University of Anbar

College of Dentistry

Year: First

Course: Terminology

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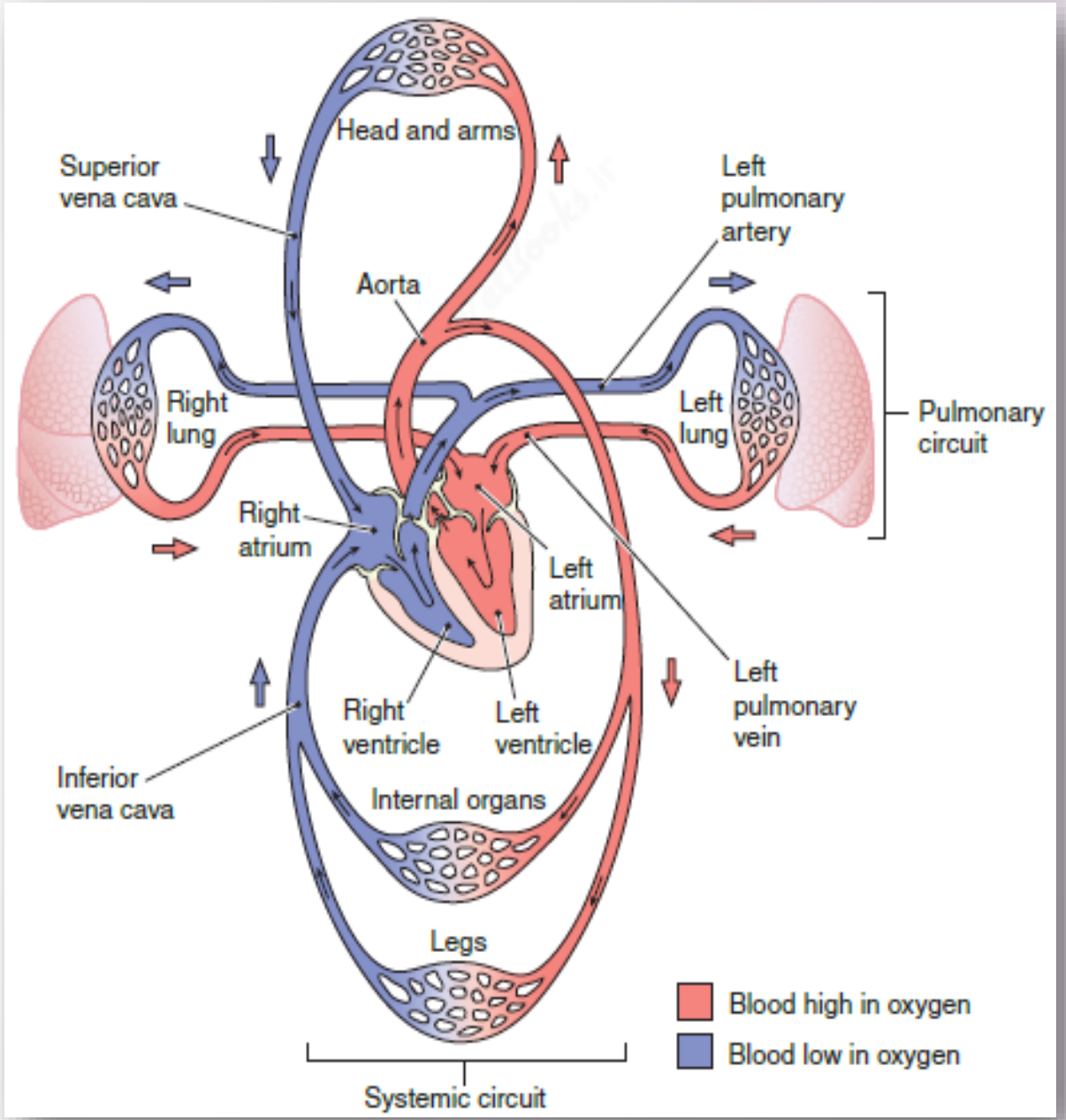
Terminology
Cardiovascular System

Cardiovascular System

- The **cardiovascular system** (also called '**circulatory system**') transports **blood** throughout the body. It consists of the **heart**, **blood vessels**.
- This system forms a **continuous circuit** that delivers **oxygen** and **nutrients** to all cells and carries away waste product.
- The **cardiovascular system** is **essential** for the health of every other system in the body because:
  - It **supplies oxygen and nutrients** to all body parts.
  - It **removes waste products** like carbon dioxide and toxins from the cells.
  - It helps maintain **body temperature**, **hormone distribution**, and **immune responses**.

Without it, **other organs and systems** like the brain, kidneys, and muscles **cannot function properly**.

The Cardiovascular System



The Heart

- The heart is located between the lungs, with its point, or apex, directed toward the inferior and left.
- The **wall of the heart** consists of three layers, all named with the root ***cardi***, meaning "heart." Moving from the innermost to the outermost layer, these are the:
  1. **Endocardium**—a thin membrane that lines the chambers and valves (the prefix ***endo-*** means "within").
  2. **Myocardium**—a thick muscle layer that makes up most of the heart wall (the root ***my/o*** means "muscle").
  3. **Epicardium**—a thin membrane that covers the heart (the prefix ***epi-*** means "on").
- A fibrous sac, the **pericardium**, contains the heart and anchors it to surrounding structures, such as the **sternum** (breastbone) and **diaphragm** (the prefix ***peri-*** means "around").

Chambers and Circuits of the Heart

- The heart has **four chambers**:
  - **Two upper chambers** called **atria** (singular: **atrium**) — these **receive blood** coming into the heart.
  - **Two lower chambers** called **ventricles** — these **pump blood** out of the heart.

- These chambers are **separated by walls** called **septa** (singular: **septum**):
  - The **interatrial septum** separates the **left and right atria**.
  - The **interventricular septum** separates the **left and right ventricles**.
  - There is also a wall between the **atrium and ventricle on each side** of the heart.

Chambers and Circuits of the Heart

How the Heart Pumps Blood: Two Circuits

The heart works like a **double pump**, sending blood through **two separate loops**:

1. **Pulmonary Circuit** (Right Side of the Heart):
    1. Pumps **oxygen-poor blood** to the **lungs**.
    2. In the lungs, blood picks up oxygen and releases carbon dioxide.
2. **Systemic Circuit** (Left Side of the Heart):
    1. Pumps **oxygen-rich blood** to the **rest of the body**.
    2. Delivers oxygen and nutrients to cells, and collects waste products.

The Vascular System

- The **vascular system** consists of:

1. **Arteries** that carry blood **away** from the heart.
2. **Arterioles**, vessels smaller than arteries that lead into the capillaries.
3. **Capillaries**, the smallest vessels, through which exchanges take place between the blood and the tissues.
4. **Venules**, small vessels that receive blood from the capillaries and drain into the veins.
5. **Veins** that carry blood **back** to the heart.

The Vascular System

- All **arteries**, except the pulmonary artery (and the umbilical artery in the fetus), carry **highly oxygenated blood**. They are **thick-walled**, elastic vessels that carry blood **under high pressure**.

- All **veins**, except the pulmonary vein (and the umbilical vein in the fetus), carry **blood low in oxygen**. **Veins** have **thinner**, less elastic walls and tend to give way under pressure. Like the heart, veins have one-way valves that keep blood flowing forward.

Roots Pertaining to the Cardiovascular System

Roots for the Heart			
Root	**Meaning**	**Example**	**Definition of example**
cardi/o	heart	cardiomyopathy* [kar-de-o-mi-OP-ah-the]	any disease of the heart muscle
		cardiomegaly [kar-de-o-MEG-ah-le]	enlargement of the heart
		cardiogenic [kar-de-o-JEN-ik]	originating (-genic) in the heart
atri/o	atrium	atriotomy [a-tre-OT-o-me]	surgical incision of an atrium
		atrial [A-tre-al]	pertaining to an atrium (-al)
		interatrial [in-ter-A-tre-al]	between (inter-) the atria
ventricul/o	cavity, ventricle	supraventricular [su-prah-ven-TRIK-u-lar]	above a ventricle
		interventricular [in-ter-ven-TRIK-u-lar]	between the ventricles
		ventricular [ven-TRIK-u-lar]	pertaining to a ventricle (-ar)
valv/o **valvul/o**	valve	valvulotome [VAL-vu-lo-tome]	instrument for incising a valve
		valvuloplasty [val-vu-lo-PLAS-te]	plastic repair of a valve
		valvular [VAL-vu-lar]; valvar [VAL-var]	pertaining to a valve (-ar)

* Preferred over ***myocardiopathy***.

Roots Pertaining to the Cardiovascular System

Roots for the Blood Vessels			
Root	**Meaning**	**Example**	**Definition of example**
angi/o	vessel	angiography [*an-je-OG-rah-fe*]	x-ray imaging of a vessel
hemangi/o	a blood vessel	hemangiectasis [*he-man-je-EK-tah-sis*]	dilatation (-ectasis) of a blood vessel
vas/o **vascul/o**	vessel, duct	vasospasm [*VA-so-spazm*]	sudden contraction of a vessel
arter/o **arteri/o**	artery	endarterial [*end-ar-TE-re-al*]	within an artery
arteriol/o	arteriole	arteriolar [*ar-te-re-O-lar*]	pertaining to an arteriole
aort/o	aorta	aortoptosis [*a-or-top-TO-sis*]	downward displacement of the aorta
ven/o **ven/i**	vein	venous [*VE-nus*]	pertaining to a vein
phleb/o	vein	phlebotomy [*fleh-BOT-o-me*]	incision of a vein to withdraw blood

Terms Pertaining to the Cardiovascular System

- **Pericarditis**: Inflammation of the fibrous sac around the heart
- **Endocarditis**: Inflammation of the heart's lining (usually at a valve)
- **Myocarditis**: Inflammation of the heart muscle
- **Valvotomy**; **Valvulotomy**: Surgical incision of a valve
- **Atrioventricular**: Pertaining to an atrium and a ventricle
- **Cardiology**: Study (-logy) of the heart
- **Myocardial**: Pertaining to the myocardium (-al; ending differs from adjective ending for the heart: ***Cardiac***)
- **Pericardial**: Pertaining to the pericardium (-al)
- **Angioedema**: Localized swelling caused by changes in vessels
- **Endarterectomy**: Removal of the inner lining of an artery
- **Phlebectasia**: Dilatation of a vein
- **Arteriorrhexis**: Rupture of an artery
- **Cardiovascular**: Pertaining to the heart and vessels
- **Angiopathy**: Any disease (-pathy) of a vessel
- **Angiogenesis**: Formation (-genesis) of a vessel
- **Aortosclerosis**: Hardening (-sclerosis) of the aorta

Cardiovascular Disorders	
Key Terms	**Definition**
Arrhythmia	Any abnormality in the rate or rhythm of the heartbeat (literally “without rhythm”; note doubled r); also called ***dysrhythmia***
Arteriosclerosis	Hardening (sclerosis) of the arteries, with loss of capacity and loss of elasticity, as from fatty deposits (plaque), deposit of calcium salts, or scar tissue formation
Bradycardia	A slow heart rate of less than 60 bpm
Diaphoresis	Profuse sweating
Embolism	Obstruction of a blood vessel by a blood clot or other matter carried in the circulation
Heart Block	An interference in the electrical conduction system of the heart resulting in arrhythmia
Heart Failure	A condition caused by the inability of the heart to maintain adequate blood circulation
Hypertension	A condition of higher-than-normal blood pressure; essential (primary, idiopathic) hypertension has no known cause
Tachycardia	An abnormally rapid heart rate, usually over 100 bpm
Thrombophlebitis	Inflammation of a vein associated with formation of a blood clot
Thrombosis	Development of a blood clot within a vessel
Thrombus	A blood clot that forms within a blood vessel (root: thromb/o)
Cerebrovascular Accident (CVA)/ Stroke	Sudden damage to the brain resulting from reduction of blood flow; causes include atherosclerosis, embolism, thrombosis, or hemorrhage from a ruptured aneurysm