

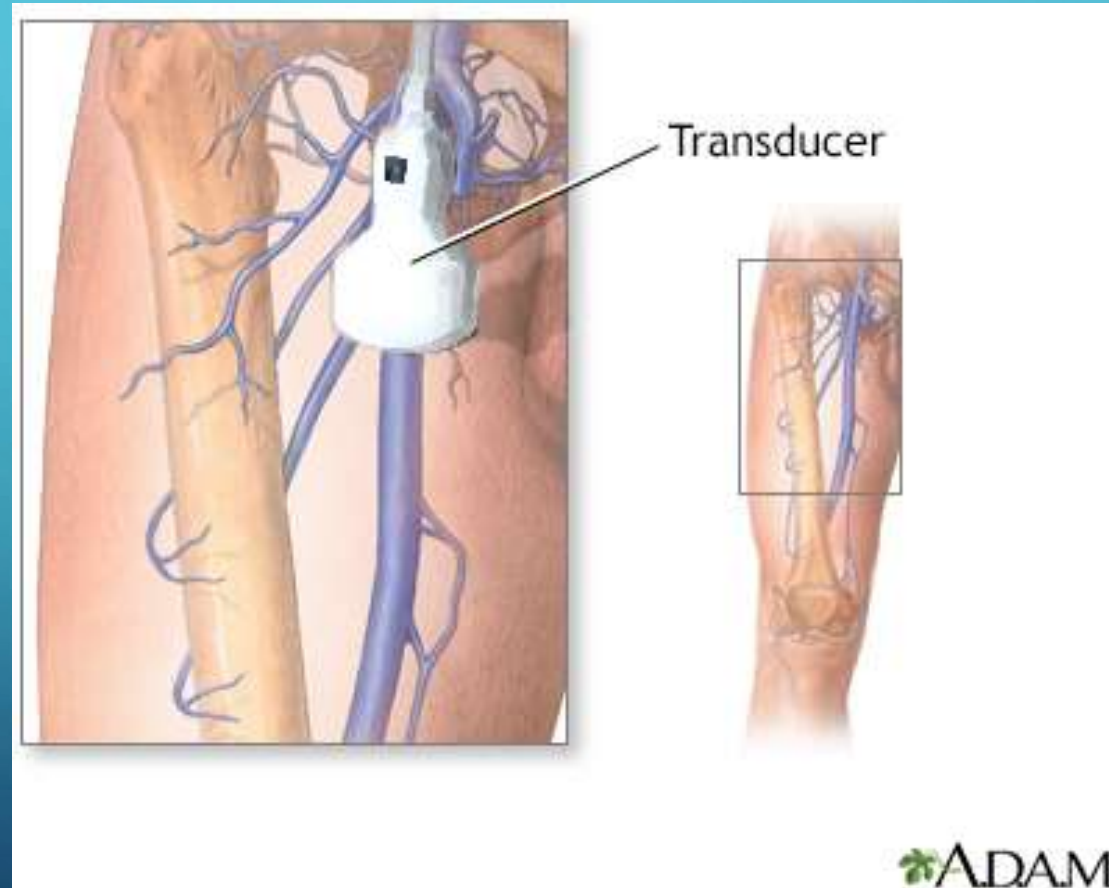


# WHAT IS A DOPPLER?

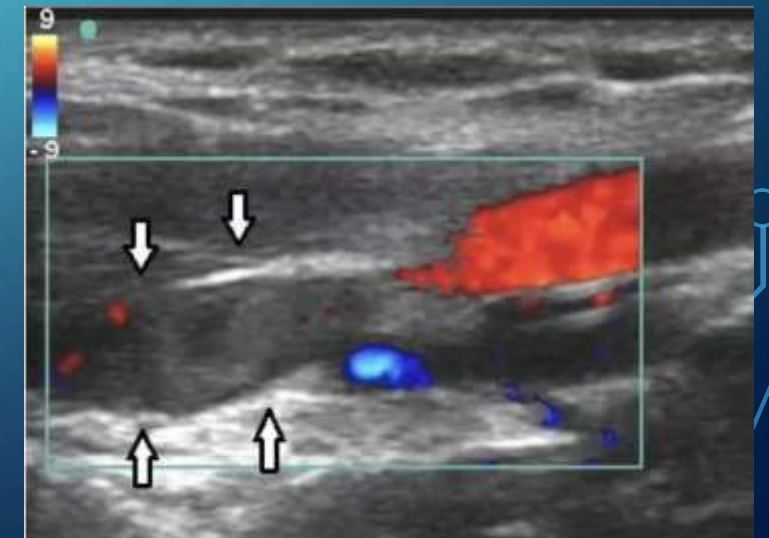
MALKA EINHORN

11/22/22

# HOW DOES A DOPPLER FUNCTION?

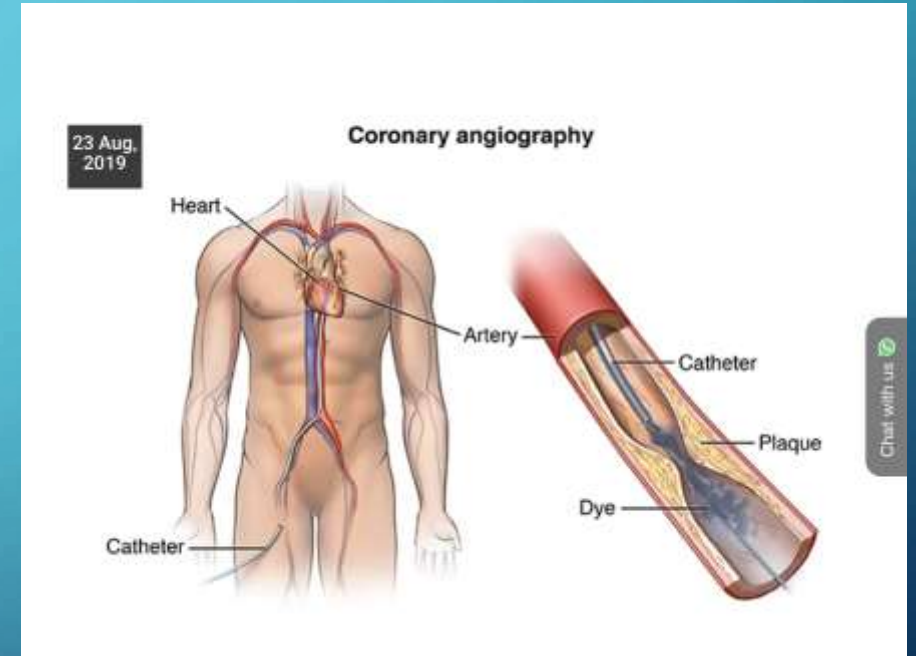


# WHAT IS A DOPPLER USED FOR?



# WHAT ARE THE BENEFITS OF DOPPLER US?

- Non-invasive (as opposed to angiography)



- Shows blood flow (feature not present in regular US)

# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

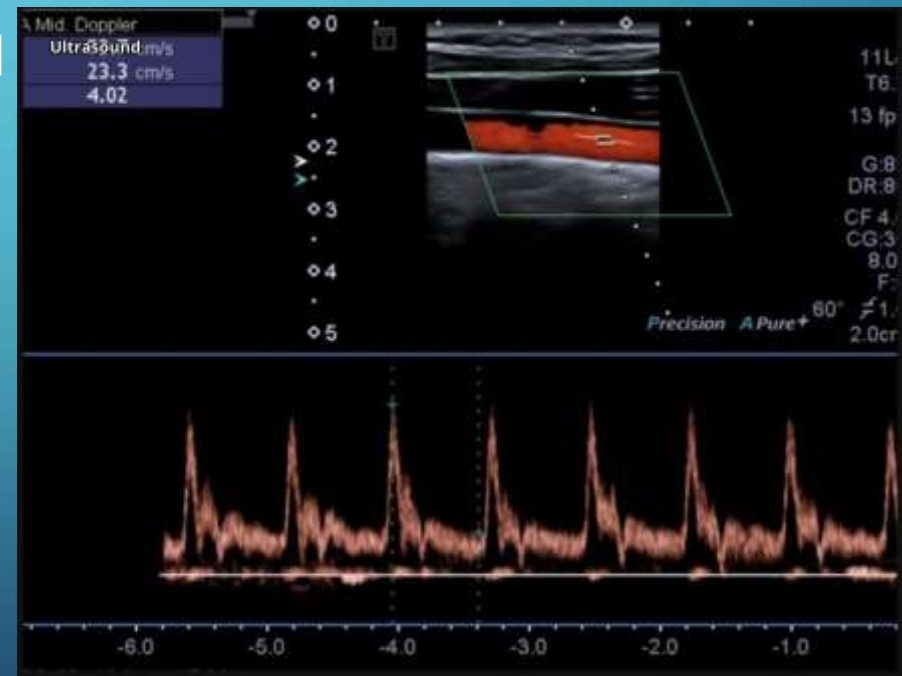
1. Color Doppler- color indicates blood flow  
Blue= away from transducer;  
Red= towards transducer



# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

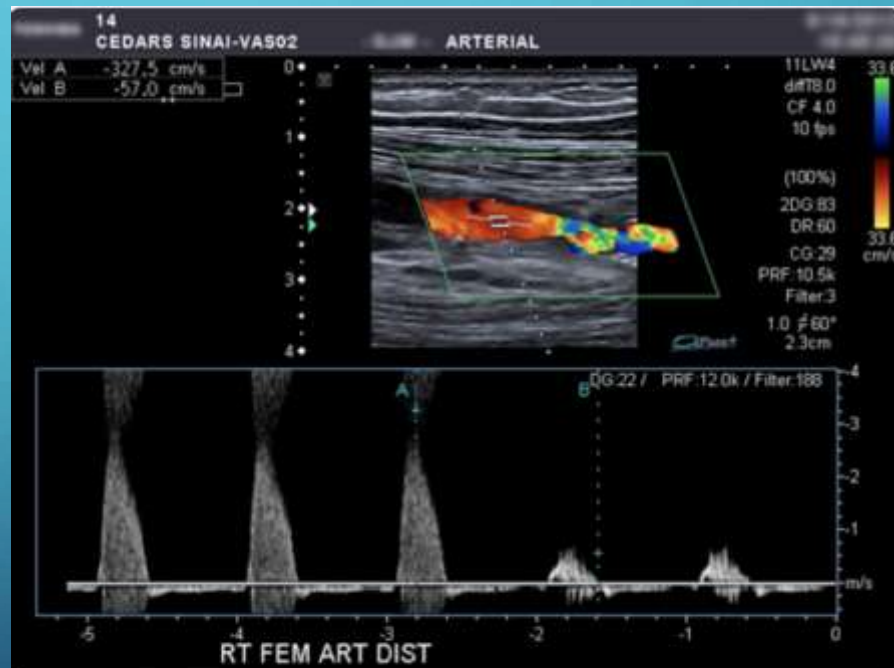
## 2. Spectral Doppler- graphical representation of blood flow

Helps show how much of a vessel is blocked



# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

3. Duplex Doppler- combines regular US with Doppler and allows us to see vessel width and blood flow



An arterial duplex ultrasound showing blood flow in the right femoral artery in the leg.

# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

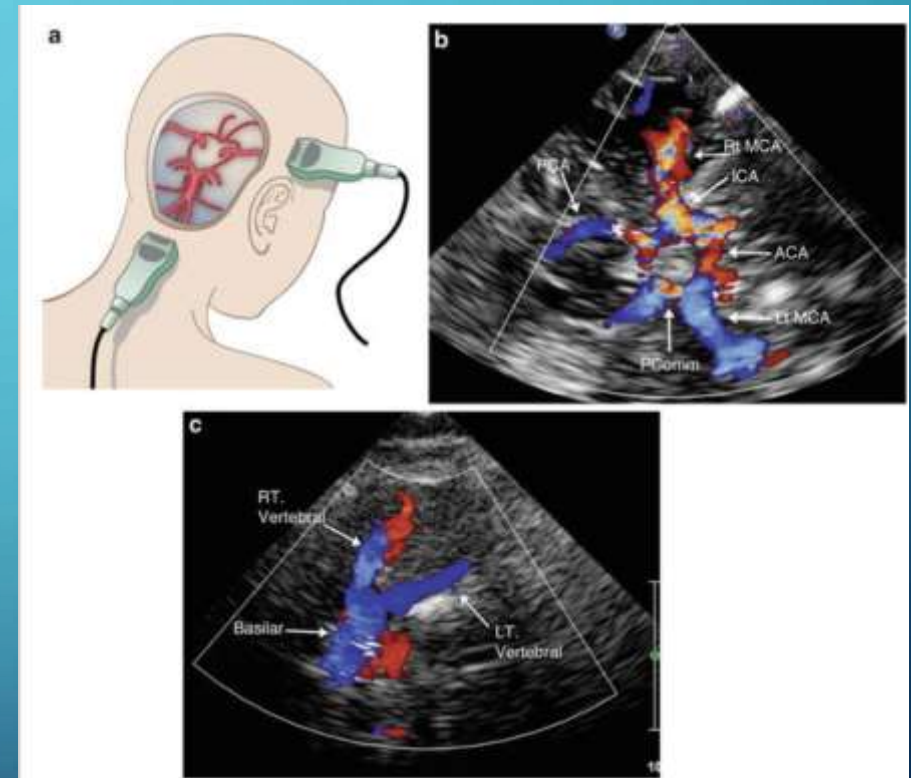
4. Power Doppler- shows presence and speed of blood flow (not direction)





# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

5. Transcranial Doppler- assesses blood flow in brain (for stroke/subarachnoid hemorrhage)



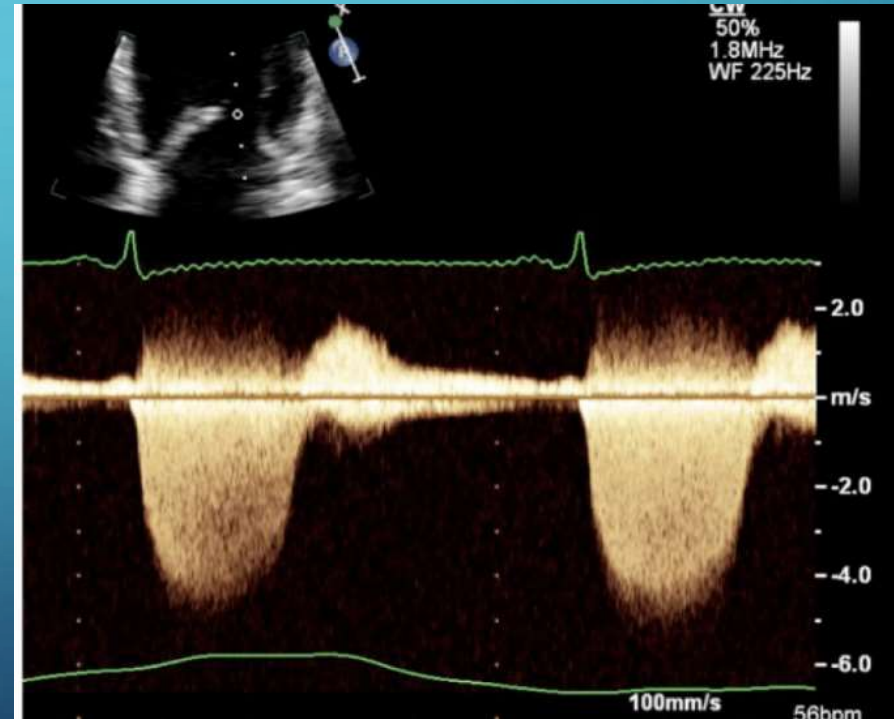
*Fig. 1* Transcranial and transforaminal acoustic windows (a). The transducer is placed superior to the zygomatic arch and anterior to the external auditory canal or more cephalad above the earlobe for the transtemporal approach. For the transforaminal approach, the transducer is placed in the midline below the occiput and angled cephalad. Utilizing the transtemporal approach and color Doppler flow imaging, the circle of Willis can be visualized (b). The transforaminal approach allows visualization of the basilar and vertebral arteries (c). *ACA* anterior cerebral artery, *ICA* terminal internal carotid artery, *MCA* middle cerebral artery, *PCA* posterior cerebral artery, *PComms* posterior communicating artery

# WHAT ARE THE DIFFERENT TYPES OF DOPPLER US?

6. Continuous wave Doppler- sends and receives sound waves continuously to more accurately assess fast blood flow

Away from transducer = below baseline

Towards transducer = above baseline



# HOW SHOULD YOU PREPARE FOR A DOPPLER US?

- Don't eat or drink



- Don't smoke



## RESOURCES:

- <https://my.clevelandclinic.org/health/diagnostics/22715-doppler-ultrasound>
- <https://medlineplus.gov/lab-tests/doppler-ultrasound/>
- <https://www.mayoclinic.org/doppler-ultrasound/expert-answers/faq-20058452>