

المرحلة الثانية

Medical Terminology

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Medical Terminology

Medical terminology is language that is used to describe anatomical structures, processes, conditions, medical procedures, and treatments.

Objective for study medical terms:

1. We will learn about pronounce, spelling and define of medical terms that used in healthy care education .
2. We will use a word building strategy that help us to discover connection and relationship among word roots, prefix, and suffix.
3. We will learn the meaning of each part of complex medical and able to put the part together and define the term.
4. We will learn the terms of body organs and systems.

Analyzing Medical Terms

Most medical terms have Latin or Greek roots, and for that reason, some people think that medical terminology is internationally recognized, like metric symbols. Learning the Latin and Greek elements that make up medical terms is a useful way to study them. In fact, such knowledge will enable you to decipher some terms the first time you encounter them.

Here are six examples of terms ending with the word element *-logy*, which means “study of.” See how many of them you can you define.

1. **psychology**
2. **pathology**
3. **hematology**
4. **cardiology**
5. **dermatology**

6. gerontology

Most readers will probably know psychology and cardiology. Psych (from the Greek word for “mind”) coupled with -logy tells us that psychology is the study of mental processes and behavior. *Card* (from the Greek word for “heart”) indicates that cardiology is the medical specialty dealing with the heart.

The roots *path*, *hem*, *derm*, and *ger* mean, respectively, disease, blood, skin, and old age. Given those meanings, **write definitions in the spaces below for all the words in the above list:**

1. psychology: the study of _____
2. pathology: the study of _____
3. hematology: the study of _____
4. cardiology: the study of _____
5. dermatology: the study of _____
6. gerontology: the study of _____

Did you get all of them right?

1. **psychology:** the study of mental processes and behavior
2. **pathology:** the study of disease processes
3. **hematology:** the study of blood and blood disorders
4. **cardiology:** the study of the heart and its diseases
5. **dermatology:** the study of the skin and its diseases
6. **gerontology:** the study of the aging process and its accompanying diseases.

Combining Word Elements

In the previous exercise, you may have noted that one or more vowels, or a vowel consonant combination حروف ساكنه, appears between each root and the word element *-logy*. Those letters are required to make medical terms pronounceable.

Example

1. psych + *o* + logy = psychology
2. path + *o* + logy = pathology
3. hemat + *o* + logy = hematology
4. cardi + *o* + logy = cardiology
5. dermat + *o* + logy = dermatology
6. ger + *onto* + logy = gerontology

For this reason, each root hereafter introduced in this lecture will include its most common accompanying vowels or vowel-consonant combinations, separated by forward slant bars, as shown below:

psych/o

path/o

hem/o, hemat/o

card/i/o

derm/o, dermat/o

ger/o, geront/o

Medical term formation and Construction

A. Formation: medical terms and words are usually composed of two or more components:

1. The root
2. The prefix
3. The suffix

B. Construction: The way in which medical terms are constructed can be illustrated by the following examples:

1. Prefix, Root and suffix (Pericarditis) التهاب التامور
2. Two roots and a suffix (Osteo-myelitis) التهاب نخاع العظم
3. Prefix and root (Dyspnea) ضيق تنفس
4. Root and suffix (Cystitis) التهاب المثانة
5. Prefix and suffix (Epistaxis) الرعاف



The root

The main part or stem of a word is called a root word. A root word conveys the essential meaning of the word and frequently indicates a body part. With a combining form, the root word and a combining vowel such as i, e, o, or a may be combined with another root word, a prefix, or a suffix to describe a particular structure or condition.. The word root is a term derived from a source language such as Greek or Latin and usually describes a body part. Example: Cysto: (Bladder). A frequently used term, which stands for cardiopulmonary

resus-citation. When we break it down, cardio is a root word meaning “heart,” and pulmonary is a root word meaning “lungs.” By performing CPR, we introduce air into the lungs and circulate blood by compressing the heart to resuscitate the patient.

Table (1-1): Common Roots of Medical Terms and meaning

Roots	Refer to	Example or definition
card/i/o	Heart	organ that pumps blood throughout your body
derm/o, dermat/o	Skin	Dermatitis inflammation of skin
ger/o, geront/o	Age	
hem/o, hemat/o	Blood	Blood is a body fluid in the circulatory system of humans
neur/o	Nerve cell , nervous system	type of cell that receives and sends messages from the body to the brain and back to the body
oste/o	Bone	is living tissue that makes up the body's skeleton
path/o	disease	Disease condition
psych/o	Mind	a person afflicted with psychosis or unstable
carcin/o	cancer	abnormal cells divide without control

Table (1-2): Common Roots of Medical Terms and meaning

aer/o	air	Aerobic microorganisms are those that need oxygen in order to survive
algesi/o	sensitivity to pain	Analgesic is the drug that pain reliever,
blast/o	embryonic form	Erythroblasts are immature red blood cells.
cephal/o	Head	Cephalohematoma is the collection of blood under the skull.
electr/o	electricity	Electrocardiography is a test that detects problems with the electrical activity of the heart.
fibr/o	fiber	Fibrous pertains to anything that contains, resembles, or consists of fiber.
hist/o	tissue	Histology is the study of the microanatomy of cells and tissues of plants and animals.
necr/o	dead	Necropsy or autopsy is the examination of a person who has died.
Onco-	mass / tumour	oncology = the study of cancer
optic/o, opt/o	vision	The optic nerve carries electrical impulses from the eye to the brain.
phag/o	eat, ingest eating	Phagocytosis
pharmac/o, pharmaceuti/i	drugs or medicine	Pharmacokinetics, pharmacodynamics
py/o	Pus	Pyogenesis refers to pus formation.
scop/o	microscope	to examine, to view instrument used for viewing
therm/o	Heat	heat Thermometer is an instrument used to measure temperature.

top/o	position, place	A topical medication is applied to the skin.
trache/o	trachea	A tracheostomy is a surgical procedure that
tox/o	poison	toxicology

Terms related to blood (Hematology)

A

Acute: refers to a disease that begins suddenly and/or progresses quickly

Allogeneic: refers to blood, stem cells, bone marrow, or other tissue that is transferred from one person to another

anemia: a blood condition in which a person either does not have enough red blood cells or has red blood cells that do not function properly

Antibody: a protein found in the blood that recognizes and binds to other substances. Helpful antibodies, such as those to viruses or bacteria, neutralize or destroy the target and prevent infection.

Anticoagulant: a drug that prevents blood clots from forming

Antigen: a marker protein on cells of the body or foreign substances, such as a virus or bacteria

Artery: a muscular vessel that carries oxygen- and nutrient-rich blood under high pressure from the heart to other parts of the body

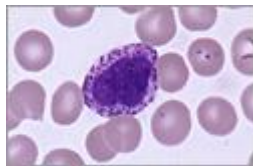
Arterial thromboembolism: a clot that forms within an artery and may obstruct the flow of blood

Autologous: refers to blood or other tissue derived from a person's own body

B

B lymphocyte: a type of **white blood cell** (also known as a B cell) that produces antibodies

Basophil: a type of normal **white blood cell** that may increase with bone marrow damage, parasitic infections, or allergic reactions



Benign: refers to a non-cancerous disease that does not spread throughout the body

Bleeding disorder: the clinical problem that results when the blood does not **clot** properly

blood: the specialized fluid in your body that has many functions, including carrying oxygen and nutrients to other tissues, forming **clots** in response to injury, and carrying defensive cells and antibodies that fight infection

Blood banking: the process of collecting, separating, and storing blood products

Blood cancer: a condition (also known as a hematologic malignancy) that may affect the blood, bone marrow, or lymph nodes. Normal blood production and

function is typically interrupted by the uncontrolled growth of an abnormal type of blood cell.

Blood smear/film: the glass slide on which doctors look at blood cells under the microscope to determine if their appearance and number are normal

Blood transfusion: a procedure in which blood collected from a volunteer donor is transferred to another person

Bone marrow: the soft, spongy tissue inside of bones where blood cells are produced

Bone marrow transplantation: the transfer of healthy bone marrow cells into a person whose bone marrow is defective or has been damaged by chemotherapy or radiation

C

Cancer: an abnormal and uncontrolled growth of cells

Capillaries: the body's smallest blood vessels, which connect arteries to veins

Chemotherapy: a medical treatment for the destruction of cancer cells

Chronic: refers to a slowly progressing disease

Circulatory system: the heart and network of blood vessels responsible for transporting blood throughout the body

Clinical trial: a research study involving human volunteers to evaluate new ways to prevent, diagnose, manage, or treat medical problems or diseases

Clot: a clump of platelets and blood proteins (also known as a thrombus) that form a plug at the site of an injured blood vessel to prevent excessive bleeding. A clot may also form inside a blood vessel and block that vessel, which is called a thrombosis or a blood clot.

Coagulation: the process by which blood clots

Complete blood count (CBC): a test that provides information about the types and numbers of cells in one's blood; health care professionals use the findings to diagnose conditions like anemia, infection, and other disorders

Congenital: refers to a condition that is present at or before birth, even if there were no signs of the problem when the person was a child

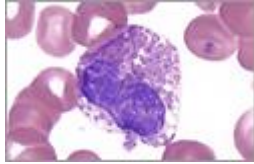
cord blood stem cells: blood cells from the umbilical cord, collected from the placenta after the baby is born and separated from the mother, that have the unique property of self-renewal as well as the ability to develop into other types of cells; they may be used in stem cell transplants.

D

deep vein thrombosis: a type of blood clot that forms in a major vein of the leg or, less commonly, in the arms, pelvis, or other large veins in the body

E

Eosinophil: a type of white blood cell that mediates allergic reactions and defends the body from infection by parasites and bacteria



Erythrocyte: also called the red blood cell; the most abundant cell in the blood whose primary role is to carry the protein hemoglobin that transports oxygen from the lungs to the rest of the body

Erythropoietin: a hormone produced primarily by the kidneys that controls the production of red blood cells

F

Factor: a protein in the blood that is needed to form a blood clot

Ferritin: a form of iron that is stored in the liver and released as needed to make new red blood cells

fibrin: a threadlike protein that supports the formation of blood clots and provides the initial structure upon which new tissue can form at the site of an injury

G

Granulocyte: a type of white blood cell that includes neutrophils, eosinophils, and basophils.

H

Hematocrit: the percentage of the whole blood volume that is made up of red blood cells; it is abbreviated Hct

Hematologist: a physician who specializes in researching, diagnosing, and treating blood disorders

Hematology: the scientific study of blood and blood-forming tissues

Hematopoiesis: the process by which the body produces new blood cells

Hematopoietic stem cell: a cell that can develop into any type of blood cell; often abbreviated HSC

Hemoglobin: a protein in red blood cells that carries oxygen to other cells in your body; often abbreviated HGB, Hb, or Hg

Hemoglobinopathy: a blood disease resulting from structural differences in hemoglobin produced by the body

Hemophilia: a congenital or inherited bleeding disorder caused by a shortage of clotting factors in the blood

I

Idiopathic: refers to a disease or condition without a known cause

Immune system: the network of cells, tissues, and organs that defend the body from infection and disease

Intravascular hemolysis: a condition in which red blood cells break down in the blood stream

Iron: a mineral that is important for maintaining many body functions and an integral part of hemoglobin, the molecule in your blood that carries oxygen to the tissues of the body

L

Leukemia: a type of cancer found in the blood and bone marrow that is caused by the production of abnormal white blood cells

leukocyte: a type of cell (also known as a white blood cell or WBC) in the blood that is primarily responsible for protecting the body from infection; there are five major types of white blood cells (basophils, eosinophils, lymphocytes, monocytes, and neutrophils), each with special properties and functions

Lymph node: small organs throughout the body that play a role in the immune system by filtering out foreign particles, such as viruses and bacteria

Lymphocytic: refers to a disease involving the abnormal growth of white blood cells called lymphocytes

lymphoma: a type of blood cancer that occurs when abnormal lymphocytes (a type of white blood cell) multiply and collect in the lymph nodes and other tissues, impairing the function of the body's immune system

M

Malignant: refers to a cancerous tumor or disease that may spread or metastasize to other parts of the body

Monocyte: a type of **white blood cell** that ingests bacteria and foreign particles

Myelogenous: refers to a disease of the blood-forming cells in the bone marrow

Myeloma: a **cancer** of plasma cells (**white blood cells** that produce disease- and infection-fighting antibodies)

N

Neutropenia: a low number of granulocytes (white blood cells that fight infection)

Neutrophil: the most common type of **white blood cell**, which helps the body fight infection

O

Oncology: the scientific study of cancer

P

Peripheral blood: **blood** that is circulating through the body's blood vessels and heart

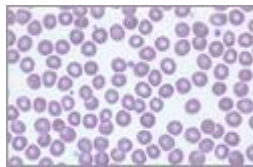
plasma: the liquid component of blood that transports blood cells throughout the body along with nutrients, waste products, antibodies, proteins, and chemical messengers such as hormones

Platelet: a small cell fragment (also known as a thrombocyte) involved in the blood's **clotting** process

Platelet count: part of the complete blood count, a blood test used to evaluate bleeding and clotting disorders

R

Radiation therapy: a treatment used to destroy **cancer** cells with high-energy rays, such as x-rays or gamma rays



S

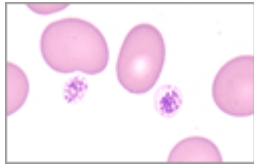
Sickle cell anemia: a congenital inherited blood disorder characterized by a different type of hemoglobin that causes **red blood cells** to become rigid and sickle-shaped

T

Targeted therapy: a type of treatment that destroys **cancer** cells without harming normal cells

Thalassemia: an inherited congenital blood disorder that results in the decreased production of hemoglobin and **red blood cells**

Thrombectomy: the surgical removal of a blood **clot**



Transferrin: a protein that attaches to iron in the blood stream and delivers it to the liver

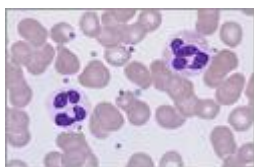
Tumor: an abnormal mass of cells, which can be cancerous or benign

V

Vein: a vessel that carries blood low in oxygen away from the body's organs and back to the heart.

W

white blood cell: a type of blood cell (also known as a leukocyte) that is primarily responsible for protecting the body from infection; there are five major types of white blood cells (basophils, eosinophils, lymphocytes, monocytes, and neutrophils), each with special properties and functions



White blood cell count (WBC): a blood test that measures the number of **white blood cells** to help detect problems in the body's immune system