

# Vascular System

Lecture (1)

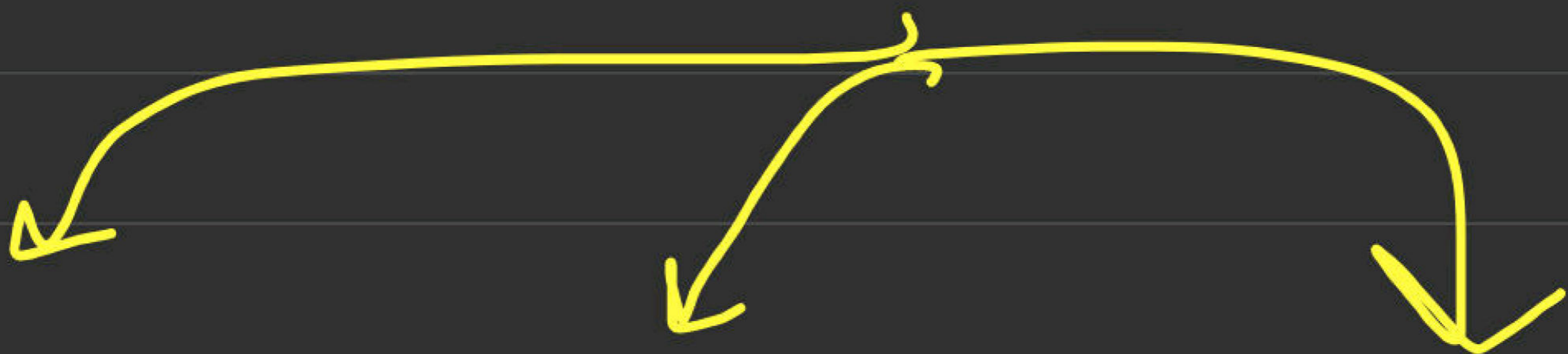
Date:

13 / May

# Main Function of Vas. system

- is to:
- 1) Transport
  - 2) Gasous exchange
  - 3) Tm. Control

## The blood vessels



Arteries

veins

microcirculation

↳ large (Elastic)

Large

- Capillaries

↳ Arterioles

Medium

- Arterio-venous

↳ Medium

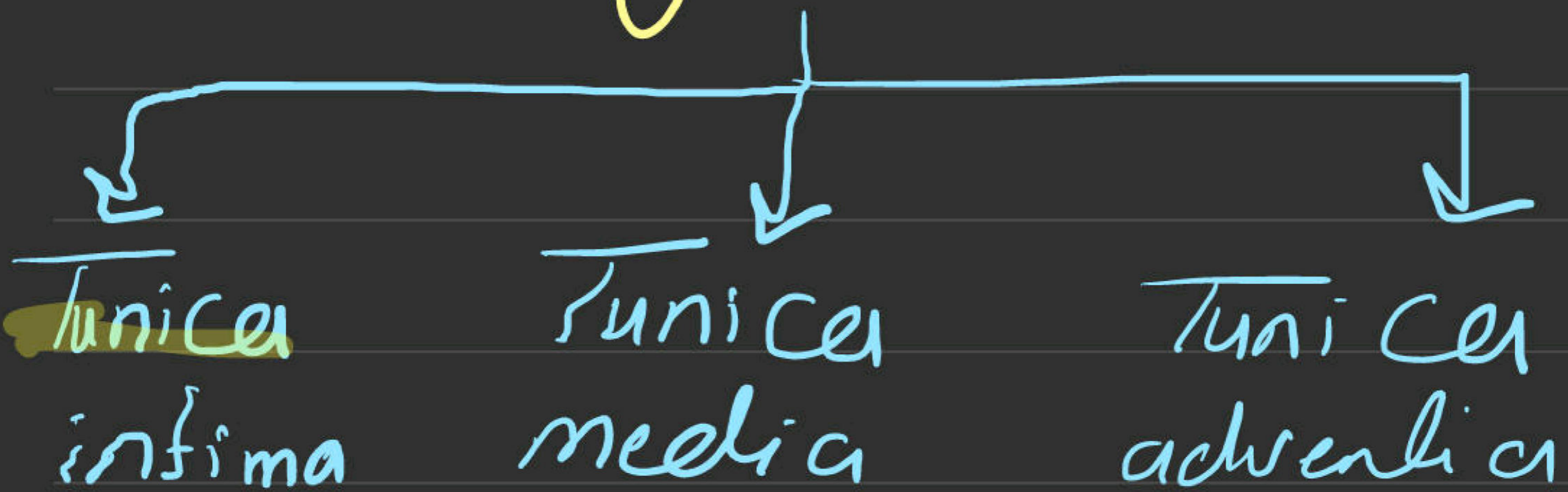
venules

anastomosis

(Muscular)

Date: / /

The wall of blood vessels formed of 3 layers:



- 1) Endothelium - Smooth muscle - Collagen - Elastic (more than)  
on basal lamina - C.T (IV)
- 2) Sub-Endo - EEL - Vasovascularum
- 3) IEL

Slide (9)

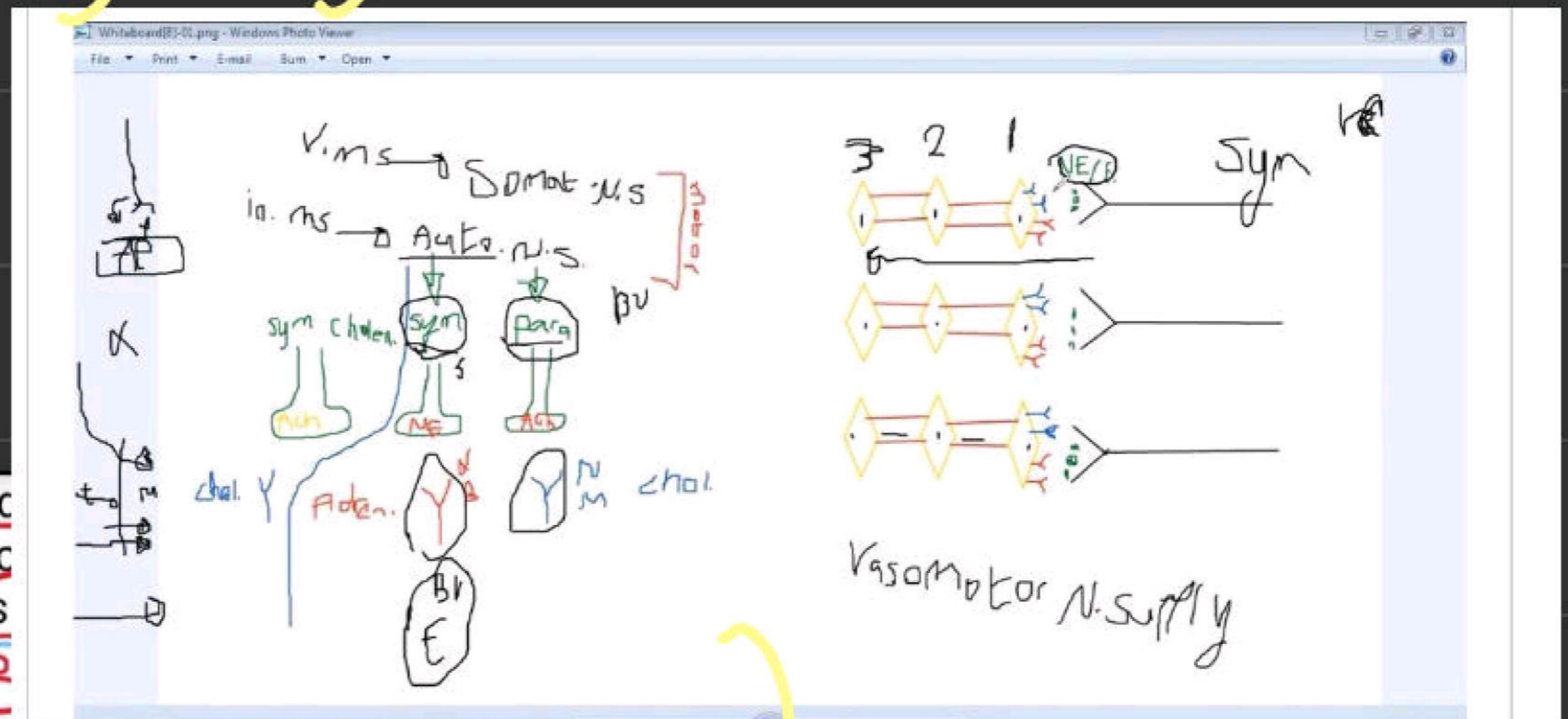
Slide (10)

→ Veins have more vasovascularum than arteries.

→ Vasovascularum is common in large and medium vessels.

Date: / /

network of  
vasomotor: ↑ unmyelinated sympathetic  
nerve fibers - whose neurotransmitter  
is norepinephrine -  
To supply large vess. ←



• Large vessels are supplied  
unmyelinated sympathetic  
whose neurotransmitter is

• Discharge of epinephrine produce vasoconstriction. These efferent nerves (out CNS) generally do not enter the media of arteries instead they discharge the neurotransmitters which diffuse through the wall to affect the smooth muscle cells of the media

• the gap junction between the smooth muscle cells propagate the response

• Sympathetic nerve fibers innervate all vessels except capillaries, precapillary sphincters & metarterioles

• The density of innervation of veins is less than that of arteries

• Innervation of small arteries & arterioles allow the sympathetic nerves to increase the peripheral resistance

• skeletal muscles arteries of certain species receive a sympathetic cholinergic nerve supply. Ach. Is released by these nerves act on endothelium to produce nitric oxide which diffuses into smooth muscle cells → its relaxation → dilatation of the lumen → hyperemia particularly at exercise

Elan Nawaiseh

Date:

# Large [Elastic, Conducting] Fibers (Aorta)

## Tunica intima

- ✓ Endothelium
- ✓ Thick sub-endo
- rich in elastic
- ✓ IEL Not clear

## Tunica media

- 70%
- ✓ very thick mostly
  - penetrated Elast. Memb.
  - ✓ Smooth muscle
  - ✓ EEL Not clear

## Tunica adventitia

- ✓ collagen in CT
- ✓ Elastic fibers
- ✓ Vasa vasorum

