Microcirculation

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Arteries

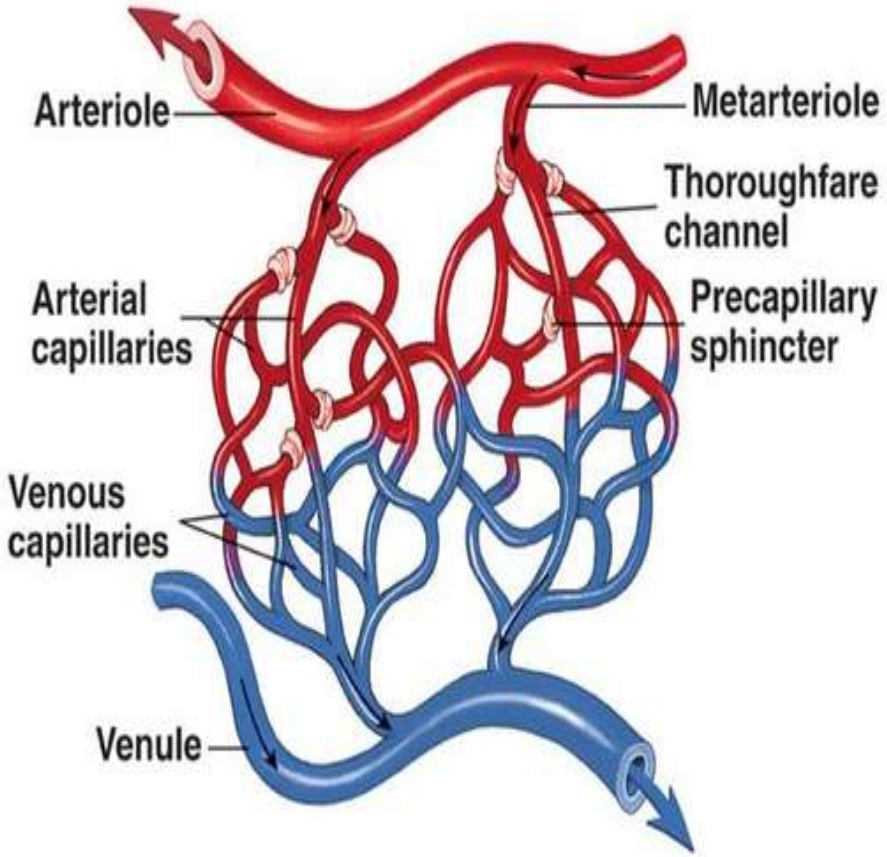
- Elastic
- Muscular
- Arterioles
- Metarterioles

Veins

Large

Medium

Venules



Capillary unit

- Here is the crux of all our information today so this is a capillary unit in a tissue, and this will be found anywhere in the body its ubiquitous and this is going to supply our tissues with all nutrient and oxygen and all that other nutrient needs to function

- What we are going to discus these arteriole, precapillary sphincters and the metarteriole and you can see these banded with smooth muscle and these precapillary sphincter are smooth muscle

- and the function of these are a little bit different; the metarteriole is basically a vascular shunt for when these capillary sphincters are open or closed , serve either as thoroughfare channels to the venules, which bypass the capillary bed, or as conduits to supply the capillary bed. There are often cross-connections between the arterioles and venules as well as in the capillary network.
- arterioles are terminal endpoint of systemic circulation with regard tissue perfusion

Anastomosis

- Alternative for blood flow

Arterial anastomosis circle of Willis

Venous anastomosis basilic cephalic and median cubital vein

Arteriovenous anastomosis metarteriole thoroughfare channel

BLOOD FLOW

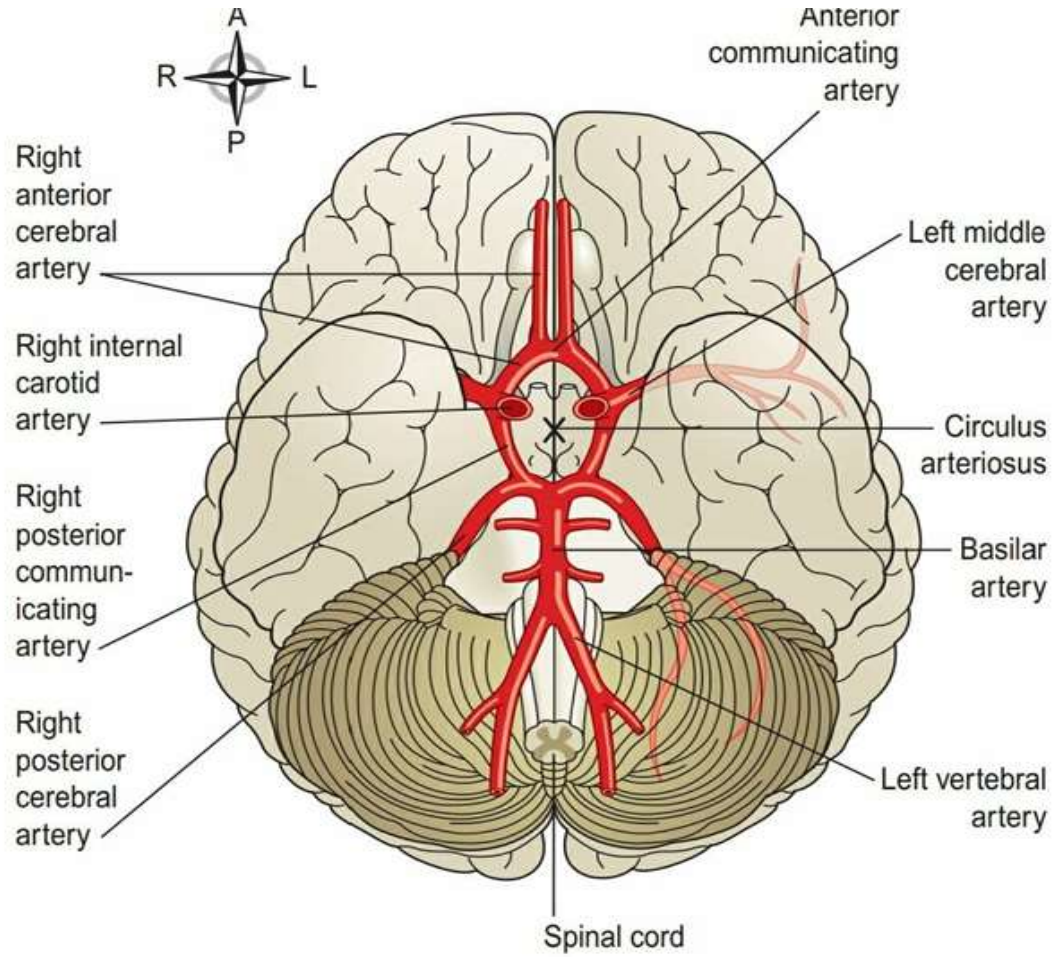
Skeletal muscles: Active hyperemia vasodilators exercising

Brain: High MAP vasoconstriction myogenic mechanism

LOW MAP vasodilation

Lung: PO2 decrease blood shunt

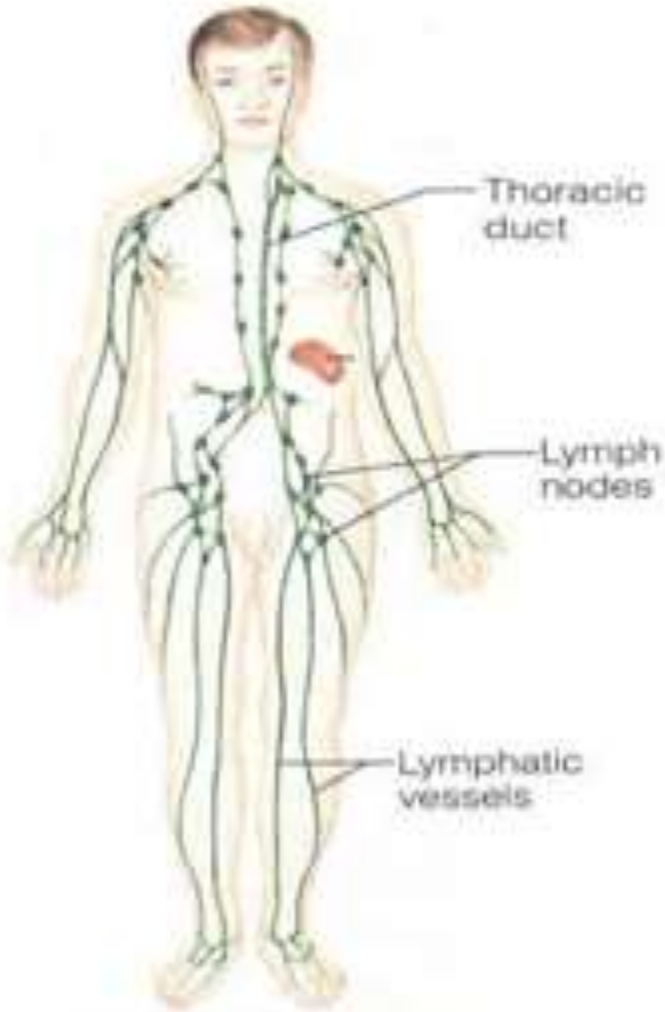
GIT and skin : Vasoconstriction



Arteries forming the circulus arteriosus (circle of Willis) and its main branches to the brain. Viewed from below.

Components of the Lymphatic System

- Lymph
- Lymphatic Vessels
  - Lymphatic Capillaries
  - Lymphatic Vessels
  - Lymphatic Trunks
  - Lymphatic Ducts
- Lymphatic Organs
  - Thymus
  - Lymph Nodes
  - Spleen
  - Tonsils
- Lymphatic cells



Lymphatic system

Main Channels of Lymphatics

- Originate as lymph capillaries
- Capillaries unite to form larger vessels
  - Resemble veins in structure
  - Connect to lymph nodes at various intervals
- Lymphatics ultimately deliver lymph into 2 main channels
  - Right lymphatic duct
    - Drains right side of head & neck, right arm, right thorax
    - Empties into the right subclavian vein
  - Thoracic duct
    - Drains the rest of the body
    - Empties into the left subclavian vein

- Open system ; interstitial to open
- Node swelling; bacterial or viral infection and carcinoma

- Except: CNS, Bone, Teeth, cartilage, epithelium, bone marrow
- Lymph movement: skeletal muscle contraction, arterial pulses
- Superficial with veins and Deeper arteries
- Right angel right lymphatic duct, left angel thoracic duct

Lymph node

- Lymph node: Afferent metastasize carcinoma lymph node and grow lymphoma not tender .
- Infection Lymphadenitis tender
- 450 lymph node highest in the mesenteries
- Immune system ; cortex B cells, Paracortex T cells, medulla plasma cells, medullary sinus macrophages