

# Medical Terminology

## **lesson 4:**

## ***THE CIRCULATORY SYSTEM TERMS***

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# Quiz

- Displacement of a bone from a joint is called  
a. dislocation.    c. sprain.  
b. fracture.      d. strain.
- Surgical repair of the skull is called  
a. cephaloplasty.    c. cranioplasty.  
b. cephalotomy.    d. craniotomy.
- **Inflammation of a joint is**  
a. arthritis.      c. osteoarthritis.  
b. chondritis.    d. osteochondritis.

The term that means pertaining to a rib and a vertebra is  
a. costal.                      c. spondylocostal.  
b. costovertebral.          d. sternocostal.

# Cardiovascular System

- The *circulatory system* is made up of the **cardiovascular** system and the **lymphatic** system.
- This body system functions to maintain *homeostasis* by:
  - >> **Transporting** oxygen, nutrients, vitamins, antibodies, and other substances.
  - >> Taking away waste and carbon dioxide

# Structures of the Cardiovascular System

- The *cardiovascular* (*cardio* + *vascul* + *ar*) system consists of the heart and the blood vessels

# Heart

- The heart is an organ in the chest that pumps blood through the veins and arteries. It has four chambers:
  - >>Right and left *atria* (plural for *atrium*)
  - >>Right and left *ventricles*Atrial and ventricular refer to the atrium and ventricle, respectively.
- *Atrio + ventricular* (AV) valves are found between the atria and the ventricles.
- These valves are made up of *cuspid*s (small flaps that make up the AV valves).

<i>tricuspid</i>	tri (three) + cuspid	valve on the right side of the heart
<i>bicuspid</i>	bi (two) + cuspid	valve on the left side of the heart, otherwise known as <i>mitral</i> valve

# Heart

- *Semilunar valves* regulate the flow of blood to and from the lungs:
    - >> *Pulmonic valve*: controls the flow of blood to the lungs
    - >> *Aortic valve*: controls the flow of blood into the *aorta*
- The *pericardium* (*peri* + *card* + *ium*) is a double membrane that surrounds the heart and the great vessels. The heart wall is made up of several layers:
- >> *Epicardium*: outer layer
  - >> *Myocardium*: muscular middle layer
  - >> *Endocardium*: inner layer

# Blood Vessels

The circulatory system is made up of five types of blood vessels that transport blood through out the entire body:

**Arteries:** carry oxygenated blood from the heart to the different body parts

**Arterioles:** small blood vessels that connect the arteries to the capillaries

**Capillaries:** smallest blood vessels where oxygenation and nutrients occur

**Venules:** small blood vessels that connect the capillaries to the veins

**Veins:** carry deoxygenated blood from the different parts of the body to the heart

- Note that the *pulmonary artery* is the **only** artery that carries **deoxygenated** blood and the *pulmonary vein* is the **only** vein that carries **oxygenated blood**.
- The *coronary arteries* carry oxygenated and nutrient-filled blood to the *myocardium* (heart muscle).



Combining Form	Meaning	Word Association
angi/o, vas/o, vascul/o	vessel	An <i>angiogram</i> is a radiologic test that views blood flow within the veins or arteries.
aort/o	aorta	An <i>aortogram</i> is an invasive procedure in which a catheter is placed in the aorta and a contrast material is injected.
arter/o, arteri/o	artery	<i>Arteriosclerosis</i> refers to the thickening, hardening, and loss of elasticity of the arterial walls.
arteriol/o	arteriole	<i>Arteriopathy</i> refers to any disease of the arterioles.
ather/o	yellow, fatty plaque	The build-up of plaque in the arterial walls is known as <i>atherosclerosis</i> .
phleb/o, ven/o	vein	<i>Phlebitis</i> or <i>venitis</i> is the inflammation of the veins.
venul/o	venule	<i>Venulitis</i> is inflammation of the venules.

# Diseases, Disorders, and Diagnostic Terms

- *Cardiomyopathy* is the general diagnostic term used to identify a disease of the heart muscle.
- The following are examples of cardiomyopathy.
- Note the meaning of the suffix *-itis*.

>> ***Myocarditis***: inflammation of the myocardium (heart muscle)

>> ***Endocarditis***: inflammation of the - endocardium

>> ***Pericarditis***: inflammation of the pericardium

- There are several tests used to diagnose cardiac problems. Some of the most common tests include:

>> **Electrocardiogram** *electr/o + cardi/o + -gram*

→ measures the electrical activity of the heart

→ electrocardiography: a noninvasive procedure used to record electrical activity of the heart

→ electrocardiograph: record of the heart's electrical activity

>> **Echocardiogram** *echo + cardi/o + -gram*

→ record of the heart's sonogram

→ echocardiography: the use of sound waves to produce live images of the heart

- → ***Positron emission tomography***

- >> is useful in examining the flow of blood in the heart and blood vessels

- >> a radioactive element is used

- ***Cardiac catheterization***

- >> a procedure in which a *catheter* is moved through a blood vessel to the heart to diagnose heart disorders

# Activity

- qq Angina pectoris  
qq Arrhythmia  
qq Cardiomegaly  
qq Congenital heart defects  
qq Congestive heart failure  
qq Coronary artery disease  
qq Coronary heart disease  
qq Fibrillation
- qq Heart murmur  
qq Hyperlipidemia  
qq Hypertension  
qq Infarction  
qq Myocardial ischemia  
qq Septal defect  
qq Shock

- The distribution of blood to the various parts of the body is influenced by the diameter of the blood vessels:

>> **Vasoconstriction**: decrease in the diameter of a blood vessel

→ *vaso + constriction*

>> **Vasodilation**: increase in the diameter of a blood vessel

→ *vaso + dilation*

>> **Angiomas** are benign tumors made up of blood vessels (*hemangioma*) or lymph vessels (*lymphangioma*).

# Radiologic studies involving the blood vessels.

aortography	aorto + graphy	x-ray of the aorta with the use of a contrast dye	aortogram	record produced
arteriography	arterio + graphy	x-ray of the arteries using a radiopaque material	arteriogram	image produced
angiocardiology	angio + cardio + graphy	x-ray of the heart and great vessels using a dye		

# Surgical and Therapeutic Interventions

- Health care technology has greatly improved in the past few decades, leading to major advances in the treatment of cardiovascular diseases.

***Cardiopulmonary*** pertains to the heart and lungs.

>> ***Cardiopulmonary bypass***: a technique that temporarily takes over the function of the heart and the lungs during surgery

>> ***Cardioversion***: a procedure in which an electric current is used to reset the heart's rhythm back to its normal pattern

>> ***Cardiopulmonary resuscitation***: a series of lifesaving actions that improve a client's chances of survival after a cardiac arrest



- For blood vessel problems, these medications are frequently used:
  - >> **Thrombolytics** (*thromb/o + lytic*): medications that dissolve clots
  - qq **Vasodilators**: medications that dilate the blood vessels
  - >> **Antihypertensives**: medications that decrease blood pressure
  - >> **Diuretics**: medications that facilitate excretion of water by the kidneys
  - >> **Antilipidemics**: medications that decrease cholesterol levels.

# Vascular surgical procedures:

<i>angioplasty</i>	angio + plasty	repair of the blood vessels
<i>atherectomy</i>	ather/o + ectomy	insertion of a specialized catheter to remove plaque from the arterial lining
<i>aortoplasty</i>	aort/o + plasty	repair of the aorta
<i>phlebectomy</i>	phleb + ectomy	excision of a vein or a vein segment
<i>hemorrhoidectomy</i>	hemorrhoid + ectomy	excision of a hemorrhoid

# LYMPHATIC SYSTEM

- The lymphatic system performs the following functions:
  - >> **Return** the **fluid** that **escaped** from the blood vessels back to circulation
  - >> **Defend** the body against disease

# STRUCTURES OF THE LYMPHATIC SYSTEM

- *Lymph*: fluid that circulates in the lymphatic system
- *Lymph vessels*: thin tubes that carry lymph and white blood cells
- *Lymph nodes*: small round glands that filter lymph throughout the body
- *Tonsils*: collections of *lymphoid* tissue found in the pharynx
  - palatine tonsils: located at the back of the throat
  - pharyngeal tonsils: commonly referred to as “adenoids”
- *Thymus*: gland in the upper chest cavity that processes *lymphocytes*
- *Spleen*: produces *antibodies* and *lymphocytes*

## Some word parts related to the lymphatic system:

Word Part	Meaning	Word Association
adenoid/o	adenoids	<i>Adenoidectomy</i> is the surgical removal of the adenoids.
cervic/o	neck or the uterus	<i>Cervicalgia</i> means neck pain.  Inflammation of the cervix is known as <i>cervicitis</i> .
home/o	sameness	<i>Homeostasis</i> refers to the ability of the physiological system to maintain internal stability.
lymphat/o	lymphatics	A disease or enlargement of the lymph nodes is <i>lymphadenopathy</i> .
splen/o	spleen	<i>Splenomegaly</i> is the enlargement of the spleen.
thromb/o	thrombus, blood clot	<i>Thrombolysis</i> is the breakdown of blood clots.

# Diseases, Disorders, and Diagnostic Terms

<i>lymphoma</i>	lymph + oma	cancer that originates from the lymphatic system
<i>lymphadenoma</i>	lymph + aden + oma	tumor of the lymph node
<i>lymphangitis</i>	lymph + ang + itis	acute or chronic inflammation of the lymphatic vessels
<i>lymphadenitis</i>	lymph + aden + itis	inflammation of the lymph nodes
<i>lymphedema</i>	lymph + edema	Accumulation of lymph in the tissue that results in swelling.  <i>Elephantiasis</i> is a form of edema caused by parasites.
<i>lymphangiography</i>	lymph + angio + graphy	radiologic study of the lymphatic vessels and nodes using a contrast dye
<i>lymphangiogram</i>	lymph + angio + gram	x-ray of the lymphatic vessels and nodes

# Surgical and Therapeutic Interventions

- *Antibiotics* or *anti-infective medications* are the usual lines of treatment for **infections** of the lymph nodes and lymph vessels.
- In more severe problems of the lymphatic system such as **cancer**, **excision** of the affected lymphatic structure may be necessary.
  - Lymphadenectomy
  - Splenectomy
  - Tonsillectomy
  - Adenoidectomy

ANY  
Questions?



Thank You