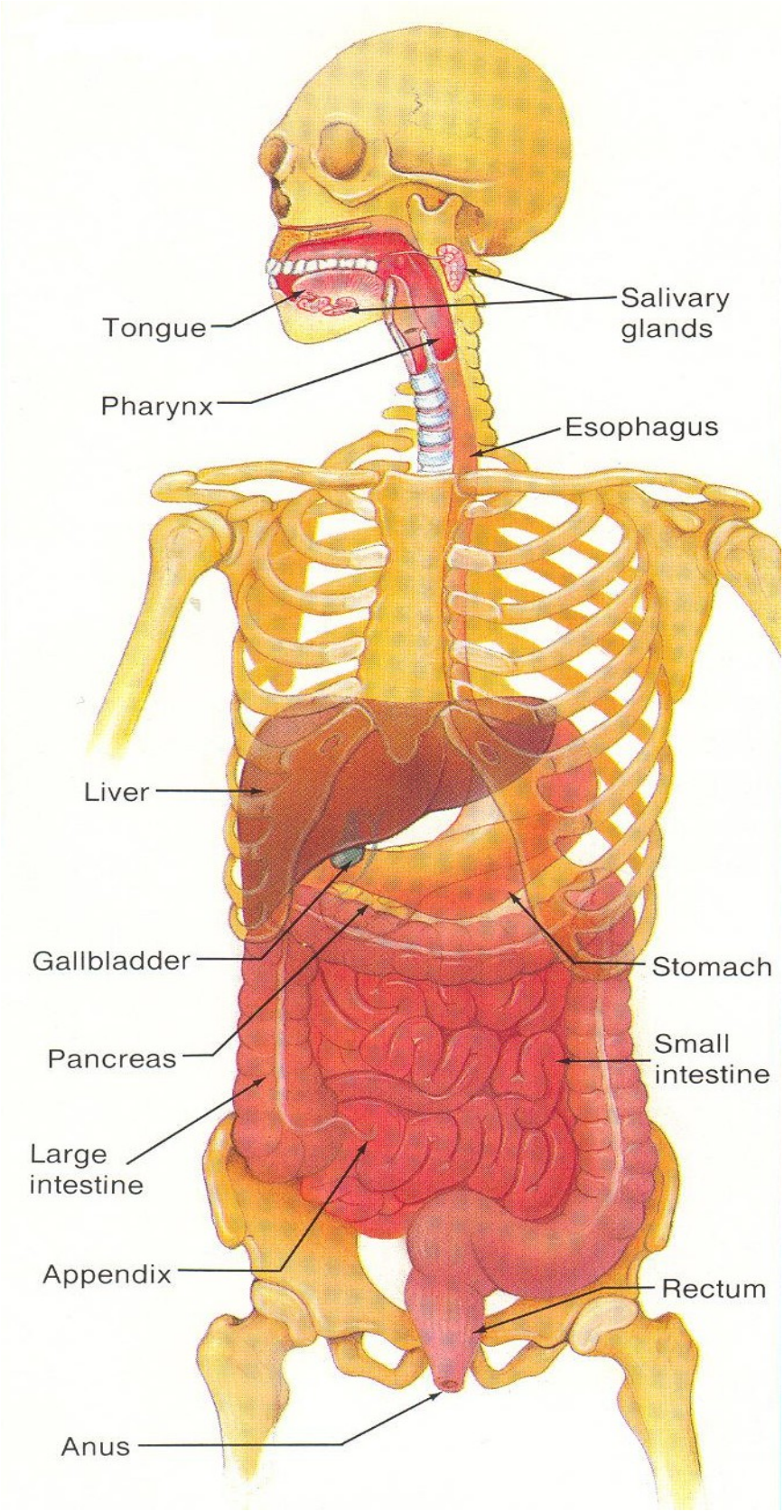


Figure 2.5: Digestive system

The Digestive System and Health

The Digestive System and Health

There are many **common disorders** that **affect the digestive system**. Many are **minor conditions that can be treated**. Some are serious and should be treated **by a physician**. Whether minor or serious, any thing that upsets the body's ability to process food has a holistic effect.
Indigestion (dyspepsia) can be caused **by gastric conditions** such as **gastritis**, **gastric ulcer** whether peptic or malignant. **Hyper acidity and duodenal ulcer** are causes. Also **gallbladder diseases**, colonic conditions are causes.
Appendicitis – constipation –diarrhea –hemorrhoids (piles) are other examples and will be discussed in the lecture.

Circulation System

2.3.2 Circulatory System

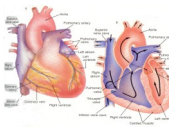
Each body cell **receives needed materials and releases waste products.** The transport of these materials to and from each body cell is the function of the **circulatory system**, which is formed from the **heart, blood vessels and blood**.

Blood is the fluid by which essential **substances are transported to cells throughout the body and by which waste materials are removed from the body cells** and transported to specific organs for disposal.

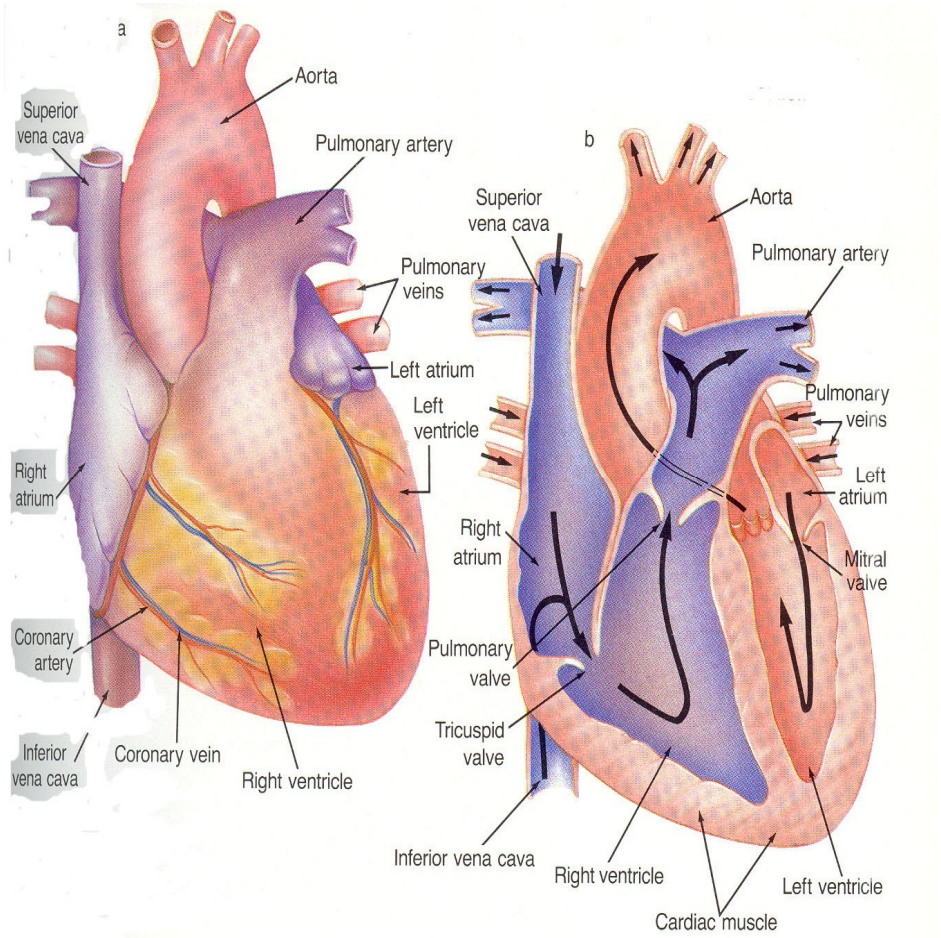
The **liquid part of blood** is called **plasma**. it is about **90% water and contains dissolved materials, including nutrients**. **Plasma** also **contains blood cells**. There are **three kinds of blood cells**, each with its own unique function. These are **red cells, white cells and platelets.**

The Heart

The Heart



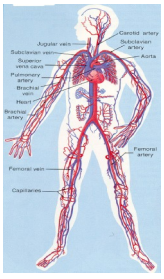
The **human heart** is an incredible organ that **beats** between **70 and 80 times each minute, or about 100 000 times each da**y. The heart is a **strong muscle** that lies **under the sternum between lungs**, as shown in Figure 2.6. The **myocardium** is the **muscular wall of the heart**. Within the heart are **four chambers**; **two atria and two ventricles**.



a) Front View of Heart **b) Cross Section of Heart**

Figure 2.6: Heart

Blood Vessels



Blood Vessels

Blood is continually **circulating in a series of closed tubes** that carry it from the heart to all body cells and back to the heart again. These tubes are called **blood vessels**. There are three main types of vessels- **arteries, capillaries and veins**, see Figure 2.7.

Arteries carry blood from the heart to **all parts of the body**. Away from the heart **arteries** continually **subdivide into smaller arteries** called **arterioles**. **Arterioles** further subdivide to form **capillaries. Capillaries** connect arterioles to small veins called **venules**. Blood flowing through **venules and veins** is on its way back to the heart. As blood flows through capillaries, **some liquid** enters into spaces between **body cells**. The clear liquid is **lymph**. Lymph belongs to a part of circulatory system called **lymphatic system**. The lymphatic system contains **lymph nodes** which filter harmful organisms in the body.

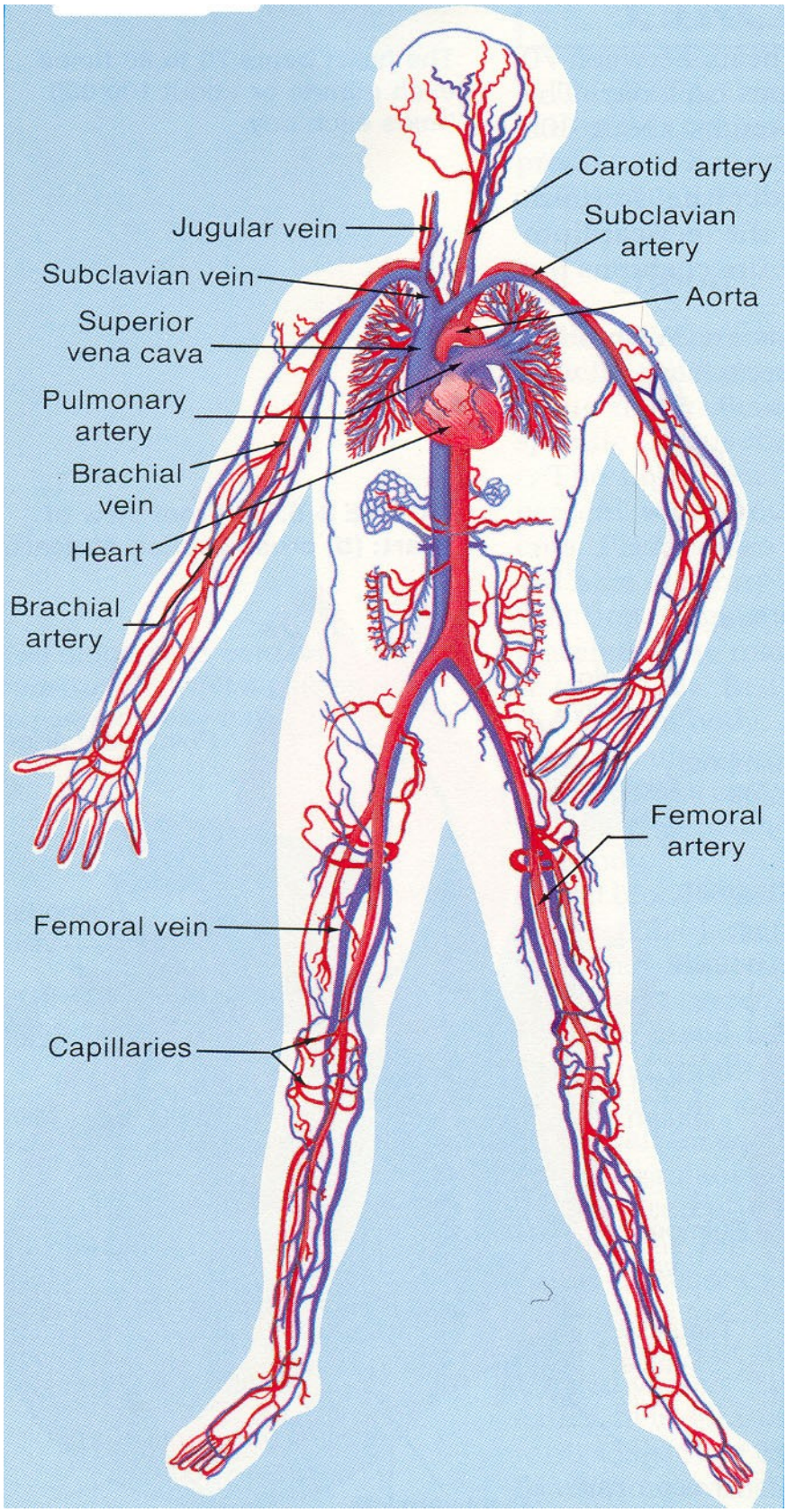


Figure 2.7: Circulatory system

Blood Pressure

Blood pressure is the **force** exerted by the flowing blood **against the walls of the arteries.** The pumping action of the heart creates the force. Every time the **heart beats, the pressure increases** (called **systolic** pressure). When the **heart relaxes** between beats, the **pressure decreases (called diastolic pressure**). When a physician measures your blood pressure, a measurement is taken of both the **upper and lower pressures**.

A **sphygmomanometer** is an instrument that measures blood pressure.

A **stethoscope** is an instrument that enables a physician to sound inside a person's body.

For **young adults,** normal **systolic** blood pressure is **110-140**; normal **diastolic** blood pressure is **65-90**.

Blood Pressure and Health

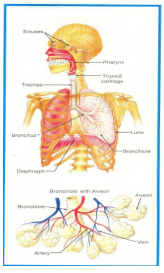
Blood Pressure and Health

Hypertension is the increase in blood pressure. It occurs when you are **angry or stressful** or after **vigorous exercise**. You may have high blood pressure without knowing it. **Continued high blood** pressure is the **most common disease affecting the heart and blood vessels** and can lead to serious complications. The **only way to know** for sure that your blood pressure is not high is to have it measured regularly.

- **Healthful behaviors** for heart and blood vessels include:
  - **Avoid** smoking.
  - **Reduce** the amount of fat and salt in your diet.
  - **Practice** healthful ways to deal with stress.
  - **Get** enough exercise and rest.

Respiratory System

2.3.3 Respiratory System



Cells to release energy from nutrients **need the chemical action of oxygen.** In this process, **carbon dioxide** is **produced as a waste product.** The respiratory system is involved in **making oxygen available** to the cells and is **ridding the body of carbon dioxide**.

Respiration is exchange of gases between a living organism and its environment. It takes place in two stages; external and internal, see Figure 2.8.

- **External respiration** takes place as oxygen and carbon dioxide are exchanged between blood and the air **in the lungs**.

- **Internal respiration** takes place as oxygen and carbon dioxide are exchanged between **body cells and blood circulating** near them.

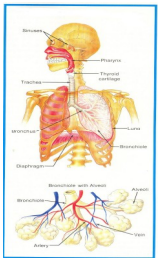
Mechanics of Breathing

Mechanics of Breathing

An adult inhales about **12 times each minute at rest**. The process of taking air into the lungs is called **inspiration**. The process of forcing air out of the lung is called **exhaling or expiration**.

The Respiratory system and Health

The Respiratory System and Health



Emphysema is a **serious lung disease** that results from the **destruction of the lung tissue**. The lungs lose their elasticity and do not function efficiently. This disease is common in people who **smoke and who regularly inhale polluted air.**

Lung cancer is a leading cause of **cancer death in males**. The main cause of lung cancer is cigarette smoking. Heavy smokers are 20 times more likely to develop lung cancer than non smokers.

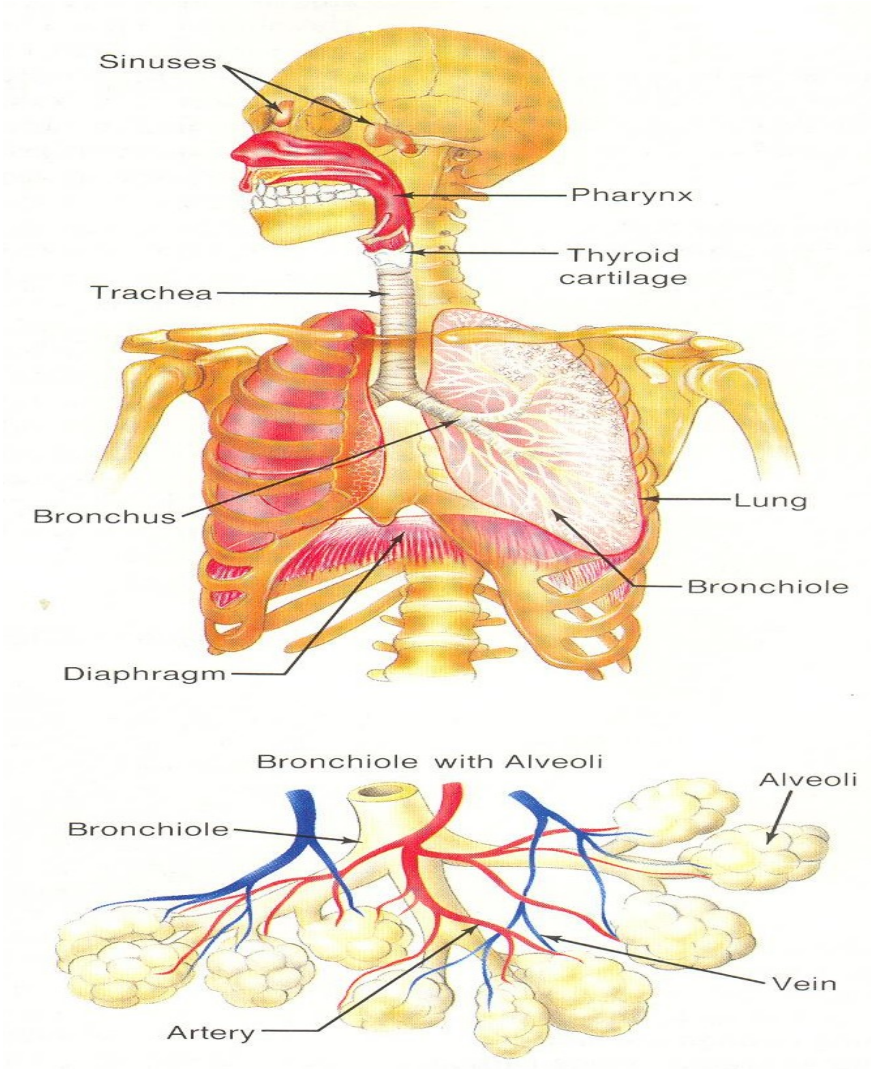
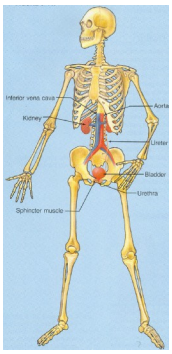


Figure 2.8: Respiratory system

Urinary System

2.3.4 Urinary System



This system **removes wastes from the blood** and helps **control the amount of fluid in the body.** The organs of the urinary system are the **kidneys, ureters, bladder, and urethra**, see Figure 2.9.

The **kidneys** lie near the **lowest ribs in the back**. Connected to each kidney are an **artery and vein**. As blood circulates through each kidney, the kidney acts as **a filter**. Waste materials that are filtered out form **urine.** Urine is about **95% water** in which solid wastes are dissolved. Urine then flows into the **urethras** (tubes that extend from the kidneys to the urinary bladder). **The urinary bladder** stores urine. When it becomes **full, nerve impulses** stimulate both voluntary and involuntary muscles to **release urine from the urethra**. The urethra is a narrow tube leading from the bladder through which urine passes out of the body.

Urinary System and the Health

Urinary System and Health

- To **maintain healthy kidney**, it is important to have the equivalent of at least six glasses of water in your diet daily.
- Many foods you eat contain water.
- Sometimes a kidney must be removed because of a disease.

In such cases, one healthy kidney can perform the task of two. If both kidneys are removed or fail to work properly, a person may be placed on a dialysis machine.

Dialysis

Dialysis is a process in which **a person's blood is filtered by a special machine** which takes the place of kidneys. The person's blood is circulated through tubes into a filtering machine. The blood is cleaned and then returned through a tube to the person's body. An alternative to dialysis is a kidney transplant. It is the exchange of unhealthy failed kidney for a healthy kidney. The healthy kidney often comes from a blood relative of the person who receives the transplant. This reduces the chance of rejection.

Urinalysis

Urinalysis is the **chemical examination of a person's urine**. It is a routine part of most physical examinations to **detect substances that normally are not in urine**, or substances that are in **larger than normal quantities.** Some people develop **kidney stones**. These stones can become lodged within the kidney itself or pass into the ureter. The danger of the stones is that they can obstruct the flow of urine into the bladder. If the urine backs up into the kidneys it can cause infection and destroy kidney tissue. The stones must be removed. **New advances in medicine now make it possible to remove stones more efficiently and safely than ever before**. The **liththripter i**s a machine that uses a **focused wave to crumble kidney stones.** No **incision** is needed because the shock wave passes through body tissues without harming them. **The waves hit the stones**

causing them to crumble. The pieces can be passed out of the person's body through the urine. The use of the **lithtripter is less expensive, less painful, and requires less recovery time** than kidney stone surgery.

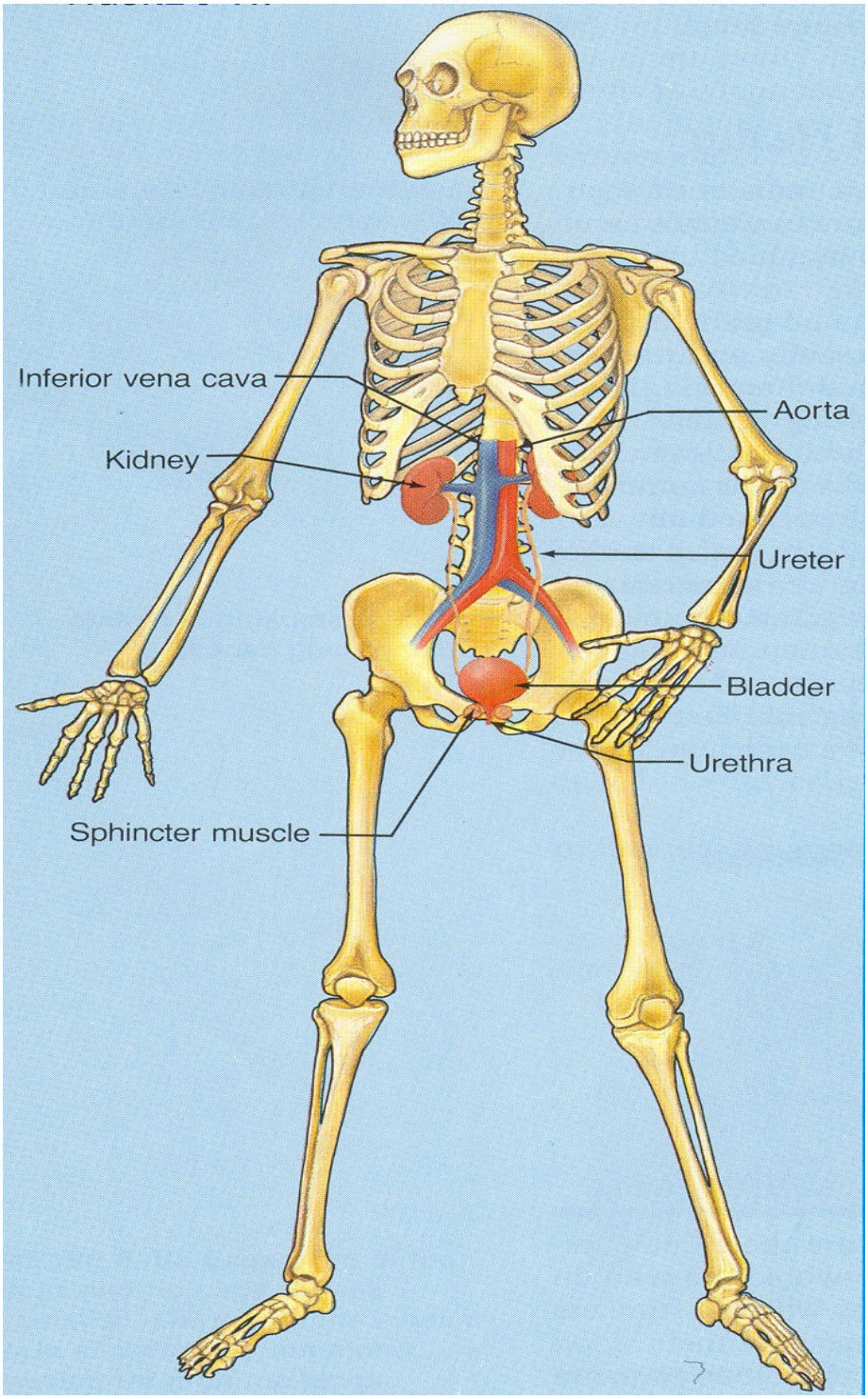


Figure 2.9: Urinary system

Endocrine and Reproductive Systems

2.4 Endocrine System and Reproductive Systems

2.4.1 Endocrine System

Endocrine System

Endocrine system works closely with the **nervous system**. It **controls functions** such as **growth, sexual development and the use of food.** The endocrine system consists of g**lands that secrete hormones**. Hormones are chemicals that **act as messengers and regulate body activities.** Hormones are specific. The endocrine glands are: **pituitary, thyroid, parathyroid, adrenal medulla, thymus pancreas testes and ovaries.**

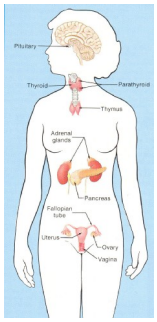
2.4.2 Reproductive System

Reproductive System

Reproduction is the process of **producing offspring**. Unlike other body systems, the reproductive system **is not vital to an individual's survival.** However, this system is **vital to the continuation of the human race.**

a- Female Reproductive Organs

Female Reproductive Organs



The internal reproductive organs of the female include **two ovaries, fallopian tubes, uterus and vagina,** see Figure 2.10**.**

Associated reproductive structures, the **external parts of the female** reproductive system are known **as genitalia or genitals**.
The **genitals** include the **mons veneris, labia, and clitoris**. These parts together are known as the **vulva.** The **mammary glands** of the breasts **secrete milk** that can be used to **nourish a baby after birth**. Milk drains through **ducts to the openings in the nipples**.

During puberty, the menstrual cycle begins. **The menstrual cycle** is a **monthly series of changes that occur in a woman's body**. During the menstrual cycle, the **ovaries produce a mature egg cell**, the **lining of the uterus is prepared for a fertilized egg**, and the lining **breaks if an egg is not fertilized.**

Female Reproductive Health

Female Reproductive Health

- **Women are encouraged to perform breast self examination** once a month after each menstrual period.
- **Any breast lump should be checked as soon as possible** by physician.
- **Early detection and treatment of cancer** improve the chances of cure.

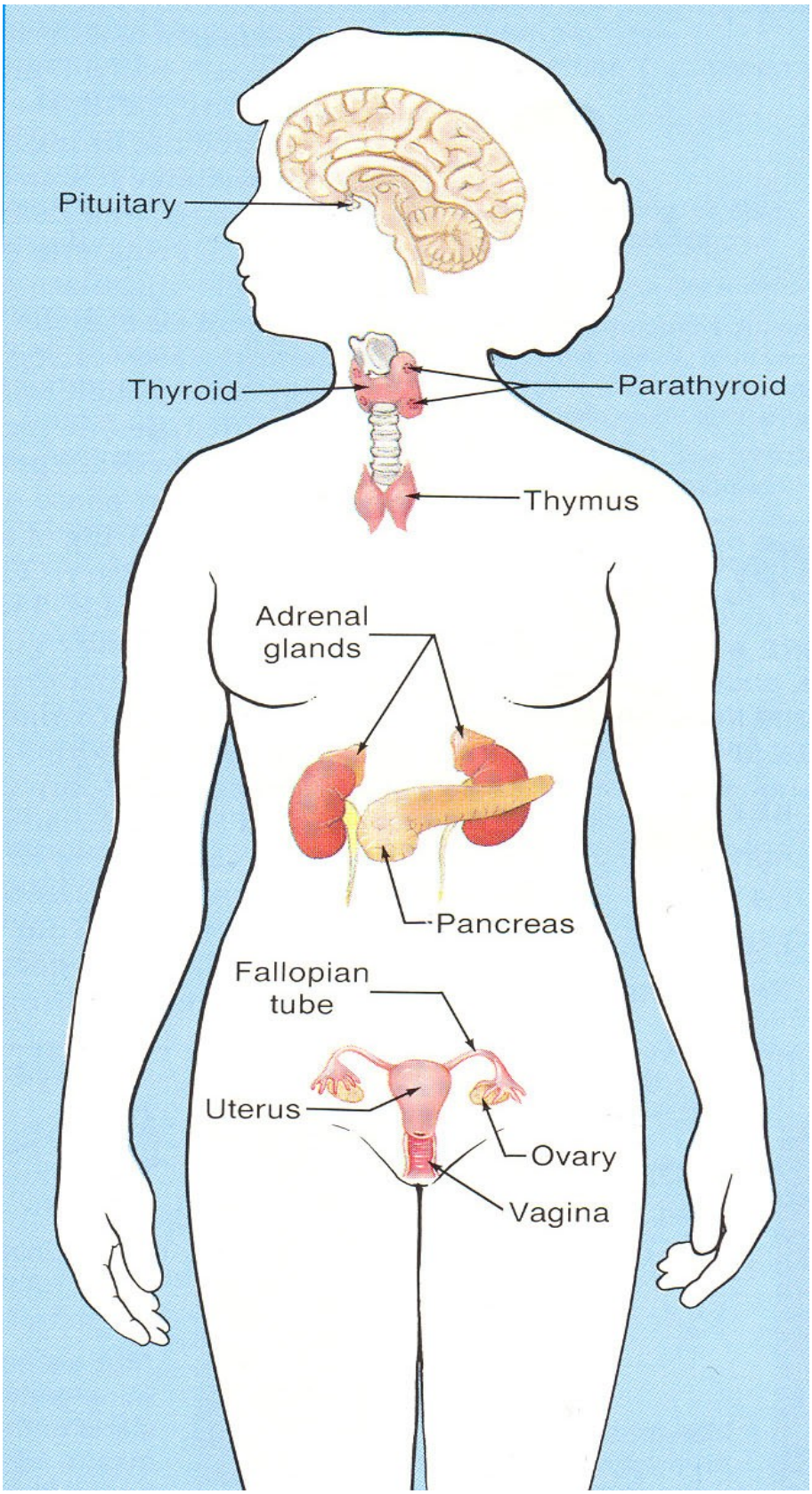
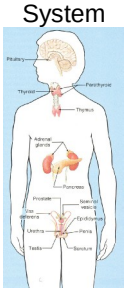


Figure 2.10: Female reproductive organs

Male Reproductive System



b- Male Reproductive System

The **main organs** of the male reproductive system are the **testes**. **Testes** are sometimes called **testicles**, see Figure 2.11. The other organs of the system can be grouped as internal and external reproductive organs.

Testes are **two glands** that are **contained in a sac** called the **scrotum**. **Sex hormones and reproductive cells called sperm** are produced in **somniferous tubules** and stored in the **epididymus**. Before leaving the body, sperm move through a series of small tubes. From the epididymus, **sperm** move through the **vas** deferens to the **prostate gland**. The **prostate secretes a fluid to nourish the sperm**. Behind the prostate lies the **seminal vesicles**; sac-like structures that **secrete fluids to help sperm motility**. Sperm also receive secretions from the **Cowper's glands** on either side of the urethra. From the prostate sperm enter the **ejaculatory duct** (tube that leads from the **prostate** to the **urethra**). The urethra in the male serves as a way through **the penis for both urine and sperm**. However, urine and sperm do not pass through the urethra at the same time. The urethra extends through the penis to the outside of the body.

Circumcision is the removal of the foreskin of the penis. It is a minor surgical procedure, done a few days after birth.

The penis is composed of three layers of spongy tissue. Many blood vessels and nerves are supplied to this tissue. When these tissues become filled with blood, they cause **erection**. Erection usually occurs when a male is **sexually stimulated**. A male can have **erection without sexual stimulation**. For example, awaking up in the morning and the cause could be a **full bladder or sleeping on the stomach.** Also wearing tight clothes is a cause.

Ejaculation is the release of semen from the urethra. About **teaspoon containing about 600 million sperm** is released.

Male Reproductive Health

Male Reproductive Health

Cancer testes have increased in recent years. Early signs of this kind of cancer may be an **enlarged scrotum or a hard, painless lump** in one of the testes. A change in the testes may be found by doing a self examination each month. Any change should be checked immediately by a physician.

There are many other diseases that can affect the male reproductive organs. These diseases may be transmitted through sexual contact and are **called sexually transmitted diseases (STDs).**

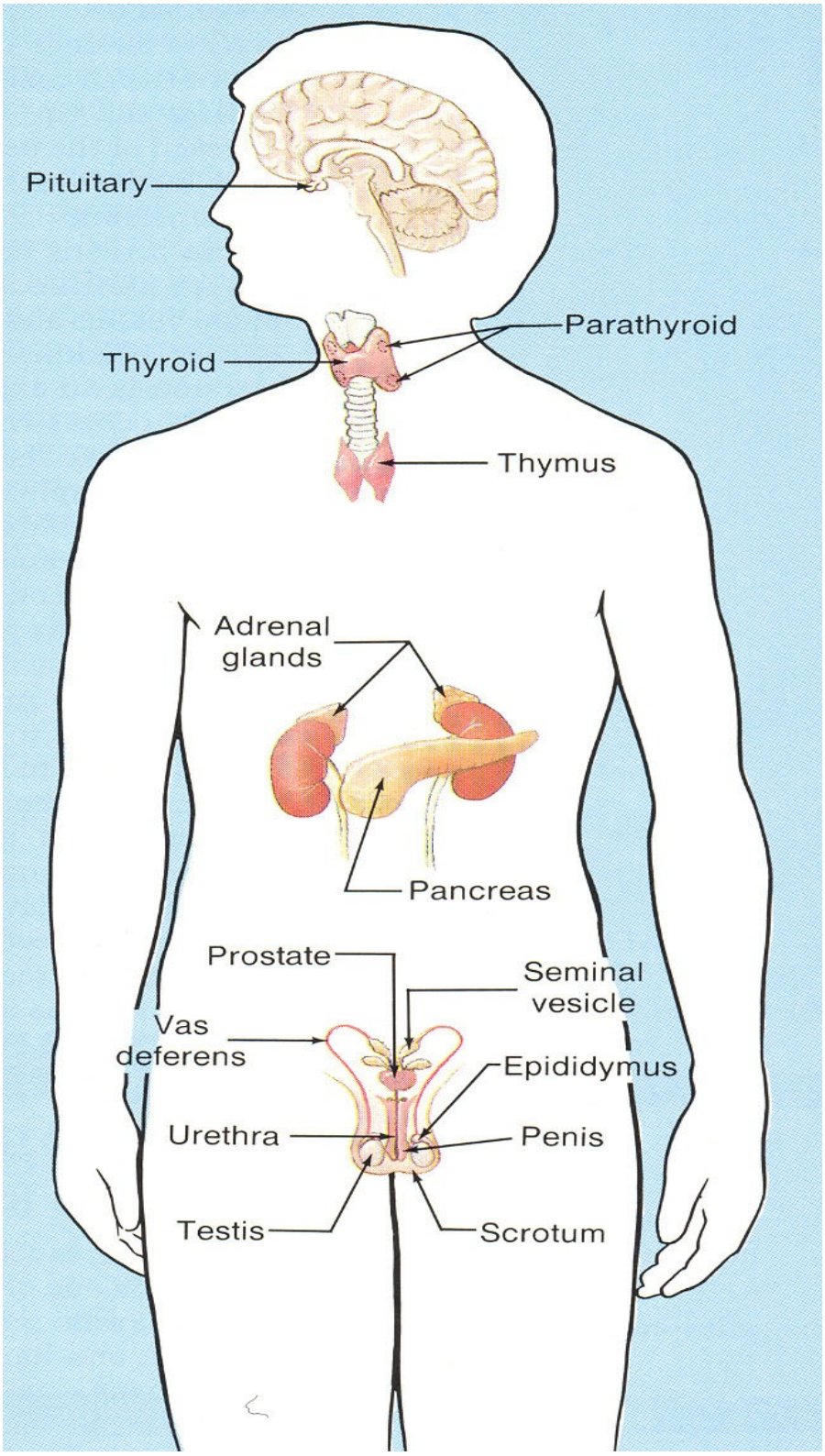


Figure 2.11: Male reproductive organs

Chapter 3: Promoting Mental Health

Introduction

3.1 Introduction

Optimum health cannot be achieved without having **positive mental health,** defined as: (1) being comfortable with yourself, (2) feeling good about relationships with others, and (3) being able to cope with the demands of life.

Low self-esteem, poor relations with others, inability to cope with the problems and challenges of day-to-day living, and difficulty to distinguish fantasy, imagination and reality are characteristics of mental illness.

Promoting Metal Health: Information and Skills

3.2 Promoting Mental Health: Information and Skills

Exploring the Self

Socrates said “know yourself”. This is an essential step in being comfortable with, and accepting yourself: a complex entity that includes ideal self, public self and private self.

- **Personality:** a blend of physical, mental, and social traits unique to the individual. Heredity, environment, culture and self-concept influence personality. (Culture: a blend of the influence of the people in your home, city, and nation. In many ways you act and think like them).
- **Self-concept:** All your beliefs about yourself coming from self-appraisal of your strengths and weaknesses. Others’ opinions about you may matter but become less important as you mature.
- **Ideal self:** your conscience. Much of it is influenced by your parents and their values.
- **Public self:** is the reputation for which you strive. You act and speak in ways calculated to influence people to form a certain opinion of you.
- **Private self:** is the actual you. It may or may not be what you think you ought to be (ideal self), or what you want others to think of you (public self).

Ideal self, public self, and private self influence personality and self-concept. Similar ideal, public, and private selves contribute to a healthy personality.

Maslow's Hierarchy of Needs

Maslow's Hierarchy of Needs

The psychologist **Abraham Maslow** identified **a hierarchy of needs** necessary for promoting physical and mental health, see Figure 3.1. He believed that needs at the **lower levels** must be met before those at **higher levels** could be attained. At the most basic level is **physiological needs – food, water, sleep- that sustain life**. Superimposed are the needs for: (1) **safety/security**, first provided by the family, (2) **love/affection**; the example of your family shows you how to receive and give love, you can then form healthful relations with others, (3) **self-esteem** that develops as you learn more skills that make you independent, and (4) **self-actualization**, the highest level, when you make full use of your abilities, developing your talents and fulfilling your potential.

Self-actualization is a lifetime process of always doing your best. Only a few people manage to develop all their talents to their fullest.

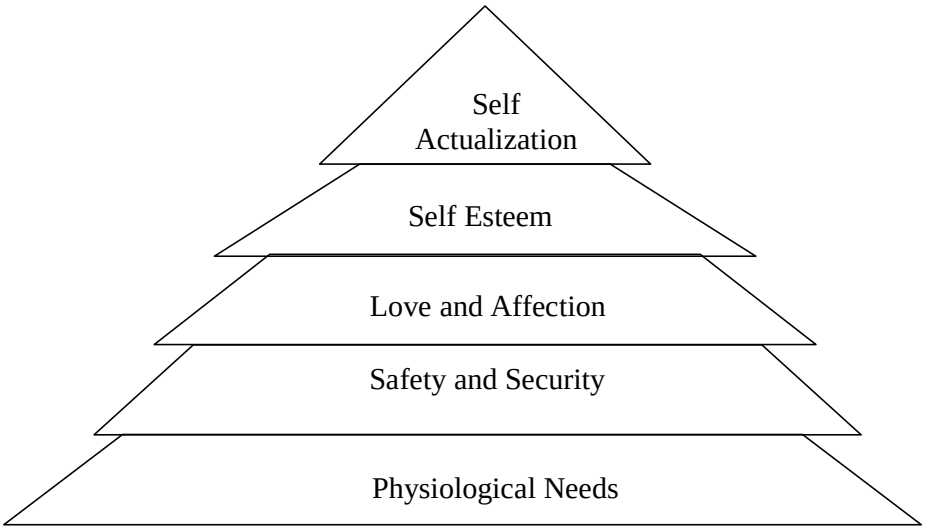


Figure 3.1: Maslow's Hierarchy of Needs

Developing a Philosophy of Life

Developing a Philosophy of Life

Your philosophy of life reflects your values and your attitude towards life and its purpose. It **influences your thoughts, goals, decisions and actions.** Thoughts generate emotions or feelings. Emotions affect performance. Examining your philosophy of life is an important aspect in knowing yourself.

Expressing Emotions

Expressing Emotions

Emotions are feelings arising in **response to life situations. Happy feelings**, e.g., being loved, **have a holistic effect** on your lifestyle and situations that produce them contribute to optimum health. Some situations may result in feelings of loss or rejection and generate

negative emotions, e.g., hurt, anxiety, anger, guilt, and depression. Healthful ways to deal with and express these emotions contribute to optimum health.

Feeling hurt/distressed/harmed: do not bottle your feeling up. Identify the source of the hurt and express your feelings.

Anxiety or worry about an anticipated or imagined situation. Pretending you are not anxious is risk behavior. Try to identify the source of the anxiety and deal with it if possible. Exercise has a beneficial effect.

Anger: if not expressed in healthful ways, harmful mental and physiological changes occur. It is best to talk about your feelings with the person who has caused the anger. This should be done privately as soon as you are calm.

Guilt: the feeling of having done something wrong or being at fault. Denial may intensify the feelings of guilt. It is best to admit you are wrong, to apologize and accept responsibility for your actions

Depression: the feeling of being sad, unhappy, discouraged is a leading mental disorder.

Defense Mechanisms

Defense Mechanisms

A **defense mechanism** *is a behavior that is used consciously or unconsciously to cope with uncomfortable situations or emotions*. It may help you solve a problem when you willfully suppress/delay expressing your emotions to allow you time to think. Defense mechanisms may also be used to avoid solving problems, e.g., displacement, i.e., transferring emotions from the original source to another object.

It is helpful to evaluate your use of defense mechanisms. There may be risks in their frequent use.

Time Perspectives

Time Perspectives

A time perspective **is the time orientation of your thoughts**. *Do you think mainly about the past, the present or the future?* A balanced time perspective emphasizes individual responsibility in achieving positive mental health by making you (1) **learn from past mistakes** rather than worry about them so as to hinder performance; a past–time perspective, (2) **enjoy the pleasures of day-to-day living and work** to accomplish goals rather than needlessly delaying important decisions or not thinking through your actions; a present-time perspective, (3) **set goals and become actualized,** rather than seeking only pleasures and ignoring responsibility to yourself and others; a future-time perspective.

Focus on Life Management Skills

Focus on Life Management Skills

- **Develop a positive self-concept** by developing strengths, recognizing limitations and understanding your feelings.
- **Make your ideal self, public self and private self** consistent with each other.
- **Take steps** to satisfy your basic needs.
- **Be aware when you are using defense mechanisms**, try to identify what you are trying to avoid.
- **Develop a philosophy of life** that influences your thoughts, emotions, and body's performance in healthful ways.
- **Express love, hurt, anxiety, anger, guilt, and depression** in healthful ways.
- **Balance your time perspective** to include your past, present, and future.

Mental Disorders

3.3. Mental Disorders

Levels of Mental Health

Levels of Mental Health

Mental health status is a **combination of the healthful and risk behaviors you select.** It may fluctuate from day to day and can be rated on a scale from **0** -e.g., **when suicide is considered** because coping with life is overwhelming – to **100,** (optimum mental health). Closer to the **0** end of the scale are persons with **mental disorders.** They do not feel comfortable with themselves. They do not have satisfactory relationships. They are unable to express emotions or handle problems. Some may be able to function in society; others are not and have to be hospitalized.

Causes of Mental Health Disorders

Causes of Mental Disorders

People respond in **different ways to environmental stress** (i.e., the **physical and mental** demands associated with your environment) and to **life crises** (experiences that cause a high level of mental stress). These differences may be due to **environmental and hereditary factors.** *The family is most important. It teaches children how to express emotions and cope with problems and influences self-concept and behavior pattern*. Some mental disorders tend to run in families. A *hereditary predisposition may still require environmental factors to materialize* (polygenic inheritance). **Brain damage can cause organic mental disorders.** This may be due to illnesses, e.g., **brain tumor**, **hypothyroidism**, or to **chemical abuse, e.g., alcohol and marijuana.**

Types of Metal Health Disorders

Types of Mental Disorders

Anxiety Disorders

1**-Anxiety Disorders**: Mental disorders characterized by the manifestations of fear (e.g., apprehension, shakiness, sweating, palpitations, sinking feelings in the stomach, urinary urgency/frequency). Unlike fear, the cause of the danger is not known or recognized. Everybody experiences some anxiety in day-to-day living. Only if persistent or recurrent, one needs to be concerned. Some types of anxiety are:

- **Phobias:** irrational/exaggerated fears of a thing, e.g., cats, heights, or a social/environmental situation, e.g., public speaking, using public toilets.
- **Obsessive/compulsive disorder:** recurrent thoughts or feelings (obsession), or repetitive actions (compulsion) that are known – by most patients- to be irrational.
- **General anxiety disorder:** the patient feels anxious, tense, fearful and upset most of the time without apparent reasons.

Dissociative Disorders

2-**Dissociative Disorders:** abrupt but temporary loss of memory or identity or feelings of detachment due to psychological factors. Multiple personality disorder in which the patient shifts from one personality to another without being aware is a rare variant.

Mood Disorders

3-**Mood Disorders:** involve moods that are extreme and interfere with daily living. It is normal to experience different moods, e.g., loving/happy moods, hurt/anxious moods.
Depression is a feeling of hopelessness, sadness, helplessness; with loss of interest, appetite, sleep, and energy…It may follow loss of a parent in the first decade of life or a social loss during adult life, e.g., loss of a spouse. In Manic-depressive disorder the patient alternates between periods of depression when he may be suicidal and periods of high mood when he may be very happy or agitated and angry and may become violent.

Personality Disorders

4-**Personality Disorders:** Adults with unusual personality, i.e., unusual patterns of thinking, feeling, and acting, that interferes with happiness and daily living have a personality disorder. Examples include: 1- avoidant personality (avoids social contacts because of low self-esteem and fear of rejection), 2-dependent (insecure and leaning on others for advice and support), 3-histrionic (constantly behaves in ways to draw attention to himself)…

Schizophrenia

5-**Schizophrenia:** a mental disorder in which there is a breakdown in logical thought processes. The patient experiences delusions (false beliefs), and hallucinations, (false sensations, e.g., hearing voices). In paranoid schizophrenia, the patient has delusions of persecution or grandeur.

Somatoform Disorders

6-**Somatoform Disorders:** a group of disorders in which there are symptoms of physical illness from emotional causes, the patient truly believing that he has a physical illness. Hypochondria is constant anxiety about illness. In a conversion disorder, the patient suddenly loses vision or hearing or sensation in the skin or becomes paralyzed to get a secondary gain, e.g., to avoid some responsibility.

Suicide

7-**Suicide:** is not necessarily related to a mental disorder but to the experience of loss and rejection (loss of love, control, self-confidence) or the loss of health (e.g., incurable cancer). Signs that a person may be suicidal include drastic changes in personality and in sleeping and eating habits, withdrawal from family and friends, loss of interest in personal appearance and work, preoccupation with death. When you suspect that someone is suicidal you should inform others (family, friends),encourage the suicidal person to talk but do not give false reassurances that everything will be OK, be supportive, show that you care and seek professional help.

Recognizing Mental Health Problems

Recognizing Mental Health Problems

To stay mentally healthy, it is important to **assess your behavior regularly, recognize risk behaviors and change them**. **Six warning signs** suggest that it may be time to change a risk behavior: *1)* Boredom *with daily activities, 2)* **Illness/mental distress***, 3)* **Chronic anxiety** *and guilt, 4***) Failing performance** *at work, 5***)Unexpected failure** *in personal relationships, and 6)* **Fear of being unmasked** *if your private self and public self are different.*

If you experience these warning signs, then you should seek help. This may range from talking to family or friends to consulting a mental health specialist, e.g., a psychiatrist (has a medical degree) or a psychologist (without a medical degree).

Life Management Skills

Life Management Skills

- **Assess** mental health status regularly.
- **Avoid environmental stresses**, e.g., high levels of noise, air pollution, poor lighting.
- **Avoid abuse** of substances that may harm the brain, e.g., alcohol, marijuana.
- **Learn to express anger in healthful ways** to avoid depression.
- **Develop a philosophy of life** that focuses on living life to the fullest.
- **Recognize the signs of suicide** and assist others in suicide prevention.
- **Recognize warning signs** that indicate it may be time to change risk behaviors.
- **Be aware of mental health** services available in your community.

Stress Management

3.4 Stress Management

Definitions

Definitions

Stress: a nonspecific response of the body to any demand (stressor) made upon it. **Stressors may be physical**, e.g., running a race, **mental,** e.g., sitting for an exam, **or social**, e.g., asking for a date.
Eustress: positive and healthful response. You cope successfully with the stressor.

Distress: results from unsuccessful coping with, or harmful response to a stressor, e.g., you are overwhelmed by anxiety and cannot perform well. The same stressor can produce either eustress or distress depending on the person's response.

General Adaptation Syndrome

General Adaptation Syndrome

The response to stress is referred to as the general adaptation syndrome (GAS). It is divided into **three stages:**

1
2
3

1) **The alarm stage:** prepares the body for rapid action (fight or flight). Adrenalin is secreted and increases delivery of blood, oxygen and nutrient glucose to the muscles.
2) **The resistance stage:** returns the body to normal homeostasis (i.e., internal balance). The increased pulse, blood pressure and respiration rate of the alarm stage return to normal.
3) **The exhaustion stage:** To remain healthy, stresses must be experienced as eustress or homeostasis must be regained rapidly after experiencing distress. Prolongation of either distress or the resistance stage of GAS leads to the exhaustion stage in which the body does not function well and its resistance to disease is lowered. The hormone, cortisol, is secreted.

Holistic Effects of Stress

Holistic Effects of Stress

Stress has a holistic effect. A stressor in one area of health affects other areas.

Stress and mental health: Certain personality types tend to react to stress as distress. Type A personality is competitive, achievement-oriented, with an intense sense of time urgency and the necessity to accomplish much in a short time. Type B personality is more relaxed. Too much type A behavior can cause unnecessary frustration, anxiety and distress. Too much type B behavior may lead to lack of meaningful and interesting goals with consequent boredom and distress.

Stress and family and social health: common stressors include *divorce, death of a loved one, loneliness, lack of communication skills…* Talking to family or friends, becoming interested in a variety of social activities, and developing communication skills can help.

Stress and growth and development: Hormonal and body changes during puberty may cause distress, e.g., if adolescents develop sooner or later than their friends.

Stress and nutrition : Diet can affect you, especially during periods of stress. It is healthful to limit consumption of caffeine, salt, refined sugars and animal fats (source of cholesterol). Consumption of 250 – 300mg of caffeine over a 2-hour period can trigger the alarm stage of GAS (Approximate caffeine contents are 100 mg for a cup of French coffee, 50 mg for a 12-ounce cola, and 20 mg for a 1-ounce chocolate bar).Too much salt increases blood pressure and cholesterol clogs arteries. Both are risk factors for heart disease.

Stress and exercise and fitness : exercise is a good way to relieve stress. Too little exercise may result in weight gain and a flabby heart muscle.

Stress and drugs: Drugs such as tobacco, marijuana, and cocaine increase GAS effects. Alcohol and tranquilizers depress body and brain functions.

Stress and consumer and personal health: A consumer is someone who has time and money to spend. Poor money management obviously creates distress. Distress can also result from having either too little or too much to do. The former may be frustrated with boredom (learning a new skill may help), the latter have a hectic schedule and are susceptible to disorders such as high blood pressure and heart disease (setting priorities and limits on time and energy can help).

Stress and Safety and First Aid : Many accidents occur during periods of stress, especially reckless driving.

Stress and Community and Environmental Health : Pollutants in the air and water as well as loud noise create distress. The behavior of persons with whom you associate can alter the quality of the environment and reduce or increase your level of distress, e.g., if your friend is a chain smoker, drives recklessly and plays loud music, you breathe polluted air, cannot concentrate from the loud music, and are at risk of a car accident.

Stress Management Skills

Stress Management Skills

Stress-related and lifestyle-related illnesses and accidents are leading causes of death and disability today.

Knowing and applying stress management skills helps keep you healthy. These include:

Problem-solving: is the application of a series of steps to help one make responsible decisions. 1) **Identify** a-the cause of your stress, and b-ways to cope with it. 2) **Evaluate** each way of coping with the stress, 3) **Choose** a way which results in actions that are healthful, safe, and legal, and conform to accepted guidelines, and 4) **Evaluate** your choice. Does it relieve the stress? In case of difficulty, it may be of help to talk to family, friends, or counselors.

Diet and exercise: are two of the most healthful ways of coping with stress. Exercise begun immediately or **up to 24 hours after the onset of distress** will help reduce the harmful effects of distress.

The relaxation response: The alarm and resistance stages of GAS are mediated involuntarily by the sympathetic and parasympathetic nervous systems, respectively. Learning techniques such as meditation, progressive relaxation, autogenic training and biofeedback can initiate the relaxation response voluntarily.

Pets: can be a great asset in stress management by providing a constant, affectionate relationship.

Life Management Skills

Life Management Skills

- **Make a plan to manage your time** with a balance between work and play.
- **Talk over your problems with family or friends** when you experience distress.
- **Take part in a variety of social activities**.
- **Limit the amount of** caffeine, salt, refined sugar, and cholesterol in the diet.
- **Avoid** tobacco, marijuana, cocaine, alcohol, and tranquilizers.
- **Follow** a carefully planned budget.
- **Select friends** who have healthful habits.
- **Engage** in a regular exercise program.
- **Learn to use meditation**, progressive relaxation, autogenic training, or biofeedback to initiate the relaxation response

Chapter 4: Family and Social Health

Healthful and Responsible Relationships

4.1 Healthful and Responsible Relationships

The relations you have greatly influence your health status. When you have positive, healthful, satisfying relationships, your life is more meaningful.

Relationship with Family

4.1.1 Relationships with Family

Three factors that may affect your health status and quality of your family relations are family communication, family memories, and family values.

Communication

Communication is the verbal and nonverbal sharing of ideas, information, and feelings. Families that communicate well with each other tend to **build strong family relationships**.

Memories

Your family is the source of many of your **memories**. Some memories **share feelings of joy or sadness.** Every day you build up memories. You can focus on building positive family memories.

Values

Your philosophy of life is an overall attitude about life and the purpose of life. Your philosophy helps determine your **values**. Your parents' philosophy and values especially influence you. Your parents teach you values to assist you in responsible decision making. When you have positive self-esteem and healthful family relationships, you are more likely to have positive relationship with your peers. You have the foundation for satisfying relationships.

Family relationships **may change** when there is **separation, or divorce.** Family members usually **need support** and time to adjust after the change.

Relationship with Friends

4.1.2 Relationships with Friends

The quality of your relationship is more important than the quantity. Skills to be good friend include:

- **Listening carefully** and keeping confidences.
- **Offering suggestions** on how to reach goals.
- **Offering expressions** of affection.
- **Sharing new activities** and new friends.
- **Providing** good companionship.
- **Sharing** joys and sorrows.

Relationship at Work and in Your Community

4.1.3 Relationships at Work and in Your Community

These relationships can be healthful when you take time to understand your responsibilities in each of them.

- **Find out** what is expected of you.
- **Follow** through with your obligations.
- **Be cooperative.**
- **Do your best**.

Communication in Relationships

4.2 Communication in Relationships

Communication is important in all kinds of relationships. Different relationships require different levels of communication.

Levels of Communication

4.2.1 Levels of Communication

The amount of self disclosure that is healthful depends on the depth of the relationship.

Self-disclosure is the act of making yourself known to others. There are four different levels of self-disclosure used in conversations.

- **Cliché**: Cliché is the use of small talk that is sometimes used to avoid silence. Examples: How are you? Great weather!
- **Reporting Facts** When you report facts or gossip, you talk about what someone else has said or done.
- **Sharing Ideas** you begin to disclose or share some of your ideas, judgments, and decisions.
- **Expressing Feelings** when you are comfortable in a relationship, you may express the feeling behind your ideas, judgment, and decisions. The highest level of communication involves the mutual sharing of feelings.

Communication at the highest level involves some risk. Some of your ideas and decisions may be rejected. However, the benefits are more rewarding than the risks. Communicating at this level promotes optimum health in several ways. One of these has to do with the possible prevention of psychosomatic diseases and disorders. When you keep feeling bottled up inside you, you can develop such problems as headaches, ulcers, or stomachaches. When you are able to express feeling in your relationships, you are healthier and your relationships are healthier.

I Messages and Active Listening

4.2.2 I Messages and Active Listening

Communicating feeling can be established by using I messages. I messages are statements that tell about you, your feeling, and your needs. To have the greatest impact messages must have three parts: a specific behavior, an effect of that behavior, and a feeling. Here is an example of I message:

When I studied two extra hours for the test (behavior), I received an A (effect), and I felt proud (feeling). When you use I messages, you are trying to communicate more clearly with others. I messages are also called responsibility messages. Active listening helps you clarify what someone has said to you.

4.2.3 Non-verbal Communication

Non-verbal Communication

It is the use of behavior rather than words to show feelings. **Some nonverbal communication expresses a negative response**. *Pressing your lips tightly together and shaking your head in disapproval are all behaviors that indicate a negative response. Tapping your foot may indicate a lack of patience.* Other behaviors indicate a positive response. Maintaining eye contact tells someone you are listening. A beaming smile expresses joy, acceptance, or excitement. When you combine verbal and nonverbal communication, they should match; give the same message.

Aggressive, Passive, and Assertive Behaviors

4.2.4 Aggressive, Passive, and Assertive Behaviors

You respond to situations with either aggressive, passive, or assertive behavior.

Aggressive behavior

Aggressive behavior is the use of words and /or actions that communicate disrespect toward others. It includes name calling, loud and sarcastic remarks, and statement of blame. Glaring at someone, using threatening hand gestures, and / or a stiff or rigid posture.

Passive behavior

Passive behavior is the holding back of ideas, opinions, and feelings. It includes self-criticism, unnecessary apologies, and making excuses. Also looking away or laughing when discussing or expressing serious feelings.

Assertive behavior

Assertive behavior is the honest expression of thoughts and feelings without experiencing anxiety or threatening others. Assertive behavior is the healthiest behavior. It promotes high quality relationships. It includes I messages and active listening. Also confident body posture, hand gestures and comfortable eye contact.

Chapter 5: Growth and Development

Conception through Birth

5.1 Conception through Birth

Conception

5.1.1 Conception

Each month during reproductive life, an ovary releases an ovum. The ovum is captured by the fallopian tube. Conception (fertilization) occurs when a sperm reaches and penetrates the ovum to form a zygote. Sperms and ova are haploid, i.e., each contains half the number of chromosomes in a body cell (23). The zygote is diploid, i.e., it contains the full complement of chromosomes (46 for the human cell).

As the zygote moves to the uterus, it divides repeatedly to form the embryo: a cluster of developing cells that, by one week after conception, attaches (implants) itself into the wall of the uterus. The placenta is the organ that anchors the embryo to the uterus. The umbilical cord connects the embryo to the placenta. Oxygen and nutrients reach the embryo from the mother through the umbilical cord. The cord also moves wastes from the embryo to the mother to be excreted from her body.

A blocked fallopian tube can result in an ectopic pregnancy, i.e., growth of a fertilized egg outside the uterus, e.g., in the fallopian tube; the tube can then rupture leading to life-threatening internal haemorrhage. Occasionally a twin pregnancy occurs. Twins may be identical or fraternal. In the former, a zygote splits in half and each half forms an embryo. Fraternal twins come from different eggs and sperms and thus have different chromosomes.

Prenatal Development

5.1.2 Prenatal Development

- **The first trimester**. The embryo is recognizable as a human fetus by the end of the second month.
- **The second trimester**. Muscles develop. The fetus begins to move (quickening). The fetus is almost completely developed by the end of this trimester.
- **The third trimester.** By the end of 9 months, or fortieth week, the fetus is ready to be born.

Factors that influence Prenatal Development

5.1.3 Factors that Influence Prenatal Development

- **The mother's health status**, diet, life style and prenatal care are important. Early and regular medical care by an obstetrician is essential. Blood pressure, weight, urine analysis, information about pregnancy, and the position and growth of the baby are among the items checked regularly.
- **Good nutrition** promotes a healthy pregnancy. Adequate amounts of protein, calcium, iron, and vitamins A, B, C, and D are important. Poor nutrition can lead to slower fetal growth, premature delivery and low birth weight with increased risk to the baby. Alcohol and smoking should be discontinued. All drugs should be avoided except those prescribed by the physician. Ingredients of drugs, inhaled cigarette smoke, and alcohol can cross from the mother's bloodstream to the baby's and cause harm.
- **Proper medical care** can detect, prevent and/or treat problems associated with some pregnancies:
  - **Toxemia of pregnancy:** sudden rise of blood pressure, protein in the urine and increased body water (oedema), after the twentieth week.
  - **Birth defects** may result from drugs, poor dietary habits, or an infection, e.g., rubella, during pregnancy or may be genetic.
  - **Genetic counseling** can advise couples with a family history of genetic disease about their chances of producing offspring with birth defects.
  - **Ultrasound and amniocentesis** can detect birth defects. Amniocentesis is the aspiration and analysis of some of the fluid that bathes the fetus in the uterus. It is performed after the sixteenth week after the position of the baby is determined by ultrasound.
  - **Anti-rhesus vaccine** given to a rhesus-negative mother immediately after birth of a rhesus positive baby will prevent damage to the red blood cells of another rhesus positive fetus in the next pregnancy.
  - **Premature babies** weigh less than 2.5 kg at birth. Mothers at risk can wear a monitoring device around the waist to warn them when early signs of labor occur. They can be rushed to hospital and given medication to stop labor so that the baby will have more time to continue to develop.

Birth

5.1.4 Birth

At birth the **baby is pushed out of the uterus by rhythmic uterine contractions** that grow stronger and faster while the cervix dilates. Once delivered, the baby's mouth is suctioned to remove mucus. The baby starts to cry and, once breathing on its own, the umbilical cord is clamped and cut off. The remaining stub will fall off in a few days.

If the baby **cannot pass through the vagina**, e.g., because it is too large or not correctly positioned, **a caesarian section** is performed.

The postpartum period may last several weeks. It is marked by hormonal changes in the mother's body and the secretion of milk from the breast. Breast-fed babies seem to have fewer cases of respiratory illnesses, skin disorders, constipation and diarrhea, and are less likely to gain excess weight in later life.

Infancy Through Adulthood

5.1.5 Infancy through Adulthood

Stages of Development

Growth and development occur in fairly predictable stages. Specific skills and experiences are acquired at each stage which prepares the child for dealing with the problems and challenges of the next stage.

Infancy

a- Infancy

Infancy is the period **from birth to one year**. It is characterized by **rapid growth, eruption of teeth, coordination of the muscular and nervous system, with the ability to sit, stand, and reach for objects**. The infants learn about themselves and explore their environment, especially when they begin to crawl.

Childhood

b- Childhood

Childhood is the period between **the end of infancy and the beginning of puberty**. it is characterized by **steady physical growth**, bowel and bladder control and refinement of communicative skills of writing and speaking. **Exposure to caring and loving people is important** to foster a sense of acceptance, worth, and self-esteem.

Self-esteem is developed as abilities are acquired. Many children appreciate having responsibilities which show that they can care for themselves and others within the family, e.g., putting away their toys, making up their beds, setting or clearing the table when they are able. Decision making also develops during childhood. Children learn to decide for themselves, e.g., what will I wear today? Decisions are not always responsible and parental guidance is needed. Feelings of competence are acquired through the ability to do work and to read which makes children begin to understand a few of the complexities of the world.

Adolescence

c- Adolescence

Adolescence is the **period between infancy and adulthood**, generally between the ages of **12 to 19**. It is characterized by a growth spurt – **earlier in females (11-13 years**) than in **males (13-15** years) – and appearance of secondary sex characteristics. Questions are raised such as "**who am I?", "what do I want to be?", and what do I believe?"** More independence from parents is sought and the influence of a peer group can be significant. Most adolescents,

however, will agree with their parents' ideas and share their values. Parents can contribute to a healthy adolescence by 1) allowing children to develop independently, feel secure and practice self-discipline early in life, and 2) maintaining contact with their children by developing an interest in their activities and demonstrating trust and approval.

Adulthood

d- Adulthood

Adulthood is the period from adolescence through old age. Adults do not change much physically over the years, and they can stay fit into old age if they exercise regularly and adopt healthful lifestyles. Psychosocial changes, however, occur:

- **Early adulthood** (third decade), is characterized by independence, and self-responsibility. Intimate relations are sought.
- **Middle adulthood** (fourth decade) is marked by adjusting life goals and seeking standards, e.g., quitting an unsatisfactory job and looking for a new one.
- **Late adulthood** is often the most stable period of the life cycle with people looking back with satisfaction at what they have accomplished. However, it could be a depressing time for people who have not achieved a sense of closeness with others and who feel they have no control over their destiny.

Completion of the Life Cycle

5.2 Completion of the Life Cycle

5.2.1 Introduction

Introduction

Throughout the life cycle, **from birth till death**, people undergo **many physical, mental and social changes**. Coping with these changes in healthful ways helps insure optimum health in old age.

What Causes Aging?

5.2.2 What Causes Aging?

Biologically, a person begins to age **after physical maturity, around age 25,** when cells die faster than they reproduce. Being old, however, is a state of mind, and not a specific period of life (you might still be young at age 75 if you keep up to date with current events and stay fit).

There are **many theories** about why people ages, e.g., wear-and-tear, waste product accumulation, accumulation of genetic errors as cells copy their genetic material during cell replication….

Physical Aspects of Aging

5.2.3 Physical Aspects of Aging

External signs of aging, such as **wrinkled skin and baldness**, may appear as early as the fourth decade in some people and not until **the sixth or seventh decade in others**.

Internal signs result from **less efficient functioning of body systems**. Sense organs become less sensitive. The ability of the heart to pump blood and of the lung to oxygenate it is reduced, so is the capacity of the digestive and excretory systems to process nutrients and excrete waste products.

Some chronic diseases are more prevalent in old age, e.g., **heart disease, hypertension, cancer, and arthritis.** Correctable risk behaviors, rather than the aging process, are often responsible.
Choosing health-promoting behaviors when young helps insure good health when old.

Mental Aspects of Aging

5.2.4 Mental Aspects of Aging

Most people over age 65 are mentally fit and can take care of themselves. A few suffer from **dementia.** Dementia produces loss of memory and deterioration of other mental functions (e.g., inability to handle simple math problems and loss of the concept of time and space), and, sometimes, personality changes and confusion.
Alzheimer's disease is the commonest cause of dementia. It is more common in women.

Multiple infarct dementias is due to multiple small strokes (ruptures blood vessels in the brain). It is more common in men.
Reversible (correctable) causes of dementia include 1) drugs (due to the combined side effects of the multiple drugs often taken by the elderly, or to improper doses), 2) medical illness (e.g., vitamin and nutritional deficiency, thyroid disease…).
Depression in the elderly often presents as dementia. Treating the depression reverses the dementia.

Social Aspects of Aging

5.2.5 Social Aspects of Aging

Elderly people may face some social problems. **Ageism** is the discrimination against a person based on age. **Stereotyping** is the assumption that people in a particular group will think or behave in a certain way. It is socially harmful because it ignores individual differences. Common stereotypes about older people include intellectual failure (false. Intelligent people probably remain intelligent until they die), and retirement causes people to die early (false. Retirement does not cause ill health or premature death). **Loneliness** is another social concern of elderly people when their ageing friends or spouses die. **Social isolation** of older people can be avoided by spending some time with them and encouraging them to seek new friends and participate in new activities.

Planning for Good Health in Old Age

5.2.6 Planning for Good Health in Old Age

Healthful behaviors that promote good health in the future include:

- **Be active physically and mentally**, e.g., engage in a program of exercise and become involved in cultural and social events of your choosing.
- **Take time to relax from work**. This is one way to handle stress.
- **Eat healthful foods and refrain from smoking**.
- **Learn new skills**, e.g., music, to increase one's interest in life.

Chapter 6: Nutrition - Healthful Eating

Objective

Objective

- **Identify the nutrients** needed for optimum health.
- **Plan a healthful diet.**
- **Make changes in your diet** to reduce your risk of cancer.

The popular: **"you are what you eat**" is verified by medical research. Diet or the kinds of food you regularly eat has a holistic effect on your health.

The Importance of Nutrients

6.1 The Importance of Nutrients

A healthful diet helps you perform well in work. It provides the energy you need for your favorite sport activities. It is essential for normal growth and development, normal function of body organs and systems, repair of body tissues, and resistance to infection and disease.

Nutrients in Food

6.2 Nutrients in Food

There are six main kinds of nutrients in food. These are proteins, carbohydrates, fats, vitamins, minerals and water.

Proteins

- **Proteins:**

Proteins are needed for growth, development and repair of body tissues. Proteins are made of small units called amino acids. **Your body needs twenty – two amino acids**. **Fourteen** of these amino acids can be **produced in your body**. The other eight are called essential amino acids and **must be obtained from the food you eat.** The proteins in food of animal origin are known as complete proteins, i.e., contain all eight of the essential amino acids. The proteins in foods of vegetable origin are known as incomplete proteins i.e. they lack one or more essential amino acids. Complementary proteins are proteins that are combined to provide the eight essential amino acids.

Carbohydrates

- **Carbohydrates:**

Carbohydrates are **chemical substances that are the main source of energy for your body.** There are **two main types of carbohydrates – starch and sugars**. Because of their chemical structures, starches are called complex carbohydrates and sugars are simple carbohydrates.

Fats

- **Fats:**

Fats are **chemical substances that provide additional energy and help your body store vitamins A, D, E, K**. Fats help the body absorb vitamin D, which is needed for calcium to be used in the formation of bones, teeth and other tissues. There are two kinds of fats. **Saturated fats** from foods of animal origin and are usually in solid form at room temperature. Saturated fats are the starting material for the body's production of cholesterol. **Unsaturated fats** are obtained from foods of vegetable and are usually liquid at room temperature.

Vitamins

- **Vitamins:**

Vitamins are substances in food that help chemical reactions take place in the body. Vitamins are divided into two types. Water soluble vitamins and fat soluble vitamins.

- Water soluble vitamins are easily dissolved and cannot be stored in the body. When there is an excess, these vitamins are excreted in the urine. Vitamin B complex and vitamin C are water soluble vitamins. Your body needs a fresh supply of these vitamins daily. They are measured in milligrams.

- Fat soluble vitamins are vitamins that can be stored in the body. The liver is the main storage organ for fat soluble vitamins. An excess of these vitamins is associated with headache, stomach upset and fatigue. Fat soluble vitamins are measured in International Units (IU).

Minerals

- **Minerals:**

5% of your body weight is made up of minerals. Minerals are nutrients that regulate many of chemical reactions in your body. The seven minerals found in the largest amorists are calcium, chlorine, magnesium, phosphorus, potassium, sodium and sulfur. Also iodine, iron and zinc are of importance.

Water

- **Water:**

Although water is not a food, it is considered a nutrient. Water makes up about 60% of your body weigh and is involved in all body processes. Your body needs two liters of water each day. Balance is maintained with the intake of water and the output of urine and perspiration.

Planning a Healthful Diet

6.3 Planning a Healthful Diet

Plan to reach the **seven diet goals**:

Goals

1

Goal 1: **eat a variety of food**. There are four healthful food groups; milk, meat, fruit – vegetable, and grains. A fifth group, the combination group contains ingredients from more than are food group and supplies the same nutrients as foods they contain. The others food group, contain foods that are high in calories and law in nutrients. Usually high – calorie foods contain processed sugars and saturated fats. A calorie is a measure of the energy value of foods.

2

Goal 2: **maintain your desirable (ideal) weight**. Remember, ideal weight includes not only your weight but what proportion of your weight is lean or fat tissue. Too much body fat increases likelihood of cardiovascular diseases and diabetes.

3

Goal 3: **avoid eating two much fat, saturated fat and cholesterol**. A heavy meat / fat diet are related to an increased incidence of breast, bowel, and colon cancers.

4

Goal 4: **eat foods with adequate starch and fiber**. A high-fiber diet may reduce the risk of colon and rectal cancer.

5

Goal 5: **avoid too much sugar**. A high-sugar diet increased the likelihood of tooth decay and heart disease.

6

Goal 6: **avoid too much sodium**. Eating too much sodium is related to an increase in heart disease and high blood pressure. This is especially true for persons who have inherited a tendency for those diseases.

7

Goal 7: **avoid alcohol**. When someone – drinks alcohol, vitamins in the body can be depleted. Alcohol is a harmful drug that destroys brain cells and harms the liver, kidneys, heart, esophagus, stomach, and blood vessels.

N.B.: break fast is important. It helps keep you mentally alert. A healthful breakfast is needed to provide a uniform level of energy throughout the morning. **It would supply at least one-fourth of your daily nutrients and calories.**

6.4 Diet and Cancer

Diet and Cancer

The following guide lines for diet may prove helpful in avoiding cancer.

- **Avoid obesity**. People, who have 40 percent over weight, have high risk of colon, breast and uterine cancers.
- **Cut down on total fat intake.** A diet high in fat may be a factor in the development of certain cancers like breast, colon and prostate.
- **Eat more high-fiber foods.** Studies suggest that these diets may help to reduce the risk of colon cancer.
- **Include foods rich in vitamins A and C in your daily diet.** These foods may help lower the risk for cancers of the larynx, esophagus, and the lung.
- **Include cruciferous vegetables in your diet** (e.g. cabbage, broccoli and cauliflower). They protect against cancer.
- **Eat limited amounts of** salt – cured, smoked, and nitrite – cured foods.
- **Avoid alcohol and cigarette smoking or chewing tobacco**. As they increase the incidence of cancers of the mouth, larynx, throat, esophagus and stomach.

Chapter 7: Benefits of Physical Fitness

Objectives

Objectives:

1) Identify the components and health benefits of physical fitness.
2) Identify types of exercises that promote physical fitness.
3) Explain the role of diet, exercise, and sleep in physical fitness.

Benefits of Physical Fitness

7.1 Benefits of Physical Fitness

7.1.1 What Is Physical Fitness?

Physical fitness is a level of health characterized by muscular strength, muscular endurance, flexibility, cardiovascular endurance and a lean body composition. Physical, mental and social benefits are gained from physical fitness.

- **Muscular strength** is the amount of muscular force exerted against resistance.
- **Muscular endurance** is the ability to continue using muscular force without tiring.
- **Flexibility** is the ability to move the body through a full range of possible motion.

Benefits of having muscular strength, endurance, and flexibility include tiring less easily, improved performance in sports, less likelihood of injuring your muscles, or suffering from low backache, the body does not get stiff easily, and the stiffness of old age may be prevented.

Cardiovascular Endurance

7.1.2 Cardiovascular Endurance

Cardiovascular endurance is the ability to sustain vigorous activity that requires increased oxygen intake for extended periods of time, e.g., swimming several laps in a pool. Persons with cardiovascular endurance have greater cardiac output and greater oxygen consumption during activity and exercise and slower heart rate at rest.

Cardiac output is the amount of blood pumped by the heart each minute. it is equal to the heart rate multiplied by the stroke volume (amount of blood pumped with each beat). Cardiovascular endurance depends on the frequency, intensity, and duration of exercise. Its benefits include a stronger heart and diaphragm, less atherosclerosis (Narrowing of arteries by fat deposits on the arterial

walls), and increasing the ratio of high-density lipoprotein (HDL) to low-density lipoprotein (LDL).

HDLs (good cholesterol) transport the extra fat in the blood to the liver to be removed from the body.

LDLs (bad cholesterol) contribute to the fatty deposits in arterial walls.

Body Composition

7.1.3 Body Composition

The tissues of the body are 1-fat tissue (fat in fat cells under the skin and around internal organs), and 2-lean tissues (muscle, bone, cartilage, internal organs…). Body composition is influenced by factors such as 1) heredity; the number of fat cells in a body is constant but they can become smaller in size, 2) gender; males usually have 16-19% body fat; females have 22-25%, 3) regular exercise to promote cardiovascular endurance decreases the ratio of fat to lean tissues, 4) age and physical activity; decreasing physical activity with aging decreases muscle mass and increases the proportion of body fat.

The area where fat tends to accumulate in the body may influence susceptibility to heart disease (greater susceptibility for the abdominal area –the apple configuration- than for the area of the hips – the pear configuration).

Types of Exercises

7.1.4 Types of Exercises

Different types of exercises confer different benefits. A variety of exercises is needed to acquire physical fitness.

Isometric exercises

Isometric exercises: involve contracting muscles for 5-10 second periods without muscle shortening, i.e., without movement, e.g., pushing against a wall. Isometric exercises increase muscle strength and bulk without much effect on flexibility or cardiovascular endurance. They should be avoided by persons with heart problems because they can cause a sudden rise of blood pressure.

Isotonic exercises

Isotonic exercises: involve contraction and movement of muscles, e.g., walking and sport activities. Isotonic exercises should be started gradually, e.g., start with 10 curl-ups and 5 push-ups and gradually increase the number of each in subsequent exercise sessions. Muscular strength and flexibility are promoted, and some exercise will improve cardiovascular endurance if performed at certain intensity for a specified duration.

Isokinetic exercises

Isokinetic exercises: involve movement of a weight or resistance through an entire range of motion. Some exercises utilize weight plates; others involve pressurized air.

Benefits include flexibility, strength and muscular endurance. It is important to get help at an exercise club to determine how much weight you should lift, when to increase resistance, and how many repetitions to perform at each station.

Aerobic exercises

Aerobic exercises: involve breathing (using oxygen) for at least 15-20 minutes of continuous exercise, e.g., aerobic dancing, speed walking, distance running or swimming. They promote cardiovascular endurance, some flexibility and muscle strength. An additional benefit of regular aerobic exercise is making cancer patients feel better physically and mentally. For maximum benefit, aerobic exercises should be performed at target heart rate, 3-5 days per week, each exercise session including 15-60 minutes of continuous aerobic activity; longer duration and less intensity being favored.

Target heart rate

Target heart rate (THR) is equal to resting heart rate (RHR) plus 60-90% of the difference between maximum heart rate (MHR) and resting heart rate.

Lowest THR = RHR + 60% (MHR - RHR)
Highest THR = RHR + 90% (MHR – RHR)
MHR = 220 – age (e.g., 220 – 40 = 180 beats/minute at age 40)

Anaerobic exercises

Anaerobic exercise: during short, fast bursts of exercise, e.g., running the 100-metre dash, more energy is required than can be provided by the oxygen taken in; a condition known as oxygen debt develops leading to shortness of breath. If the person slows or stops the exercise, recovery begins. Anaerobic exercises improve muscular strength and endurance as well as flexibility with little effect on cardiovascular endurance.

7.1.5 Other Components of Physical Fitness

Other Components of Physical Fitness

Physical fitness is the result of a blend of healthful behaviors. **Regular exercise** is only one component. other components include 1) **healthful meals**; physically fit persons need the same nutrients as inactive persons but the number of calories they need to consume to maintain ideal body weight may be different, 2) **getting the right amount of rest and sleep**; this is determined by the individual's biorhythm and is affected by factors such as activity level, regular exercise promoting healthful sleep.

Lack of sleep causes a feeling of fatigue. Stress is a major cause of insomnia; other causes include eating late, a high caffeine or sugar content in the diet, spicy food, and alcoholic beverages. Examining one's lifestyle to identify causes of stress that can be remedied, relaxation exercises, and/or a glass of milk (contains tryptophan, a natural sedative), may help combat insomnia.

Designing Your Physical Fitness Plan

7.2 Designing Your Physical Fitness Plan

Objectives:

1) Identify guidelines, principles, and lifetime sports to include in a physical fitness program.
2) Identify ways to stay healthy and safe during exercise.
3) Describe the health hazards of anabolic steroids.

Guidelines and Training Principles

7.2.1 Guidelines and Training Principles

Regular workout is important for physical fitness. To obtain maximum benefit, certain guidelines and training principles need to be known.

Guidelines

Guidelines: A medical check up is advisable before starting an exercise program. A fitness instructor will help in determining your current fitness level and in selecting suitable exercises. Knowledge about appropriate equipment and clothing, safety rules, and prevention of common injuries is important.

Training Principles

Training Principles: 1- Select exercises according to goal, e.g., flexibility or muscular endurance, (Specificity principle), **2-** Progress to higher fitness levels by increasing the body's capacity to do more work than usual (Overload principle), **3-** Gradually increase the intensity and duration of exercise (Progression principle), **4-** Exercise often enough, (3-5 times/week), to get benefits (Frequency principle), **5-** Do not start or finish strenuous exercise abruptly. Warm-up and cool-down with stretching exercises and low intensity aerobic exercises (for 3-5 minutes) to prepare joints and muscles at the beginning , and to help redistribute the blood to other body areas at the end of exercise (e.g., so that you do not faint).

Lifetimes sports

Lifetime sports: It is a good habit to cultivate sports activities that can be continued as you grow older. Swimming, walking, bicycling, and playing tennis are examples. Swimming is one of the best sports to promote cardiovascular endurance, - (if target heart rate is maintained for 20 minutes)-, muscular strength and endurance without the risk of joint injuries.

Staying Healthy and Safe During Exercise

7.2.2 Staying Healthy and Safe During Exercise

Prevention and treatment of exercise injuries: Many sports injuries could be prevented if **1-** you know your body limitations, e.g., if you are obese, a good sport would be one where your weight is not constantly supported by your legs, e.g., swimming or bicycling. Sports scientists can use physical profiling to test your limits.
2- Follow safety rules, e.g., for swimming, walk, do not run around a pool; do not dive into shallow water; know the depth of the water before swimming or diving **3-** Know common causes of exercise injuries, (poor flexibility, muscle imbalance, overtraining, poor training methods…).

The RICE treatment: is a technique for treating musculoskeletal injuries that lessen pain, limit swelling, reduce damage and promote healing. Rest (stop using the injured part until a physician tells you otherwise). Ice (place ice in an ice bag or wrap in a towel and place on the injured part). Compression (place a bandage over the ice for 30 minutes; remove both for 15 minutes, repeat for 3 hours). Elevation (above heart level so that gravity helps in reducing the swelling).

Medical treatment: should be sought for severe pain, joint problems, and infection with pus, red streaks, swollen lymph nodes or fever.

Anabolic Steroids: Anabolic steroids are synthetic derivative of the male hormone testosterone. They are taken to increase muscle bulk and strength unnaturally. However, they are dangerous to health. Taken at the onset of puberty, they stunt growth. Taken by adults, they may cause sterility and aggressiveness in males and irreversible masculine traits in females. They may also cause heart disease and liver cancer. Steroids are banned in athletic competitions**.**

Chapter 8: Diseases and Disorder

Communicable Diseases

8.1 Communicable Diseases

Objectives:

1) **Describe how** communicable diseases are caused, spread and prevented.
2) **Identify causes**, treatments, and methods of prevention of some common diseases.

Definitions

8.1.1 Definitions

A communicable disease (infection) is **an illness that is caused by entry of pathogens into the body**. Pathogens (disease-causing organisms) are of six main types: **bacteria, viruses, fungi, protozoa, rickettsia, and parasitic worms.** They range in **size** from those that can be seen by the **naked eye**, e.g., Ascaris worms, to those that can only be resolved by the **electron microscope**.

Sources and Spread of Pathogens

8.1.2 Sources and Spread of Pathogens

Pathogens **may originate inside the body**, (endogenous infections, e.g., bacteria in the bowel causing urinary tract infection in the same person), **or outside the body** (exogenous infections). spread of pathogens in exogenous infections can occur by: 1-contact (person-to person, e.g., by kissing and touching, or by using an infected person's toothbrush, clothes, or eating utensils, 2-air-borne spread, e.g., germ-laden mist from sneezing or coughing as in tubeculosis and droplet infections, 3-feacal contamination of food or drink, e.g., water pollution by sewage, or insects landing on sewage and then on food as in typhoid fever and dysentery, 4-transplacental spread from a pregnant mother to her fetus as in rubella, 5-from animal and their products, e.g., salmonellosis from poultry and eggs, through insects, e.g., malaria from mosquito bites, or through medical and nursing procedures, e.g., hepatitis B from a needle prick.

The Body's Defenses against Infection

8.1.3 The Body's Defenses against Infection

Pathogens in exogenous infections must first penetrate the physical and chemical barriers between the body and the environment, such as unbroken skin and mucous membranes, hairs in the nose and mucus secretion by the airway, which trap inhaled microbes, and the antibacterial substances in sweat, saliva, tears, and the acid in gastric juice. If these barriers are penetrated, pathogens have still to avoid

being destroyed by antibacterial substances and the white cells both at the site of infection, in lymph nodes and in the blood. The immune system of the body produces specific antibodies that attach to the microbes and neutralize or kill them. These antibodies may remain in the body after the microbes are destroyed, giving a permanent immunity. Vaccination, i.e., introducing dead or weakened microbes into the body to stimulate the immune system to produce specific antibodies is another way to acquire immunity. Immunity may be passive, when preformed antibodies are given to a person at risk to prevent the development of infection, e.g., a tetanus shot when you are pricked by a rose thorn or a rusty nail.

Stages of Diseases

8.1.4 Stages of Diseases

The **pathogen may overcome the body's defenses**. disease develops and generally passes through four stages: a- **the incubation stage** (the period from the time the pathogen enters the body until the first symptom appears), b- **the prodromal stage** (general symptoms of fever, fatigue, or irritability), c- **the acute stage** (symptoms characteristic of the disease appear, e.g., jaundice in virus hepatitis), d- **the recovery stage** (the immune system, with or without the help of medical treatment, gets the upper hand). The patient may be infectious to others in any of these stages.

Common Communicable Diseases

8.1.5 Some Common Communicable Diseases

Cold

Common cold Everybody gets the common cold and knows the symptoms: stuffy and running nose, watering eyes, headache…any of hundreds of different viruses can be responsible; a specific vaccine cannot be developed. The initial symptoms of influenza are similar to those of a cold, and since giving aspirin to children who have the flu may cause Reye syndrome (damage to the brain and/or liver), children who develop the cold should not be given aspirin; paracetamol works just as well without the risk of Reye syndrome.

Viral hepatitis

Viral hepatitis This illness is becoming a national health problem in Egypt, almost overtaking bilharzias is in this respect. There are three common types: **hepatitis A, hepatitis B, and hepatitis C**. **the first** is acquired by the feacal-oral route, is relatively innocuous in children and gives life-long immunity; it **can be serious in pregnant women and adults**; hepatitis A vaccine is available. Hepatitis B and C are more serious because they can lead to **chronic liver damage (cirrhosis) and liver cancer.**

They are spread by the blood (contaminated needles, surgical/dental instruments, toothbrush…), **saliva, and sexual intercourse** and through the placenta. A vaccine for active immunization and antibodies for passive immunity are available for **virus hepatitis B** and have decreased the incidence of the condition in high-risk populations. The usual presentation is with a Prodrome of fever and

flu-like symptoms followed by jaundice, i.e., yellowish discoloration of the eyes and skin, with tea-colored urine.

Sexually transmitted diseases

Sexually transmitted diseases Sexually transmitted diseases (STDs) are a serious health problem in permissive societies where sexual experiences are acquired early in life, often with multiple partners. **Gonorrhea** is one of the commonest STDs; pathogens do not survive easily and require intimate contact to spread from person to person. Males develop painful and frequent urination and a urethral discharge. Women are often asymptomatic, this increases the chance of complications - e.g., pelvic inflammatory disease and sterility -, as well as the possibility of unknowingly infecting sexual partners**. Syphilis, genital herpes, and Trichomoniasis** are other examples of STDs.

Aids is the scourge of modern times; it is basically incurable so far and has a high effect of **Mortality;** avoiding sexual promiscuity should help in controlling aids and other STDs; using condoms during sexual intercourse is of value but is not always successful. Persons who suspect that they have a STD should seek immediate medical help; their sexual partners also need medical attention.

Cardiovascular Diseases

8.2 Cardiovascular Diseases

8.2.1 Introduction

Introduction

Cardiovascular diseases, including coronary artery disease and stroke are among the most important causes of morbidity and mortality in advanced countries. Healthful behaviors and modification of risk factors reduce the mortality of these diseases. some risk factors cannot be changed(advancing age, male sex, genetic predisposition).modifiable risk factors include cigarette smoking, high blood cholesterol, high blood pressure, lack of exercise and obesity. Significant declines in cardiovascular disease mortality have been achieved by cessation of smoking, **control of cholesterol levels (LDL)** with statin drugs, aggressive control of hypertension and changing a sedentary lifestyle to an active one, even mild exercise is beneficial. Regular low-dose aspirin can also reduce the risk of myocardial infarction (heart attack). **Obesity (overweight)** is linked to hypertension, high cholesterol levels and diabetes. Being careful about the amount and type of foods consumed is important to control body weight; saturated fats (animal fats, e.g., red meats, butter, eggs, cream) are linked to high cholesterol; salt is linked to hypertension; both animal fats and salt should be reduced; vegetable oils, especially olive oil, are healthier. Stress is also linked to hypertension. It is important to check blood pressure frequently if you feel under stress.

Atherosclerosis

8.2.2 Atherosclerosis

Atherosclerosis is the basis of most cardiovascular diseases. The arteries are clogged by fatty deposits called plaques. The arteries harden; the heart must pump harder to move the blood through the narrowed arteries, blood pressure rises. Plaque build-up can cause complete obstruction of the artery by a thrombus (a clot), this stops blood flow. When this happens in the arteries of the heart (the coronary artery), a heart attack results (myocardial infarction). A thrombus or plaque may break away within the artery and forms an embolus (a moving clot). This can obstruct another artery and cause gangrene of limbs or organs supplied by the obstructed artery, leading to amputation of the limb or even death of the patient. Angina pectoris is the chest pain that results when the heart has to pump more blood but cannot itself receive more blood because the coronary arteries are narrowed by atherosclerosis.

A stroke results from sudden interference with blood flow through the brain. This may be due to a thrombus, an embolus, or a cerebral hemorrhage due to rupture of a blood vessel secondary to hypertension or a ruptured aneurysm (a dilatation of an artery to form a blood –filled pouch).

Cancers

8.3 Cancers

What is cancer?

Cancer is a disease characterized by abnormal, uncontrolled growth of cells to form a lump (tumor), and spread of the abnormal cells to other areas of the body to form secondary tumors (metastasis).

Causes of cancer

Causes of cancer

Normal growth and division of cells is controlled by genes in the DNA of the cell nucleus. During cell division, another copy of the DNA is produced for the new daughter cell. Some genes are called tumor suppressor genes; they normally prevent cancerous growth. Other genes are called proto-oncogene. When cells reproduce, an error (mutation) may occur during the copying of genetic material. A mutation in a tumor suppressor gene would cancel its tumor suppressor function. A mutation in a proto-oncogene would turn it into an oncogene, which stimulates tumor growth.

The risk of mutations is increased by carcinogens, e.g., cigarette tar, hydrocarbons from automobile exhaust, asbestos, exposure to ionizing radiation, or the mutation may occur on a hereditary basis.

Types of cancer

Types of cancer

Cancer can arise from any cell in the body. Breast cancer is common in women and most commonly present as a lump in the breast. Lung cancer is related to smoking and has overtaken breast cancer as the leading cause of cancer deaths in women.

Skin cancers are collectively the most common type of cancers; the most aggressive type is melanoma. Exposure to sunlight is the main cause. Leukemia (cancer of blood cells) is the most common form of cancer in children.

Early detection of cancer

Early detection of cancer

Cancer may be curable if detected early before it has spread to other body parts, as shown in Table 8.1.

Awareness of warning signals and screening may help detect cancer early

Warning signal can be remembered by the acronym “caution”

Change in bowel or bladder habits

A sore that does not heal

***Unusual* bleeding** or discharge

Thickening or lump in the breast or elsewhere

Indigestion or difficulty in swallowing

Obvious change in the size of a mole or wart

Nagging cough or hoarseness

Screening may vary from procedures done by persons, e.g., regular self-examination of the breast or the testis for a lump, to medical examinations and tests, e.g., digital rectal examination and serum prostate specific antigen (PSA) for cancer of the prostate in males over age 50, and mammography in women over age 50 every year.

Table 8.1: Some Risk Factors and Preventions for Specific Cancers

Type of cancer	Uncontrollable risk factors	Possible prevention
Breast	Age>50 personal or family history	Monthly self-examination
Colon and rectum	personal/family history polyps in colon /rectum	Diet low in beef and high in fibre. regular examination at age 50 and over
Leukemia	Possible inherited susceptibility	Avoid exposure to radiation and chemical such as benzene
Lung		Avoid smoking and exposure to industrial substances such as asbestos
Skin	Having a fair complexion	Avoid excessive exposure to the sun
Testicular		Monthly self-examination
Uterine neck		Pap smear

Chapter 9: Safety and First Aid

Personal Safety

9.1 Personal Safety

Every one has the right to be protected. Violent crime has become a major health problem. Among these crimes are homicide and robbery. Homicide is the killing of a human being by another. It is important to avoid persons who are argumentative and under the influence of drugs. Robberies can be prevented. Always follow certain precautions to protect yourself from crime.

Accident Prevention

9.2 Accident Prevention

Almost all accidents can be prevented. The best way to prevent accidents is to be aware of their causes so that you can follow preventive behaviors.

Causes of Accidents

9.2.1 Causes of Accidents

1- **Stress** is a major cause of all kinds of accidents. Stress can create problems other than losing the ability to concentrate. Stress can produce fatigue. When you are fatigued, you are less alert. You do not react or respond as quickly as usual. A delay in reaction time may create a dangerous situation.
2- **A person's age** plays an important role in accidents. Young people and elderly are more exposed.
3- **Drugs especially alcohol** play a significant role in motor vehicle accidents as well as other kinds of accidents.
4- **Illness** cause changes in the body those results in an in ability to perform tasks optimally.
5- **Accidents** occur more frequently at certain time of the day and during certain days of the week.
6- **Attitude** than others some people are more susceptible to accidents.

Preventing Vehicle Accidents

9.2.2 Preventing Vehicle Accidents

Efforts are being made towards preventing motor vehicle accidents and reducing the risks of injury and death to people involved in the accident. These efforts focus on factors involving vehicles, high ways, drivers and laws.

- **Vehicle factors** relate to the design and maintenance of the automobile. Design to absorb the impact from a crash. Heavy padding of passenger compartment is important for safety. Airbags are an option on some vehicles. Safety belts must be hooked up by the drivers.
- **High way factors** play a role in automobile safety. Studies show that certain road features promote automobile accidents. Among these are sharp curves, steep grades, potholes, and a lack of a physical medium that separate opposing traffic.
- **On city streets shielded signs**, missing signs and poor lighting increase accidents rates.
- **The driver** is the most important factor in motor vehicle accident. Alcohol and the use of drugs are responsible for half of all automobile related accidents.
- **Laws mandating** the use of seat belts are practiced. Wearing a helmet is essential for motor cycle drivers. In States, there are laws mandating the use of child restraint system for children under a certain weight.

Preventing Home Accidents

9.2.3 Preventing Home Accidents:

- **Falls, fires, burns and poisoning** are major causes of accidental deaths in the home.
- **The greatest number of injuries in the home is caused by falls**. Be sure you and others in your home are protected from falls. Be sure walking surfaces are clear and well lighted. Furniture and other objects should be placed so that they are not where people least expect them. if you must climb to reach an object, use a secure ladder than a chair that may be less secure ladder than a chair that may be less secure have tendency to tip over.
- **More than half of all fires in a home are caused by improper use and disposal of cigarettes**. Other causes are improper storage of gasoline and cleaners; over heated cooking oils, and children playing with matches. Overloaded electrical wiring can also result in fire.
- **Most cases of poisoning in a home occur to children**. Substances most commonly associated with poisoning are medicines and pesticides.

Preventing Accidents in Work Place

9.2.4 Preventing Accidents in Work Place

- **OSHA (Occupational Safety and Health Act)** is a series of safety and health standards that employers must meet.
- **New employers should be trained** and made aware of hazards. They must also receive periodic review of safety regulations.
- **Supervisors must be alert** to factors that can cause accidents and inform you of any new safety rules.

Preventing Accidents during Dangerous Conditions

9.2.5 Preventing Accidents during Dangerous Conditions

In earthquake

- Stay calm – do not panic.
- Stay clear of any objects that can fall on you, whether **indoors or out door**
- Move to an open space.
- In a building, get under a desk or table.
- In out doors, avoid broken power lines.
- In an automobile, stop as soon as possible, and get out. If on a bridge get off as soon as possible.

Emergency Care

9.3 Emergency Care

Objectives: you will be able to describe the importance of first aid. Identify the priorities of giving first aid.

9.3.1 Importance of First Aid

Importance of First Aid

First aid is the immediate and temporary care given to a person who had been injured or suddenly become ill. It also includes self help and home care when medical assistance is delayed or is not available. Having knowledge of proper first aid procedures may help you to some yourself or others.

9.3.2 Priorities of the First Aid

Priorities of the First Aid

1- **Have a plan of action to follow** before giving first aid. This depends on the circumstances surrounding the accident or illness. Sometimes, prompt action is needed to save life. In other situations, reassurance and prevention of further injury may be more of a priority.

2- **Know how to call for help in a first aid situation**. Once an emergency telephone connection is made. give the following information:

- **Identify exact location**, full address.
- If possible **leave telephone number at which you or rescuer** can be reached.
- **Give the name of rescuer**.
- **Provide as much specific information about illness or injury** as possible so that appropriate emergency equipment's can be sent.
- If you, rescuer, **cannot make the call, ask someone** else to call for help. After has been called, further evaluate the situation. (Check A, B, C). A for airway. B for breathing and, C for circulation.

- **Prompt rescue**, if necessary.
- **Checking for open airway**.
- **Controlling severe bleeding.**
- **Checking for signs of poison**.

It is important to give an ill or injured person psychological first aid. This helps victims adjust mentally to a life – threatening situation.

Respiratory Emergency (Asphyxiation)

9.3.3 Respiratory Emergencies (Asphyxiation)

It is that condition where normal breathing stops or oxygen intake markedly falls that it becomes insufficient to support life. There are many causes for respiratory emergencies such as drowning, heart failure, electric shock, drug overdose, and carbon monoxide poisoning. Foreign body airway obstruction usually occurs during eating (choking).

- **Artificial respiration** is a term that includes many techniques that are used by one person to another to restore breathing. In mouth-to-mouth breathing or mouth-to-nose respiration, the rescuer inflates the victim's lungs by forcing air into them.
- **Immediate action** must be taken if some one is choking. If the victim can cough, speak, or breathe, do not do anything. He may free the blockage. If the victim cannot cough, speak or breathe, begin performing the abdominal thrust.
    - **Stand behind** the victim.
    - **Wrap your arms** around victim's waist.
    - **Make a fist with one** hand and place the thumb side just above victim's navel and below the top of the sternum.
    - **Grasp fist** with your other hand.
    - **Press fist** into victim's abdomen with quick upward thrust.
    - **Do 4-5 times**. Check the victim's mouth; hopefully the lodged matter will be forced out.
- If the above steps are **not successful**, **repeat them**.
- If you experience choking yourself and no one is around, **you can perform this technique on yourself**. Or lean forward over a chair and press your abdomen quickly on the edge of the chair.

Cardiopulmo-nary Resuscitation (CPR)

9.3.4 Cardiopulmonary Resuscitation (CPR):

It is an emergency procedure that is used with mouth-to-mouth resuscitation when the heart has stopped beating. CPR should never be done on a conscious person or on someone who has a heart beat. Only persons trained in CPR should administer these techniques.

The ABCs of CPR are general procedures you should know.

A- **Airway** – always be sure the victim's airway is open. The tongue is the most common cause of airway obstruction in an unconscious victim.

B- **Breathing –** after making sure the airway is open, check to see if the person is breathing. CPR should not be performed if the person is breathing.
C- **Circulation** – always check the victim's pulse to determine if chest compression will be necessary.

Procedures

Procedures:

1) **Check r**esponsiveness.
2) **Activate** emergency system; call for help, local emergency telephone number.
3) **Roll person** onto back.
4) **Open** airway.
5) **Check for breathing** – give 2 full breaths.
6) **Check for pulse** – do 15 chest compressions.

This cycle is to be repeated until respiration and circulation are restored or until medical help arrives. If you suspect a neck injury be careful in opening airway and use jaw thrust method instead of (head tilt/chin lift method). Become trained in CPR, contact the Egyptian Red Crescent society or the medical education and Development Center in the Faculty of Medicine – Cairo University.

Controlling Bleeding

9.3.5 Controlling Bleeding

Any break in the skin is called a wound. Stopping bleeding through a wound is a priority. Direct pressure and elevation can stop bleeding. A second method of stopping bleeding is the use of pressure on a supplying artery. The two pressure points are under the arm (the brachial artery) and inside the grain area (the femoral artery).

9.3.6 Poisoning

Poisoning

A **poison is any substance that can cause illness or death** when introduced into the body. Poisons can enter the body through ingestion (swallowing), inhalation, injection, or absorption through skin or mucous membrane.

- **Determine immediately the poison ingested**. If a container is nearby, follow the first aid directions on label. Get additional clues by asking others what they think occurred.
- Call the local poison center or physician for further information. Seek medical help for the victim.
- If there is no instructions on the container or there is no container**. Dilute the ingested poison by having the victim drink milk on water.**

- **Never force unconscious victim to vomit**. Also, never force a victim to vomit who has swallowed a corrosive substance such as gasoline, kerosene or lye. Vomiting these products can cause further damage to the digestive tract. Rather, have the victim swallow milk or eat raw egg or mashed potatoes so that the stomach can be coated and the poison neutralized.

Sudden Illness or Injury

9.3.7 Sudden Illness or Injury

Any serious injury or illness can result in shock. Shock is a condition in which the rate of the functions of the vital organs of the body slows.

When a person becomes suddenly injured or ill, the function and possibly the structure of the body changes. The objective of first aid is to prevent these changes from causing further harm to the body. All victims should be treated for treated for shock and should receive medical attention. It is important to maintain body temperature and blood circulation in a shock victim.

Some situations will be mentioned in the lectures e.g.:

- **Heart attack and stroke**
- **Fractures, dislocations, sprains and strains**
- **Burns**
- **Some environmental hazards**.

Chapter 10: Community and Environmental Health

10.1 A Note on Environmental Pollution

A Note on Environmental Pollution

Pollution is the introduction into the environment of harmful substances. **The air, the water, the land and soil** may all be polluted by the massing of people in cities with their need for water, industrial products and disposal of natural and industrial wastes. Automobile exhaust, the burning of fossil fuel in industry, combustion in solid-waste disposal, and agricultural burning release particulates (e.g., dust, smoke…), carbon monoxide, sulfur oxides, nitrogen oxides, and hydrocarbons into the air.

The sun-traffic interaction aggravates the problem of air pollution. **Photochemical smog and ozone** result from the interaction of ultraviolet rays in sunlight with the exhaust of automobiles. Photochemical smog leads to atmospheric stagnation during temperature inversion, a condition in which temperature increases, rather than decreases, from ground level up. the cooler air from below is trapped and, if there is no lateral air movement, the amount of pollutants in it increases leading to irritation of eyes, throat, and respiratory system. A hazy, brownish layer of pollutants may form in the sky. People with respiratory diseases, e.g., chronic bronchitis and emphysema may die during such acute episodes of air pollution.

Fluorocarbons in aerosol-sprays destroy the ozone layer in the upper atmosphere allowing more harmful ultraviolet rays in sunlight to reach the ground. An increase in skin cancer is the result. The ozone associated with photochemical smog, unlike the protective ozone in the upper atmosphere, is toxic. The effects of air pollution are not limited to man. Acid rain results from the mixture of sulfur and nitrogen oxides with moisture in the atmosphere. Acid rain destroys plants and fish and corrodes steel and the concrete of buildings.

Water can be polluted from many sources: **Industrial waste**, **pesticides, fertilizers, and even thermal sources when water is used as a coolant,** e.g., in and electric power plant. The land can be polluted by agricultural waste (e.g., manure, waste from crop harvesting), mineral solid waste (e.g., from mining of minerals and fossil fuels), and solid waste from households and industry, e.g., paper, food, glass, plastic some wastes are biodegradable, others can be reused and recycled, still others need to be incinerated. Burning in open dumps contributes to air and water source pollution, breeds rats (a major health hazard), and fills land with litter.

Radiation is another source of environmental pollution either by leaking from medical or industrial sources or by inappropriate disposal of radioactive wastes or by tragic accidents (e.g., the Chernobyl disaster). Genetic mutations and other harmful effects may result.

Glossary

Vaccine	اللقاح	Sanitation	صحى – التصحاح
Vaccination	التلقيح	Immunization	التطعيم
Skeletal System	الجهاز العظمى (الهيكل العظمى)	Bones	العظام
Ligaments	الأربطة	Cartilages	الغضاريف
Muscles	العضلات	Ribs	الضلوع
Breast	الثدى	Lungs	الرئتين
Skull	الجمجمة	Bon marrow	نقى العظم – النخاع العظمى
Hollow center	مركز مجوف	Ossification	التعظم
Cushion	وسادة	Osteoporosis	تخلخل (وهن) هشاشة العظام
Fractures	كسور	Muscular system	الجهاز العضلى
Tough band of tissue	شريط متين من النسيج	Tendons	الأوتار
Voluntary	إرادى	Involuntary	غير إرادى – لا إرادى
Integumentary system	الجهاز الجلدى (اللحافى)	Hair follicles	جريبات الشعر (المفرد جريبة) بصيلات الشعر
Glands	غدد	Epidermis	البشرة
Dermis	الأدمة	Spinal cord	النخاع الشوكى
Peripheral	محيطى	Cranium	الجمجمة
Meninges	سحايا (المفرد سحاءة) وهى أغشية تغطى المخ	Cerebrospinal; fluid	السائل المخى النخاعى – السائل المخونخاعى
Ventricles	بطينات (المفرد بطين)	Autonomic	مستقل
Sensory	حسى	somatic	جسدى
Sympathetic	سمبثاوى - خاطف	Motor neurons	الأعصاب الحركية
Digestive system	الجهاز الهضمى	Parasympathetic	باراسمبثاوى – لا سمبثاوى - عاكف
Saliva	اللعاب	Membrane	غشاء
Peristalsis	حركة الأمعاء- التمعج	Esophagus	المرئ
Churning	المخض (يمخض أى يحرك بعنف)	Elastic pouch	جَيبَة مرنة – حوصلة مطاطة

Small intestine	أمعاء دقيقة	Chyme	الكيموس
Villi	خمائل زغابات (مفردها زغابة)	Coiled tube	أنابيب ملفوفة
Semisolid mass	كتلة شبة صلبة	Large intestine	الأمعاء الغليظة
Defecation	التبرز	Feces	البراز
Dyspepsia	عُسر هضم – التخمة	Gallbladder	المرارة – حوصلة مرارية
Peptic	هضمى	Gastric ulcer	قرحة معدية
Duodenal ulcer	قرحة الإثنى عشر	Malignant	خبيث
Constipation	إمساك	Appendicitis	إلتهاب الزائدة الدودية
Hemorrhoids (piles)	بواسير	Diarrhea	إسهال
Platelets	صفائح دموية – صفيحات	Sternum	عظمة القصى
Myocardium	عضلة القلب	Chambers	غرف
Atria	الأذينات بالقلب	Ventricles	البطينات (بالقلب)
Capillaries	شعيرات دموية	Veins	أوردة
Venules	أوردة صغيرة – وريدات	Lymph	سائل ليمفاوى – لمف
Lymph nodes	عقد ليمفاوية	Systolic pressure	الضغط الإنقباضى
Diastolic pressure	الضغط الإنبساطى	Sphygmomanometer	جهاز قياس الضغط
Stethoscope	السماعة الطبية	hypertension	فرط الضغط – الضغط العالى
Respiratory system	الجهاز التنفسى	Emphysema	وهن بالرئة – نفاخ
Urinary system	الجهاز البولى	Ureters	الحالبان
Bladder	المثانة	Urethra	احليل – قناة مجرى البول
Dialysis	غسيل الكلى – ديال	Urinalysis	تحليل البول
Endocrine System	الغدد الصماء	Lithotripter	جهاز تفتيت الحصوات
Pituitary Gland	الغدة النخامية	Incision	شق
Parathyroid Gland	غدة الجار درقية	Glands	غدد
Thymus	التوتة	Thyroid Gland	الغدة الدرقية
pancreas	البنكرياس	Adrenal medulla	لُب الكُظر
testis	الخصية	Ovaries	المبايض
Offspring	دُرية	Fallopian tube	أنبوبة فالوب
Uterus	الرحم (من الأجزاء الخارجية للجهاز التناسلى للأنثى)	Vagina	المهبل

Mons veneris	جبل الزهرى (من الأجزاء الخارجية للجهاز التناسلى للأنثى)	Labia	(من الأجزاء الخارجية للجهاز التناسلى للأنثى)
Clitoris	بظر	Vulva	(من الأجزاء الخارجية للجهاز التناسلى للأنثى)
Menstrual	حيضى	Testes	الخصيتان
Sac, scrotum	كيس الصفن	Somniferous tubules	قنيات ناقلة المنى (أجزاء داخلة الجهاز التناسلى الذكرى)
Spermatic	منوى	Epididymus	البربخ (أجزاء داخلة الجهاز التناسلى الذكرى)
Sperm	نطفة (الجمع نطاف) مَنِى	Cowper's glands	غدد كوبر (أجزاء داخلة الجهاز التناسلى الذكرى)
Vas deferens = Ducts deferens	الأَسْهَم	Penis	القضيب
Ejaculatory	دافق	Brain tumor	ورم بالمخ
Circumcision	طهارة	Shakiness	رعشة
Surgical	جراحى	Palpitations	الخفقان
Erection	نُعُوظ	Phobias	رهاب
Hypothyroidism	قصور الدرقية	Dissociative disorder	إضطراب تفارقى
Apprehension	توجس	Manic depressive disorder	اضطراب هوس إكتئابى
Sweating	التعرق	Hallucinations	هلاوس
Sinking feelings	مشاعر الغوص	Persecution	إضطهاد
Obsessive	وسواس	Somatoform	الأمراض الجسدية
Compulsive disorder	إضطراب إجبارى	Incurable cancer	سرطان غير قابل للسفاء
Abrupt	فجائى	Chronic anxiety	قلق مزمن
Histrionic	تاريخى	Eustress	رد الفعل الإيجابى فى مواجهة الضغوط
Delusion	توهم	Homeostasis	الاستتباب
Grandeur	احساس بالعظمة	Puberty	البلوغ
Hypochondria	مَرَاقات (المفرد مراق)	Consumption	إستهلاك
Drastic	حاسم	Ulcers	قرحة
Suicide	إنتحار	Zygotes	أيجوث
Distress	ضائقة	Diploid	ضعفانى
Prolongation	إطالة	Embryo	مضغة

Adolescents	يافعون (مراهقون)	Implants	غِرس (المفرد غرسة)
Tranquilizers	مهدئات	Umbilical cord	الحبل السرى
Haploid	فردانى	Rupture	تمزق
Uterus	رحم	Fraternal Twins	توأما البيضتين
Placenta	مشيمة	Fetus	الجنين
Haemorrhage	نزيف	Obstruction	انسداد
Trimester	أثلوث (الجمع أثاليث)	Oedema	تورم
Prenatal development	تطور ما قبل الولادة	Amniocentesis	عينة من السائل الأمنيوسى
Toxemia	سمدمية	Rhythmic uterine	نظمى رحمى
Rubella	الحصبة الألمانية أو الحُمَيراء	Suctioned	ممصوص
Anti-rhesus vaccine	لقاح ضد معامل – اللقاح ضد رسس	Postpartum	ما بعد الولادة
Cervix dilates	عنق الرحم يتسع	Eruption	طفح
Mucus	مخاط	Puberty	بلوغ
Caesarian	قيصرية	Adolescence	اليفع – المراهقة
Crawl	يزحف	Wrinkled skin	جلد مجعد أو مغضن
Refinement	تنقية – تكرير	Excretory	إخراجى
Spurt	اندلاع	Arthritis	التهاب مفصل
Baldness	صلع	Dementia	خرف
Prevalent	منتشر	Infarct	احتشاءة
Correctable	قابل للتصحيح	Ruptured blood vessels	اوعية دموية منفجرة
Deterioration	تدهور	Discrimination	تمييز
Strokes	سكتات – ضربات	Saturated fats	دهون مشبعة
Stereotyping	اتباع النمطية	Fatigue	تعب
Fat soluble vitamins	الفيتمينات الزوابة فى الدهون	Cardiovascular	قلبومائى
Calorie	سعر	Starch	نشا
Diabetes	السكرى	Obesity	سمنة
Fiber	ليفة	Larynx	حنجرة
Uterine	رحمى	Endurance	ثبات – بقاء
Atherosclerosis	تصلب عصيدى	Lipoprotein	دهنوبروتين
Abdominal	بطنى	Susceptibility	إستعداد – قابلية

Isometric	إسوى المقاس	Isotonic	إسوى التوتر (أو إسوى التوجس)
Isokinetic	إسوى الحركة	Biorhythm	إيقاع حيوى
Insomnia	أرق	Sedative	مهدئ
Tryptophan	تروبتوفان-الحمض الأميني المتبلر	Anabolic steroids	ستيرويدات بانية
Strenuous	نشط متحمس	Elevation	رفع
Pus	قيح	Red streaks	خطوط حمراء
Synthetic derivative	شقيقة (مشتقة أو صنيعة)	Testosterone	تستوستيرون
Sterility	عُقم	Protozoa	الحيوانات الأوالى
Pathogens	ممرضات	Parasitic worms	ديدان طفيلية
Rickettsiae	الريكتسيات: متعضيات مجهرية شبيهة بالبكتريا	Exogenous	خارجى
Ascaris worm	دورة الإسكارس	Sewage	قازورات
Germ-laden	محمل على جرثومة	Dysentery	دوسنتاريا
Typhoid fever	حمى التيفية (التيفود)	Poultry	دجاج
Rubella	الحصبة الألمانية (أو الحميراء)	Penetrate	يخترق
Hepatitis B	إلتهاب كبدى (ب)	Mucous secretion	إفراز مخاطى
Mucous (Mucus)	مخاطى (مخاط)	Saliva	اللعاب
Sweat	عرق	Rose thorn	شوكة الورد
Neutralize	يعادل	Prodromal	بَادِرى
Rusty nails	أظافر مبدئية	Viral hepatitis	إلتهاب كبدى فيروسى
Eye syndrome	متلازمة العين	Cirrhosis	تشمع
Innocuous	غير ضار	Prodrome	بادرة
Placenta	مشيمة	Gonorrhea	سيلان
Yellowish discoloration	تلطيخ أصفر	Syphilis	الإفرنجى
Asymptomatic	لاعرضى	Trichomoniasis	داء المشعرات
Genital herpes	حلأ تناسلى	Coronary artery	شريان تاجى
Cardiovascular diseases	الأمراض القلبوعائية	Low-dose	منخفض الجرعة
Cessation	توقف – إنقطاع	Plaques	لويحات
Myocardial	عضلة القلب	Embolus	صمة
Clogged	مسدود	Amputation	بتر

Thrombus	ختزة	Cerebral hemorrhage	نزيف مخى
Gangrene	موات	Dilatation	توسع
Angina pectoris	ذبحة صدرية	Metastasis	نقيلة (الجمع نقائل)
Thrombus	خثرة	Proto-oncogene	طليعة مورثة ورمية
Aneurysm	أم دم	Asbestos	الإسبستوس
Tumor	ورم	Melanoma	ميلانوما
Mutation	طفور	Indigestion	عسر الهضم
Carcinogens	مسرطنات	Hoarseness	بحة فى الصوت
Ionizing radiation	إشعاع مشرد (أو مؤين)	Antigen	مستضد
Acronym	كلمة طرفية أو عبارة طرفية	Rectum	مستقيم
Mole	شامة – أو رحى	Susceptibility	إستعداد – قابلية
Serum	مصل	Homicide	قتل الإنسان
Mammography	تصوير الثدى	Abdominal thrust	الدشر البطنى
Polyps in colon	سليلات (المفرد سليلة) بالقولون	Thumb	الإبهام
Pap	حلمة أو حليمة	Cardiopulmonary resuscitation	إنعاش القلب والرئتين
Padding	توسيد (وضع وسائد)	Wound	جرح
Circumstances	ظروف	Vomit	قئ
Fist	قبضة اليد	Lye	وضع
Navel	السرة	Fossil	أحفور
Jaw thrust	دسرة الفك	Ultraviolet	فوق بنفسيجية
Red crescent	الهلال الأحمر	Emphysema	نُفَاخ
Brachial artery	شريان عضدى	Thermal	حرارى
Corrosive	أكال	Biodegradable	يتحلل حيويا
Photochemical smog	ضبخن (خليط ضباب ودخان) ضوء كيميائى	Chronic bronchitis	إلتهاب شعب مزمن
		Corrodes	يأكل

Pathways to Higher Education Project

Pathways Mission

Training fresh university graduates in order to enhance their research skills to upgrade their chances in winning national and international postgraduate scholarships as well as obtaining better job.

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- CAPSCU, Cairo University
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- Future Generation Foundation, FGF
- National Council for Women, NCW
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