

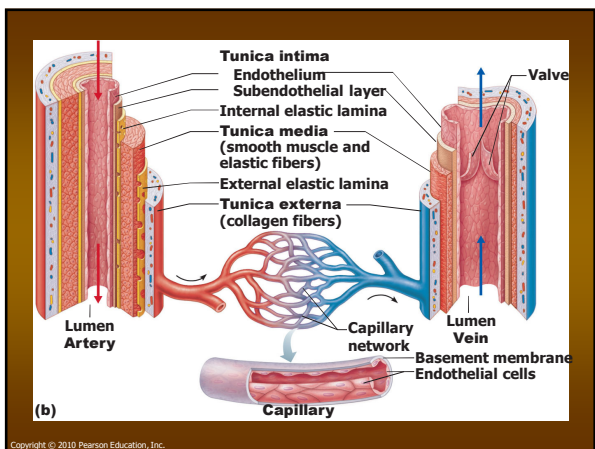
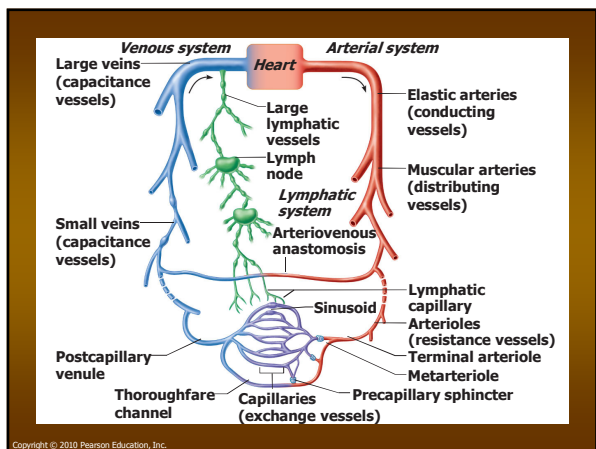
Human Anatomy & Physiology BI 233

Course Intro

- ### Objectives
- Overview of the vessels.
 - Define the different type of blood vessels.
 - Arteries
 - Veins
 - Capillaries
 - Identify the tissue layers of blood vessels.
 - Distinguish the different forms of arteries, veins and capillaries.

- ### Homework Preparations
- Cardiac Flow in HW section (diagram)
Need colored pencils or marker
Due Wed
 - HW #1 Artery Labeling
Due in lab (Thursday)

- ### Function of the Blood Vessels
- Transport blood to and from the heart.
- I. **Arteries** deliver oxygenated blood to tissues.
 - II **Veins** carry deoxygenated blood to the heart.
 - III **Capillaries** are the site of gas exchange for internal respiration.



Tissue Layers of Vessels

Tunica interna

Inner most layer (lining of lumen)
 Endothelium
 Simple squamous cells
 Selectively permeable
 Found in ALL vessel types

Tissue Layers of Vessels

Tunica media

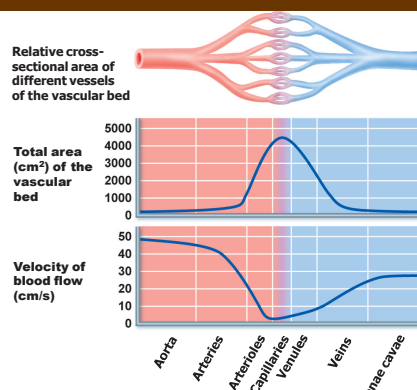
Middle layer of blood vessels
 Consists of **smooth muscle**
 Sheets of **elastin** (protein layer) for variable constriction.
 Contain **collagen** – gives strength
 Thickest in muscular arteries.

Tissue Layers of Vessels

Tunica externa

Outermost layer
 Composed of loose connective tissue
Collagen reinforced
 Protection of vessel
 In large vessels contains tiny blood vessels – **vas vasorum**

Aka **Tunica adventitia**



Different forms of Arteries

I. Elastic Arteries

Nearest heart

II. Muscular Arteries

Deliver blood to specific organs

III. Resistance arteries

aka Arterioles (small)

Regulate blood flow to capillaries.

Metarteriole – vessel running through capillary bed.
 Main pathway for blood.

Capillaries

Site of material exchange with the interstitial fluids.

- Blood gasses
- Nutrients

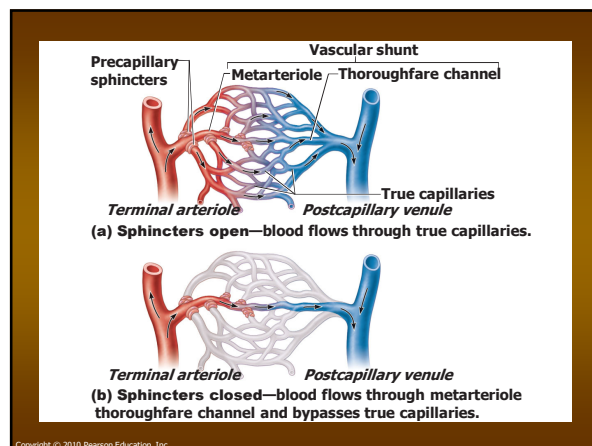
Associated terminology

Capillary bed – tortuous pathway.

Precapillary sphincter – circular muscle that controls flow through bed.

Different forms of Capillaries

- I. Continuous
Abundant in skin & muscles
- II. Fenestrated
Predominant in kidney & small intestine, very permeable.
- III. Sinusoidal
Common in liver, bone marrow, lymphoid tissue.



Veins & Venules

- Carry deoxygenated blood back to the heart.
 - Said to join, merge & converge.
 - 65% of the body's blood supply in venous system.
 - Contain valves to prevent backflow.
- Post capillary venules:
Porous
White blood cells & fluids easily move out

Vascular Anastomoses

A **network** of blood vessels that supply a region of the body.

Occurs in & around:

- Joints
- Abdominal organs
- Brain
- Heart

Importance: Alternate pathways if *traffic* gets jammed or blocked.

Preparation for next class

Read Sections on Blood Vessels

Preview

Part II – through Hypertension pg 706 - 712

Recommended

Answer 63-70 in handouts on pg 1 & 2 CP.

Preparation for Lab

Prelab – Look over conditions on page 741.

On lab day bring:

- Textbook
- Lab Book
- Study Guide notes BI233
(cardiovascular section)
- Blood Pressure Cuff (if you have your own)