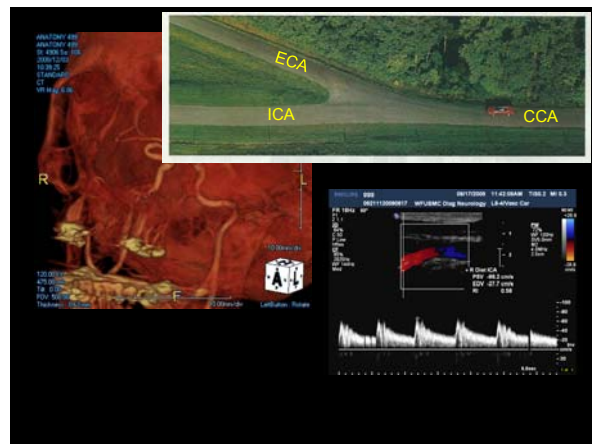


Frederick W. Kremkau, PhD

Discloses no relevant financial relationships with commercial interests.

Clev Clin Mayo IAME UPIT AIUM ACR AVID



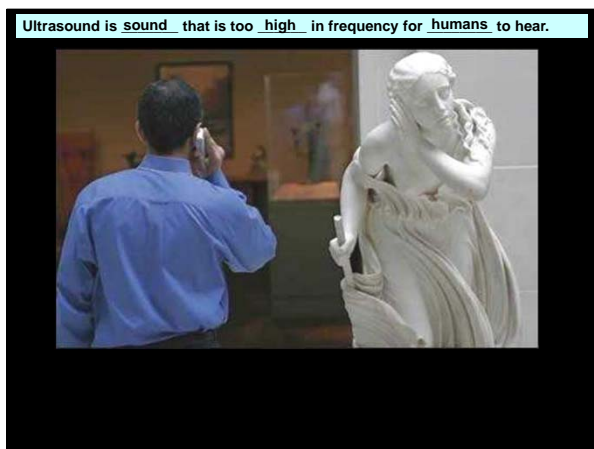
Principles
How Are You?

Frederick W. Kremkau, PhD
Center for Applied Learning
Wake Forest University School of Medicine

20 questions in 25 minutes

Spectrum of Difficulty

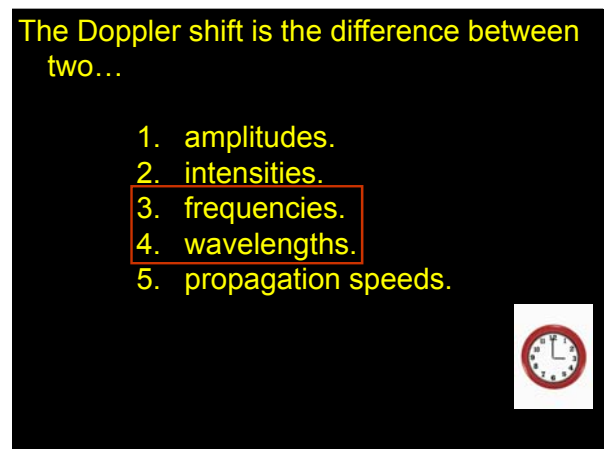
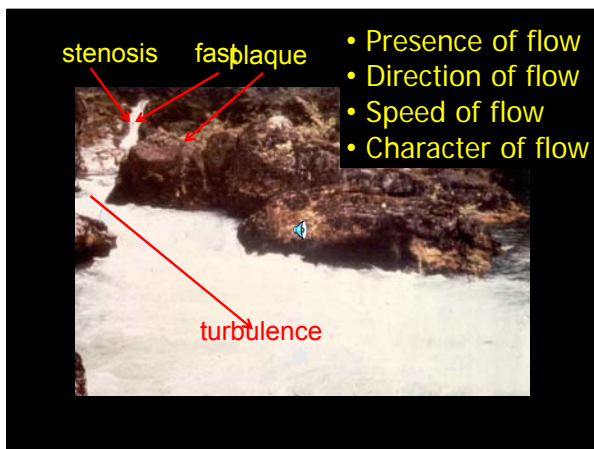
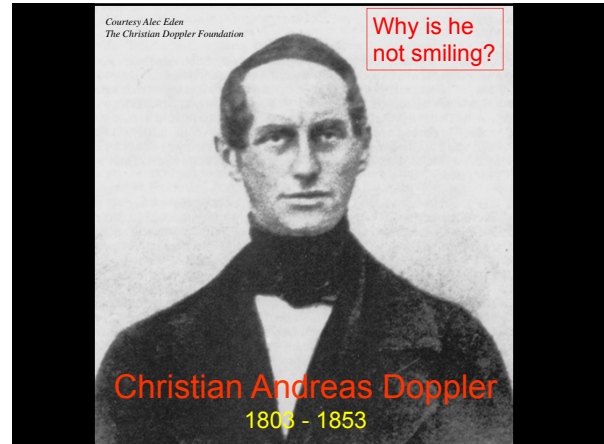
EASY HARD



Vascular ultrasound provides two *general* types of diagnostic information. They are...

1. Anatomy [sonography]

2. Blood flow detection and measurement.



The Doppler shift is **not** determined by...

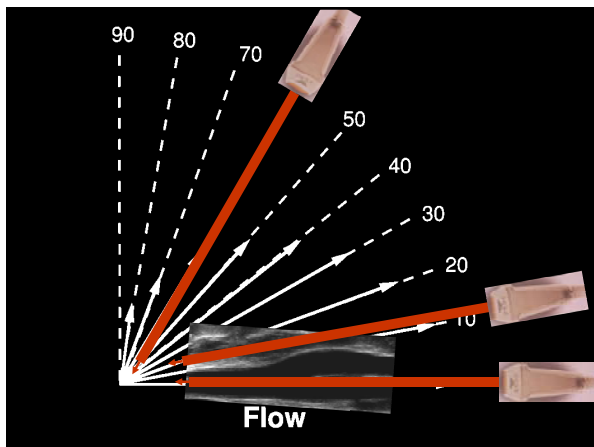
1. flow speed.
2. flow direction.
3. **flow volume.**
4. operating frequency.
5. Doppler angle.

$$f_D = \frac{2 f_0 v \cos \theta}{c}$$

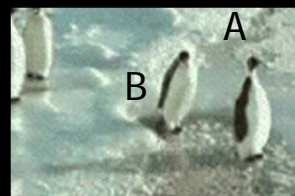


As Doppler angle increases, Doppler shift...

1. increases.
2. **decreases.**
3. remains constant.
4. gets stronger.
5. gets weaker.



If you got that one right, then you are Penguin A; if you missed it, you are Penguin B...



Which item(s) is/are measured by the instrument?

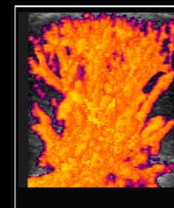
1. **Doppler shift** measured
2. Doppler angle estimated
3. Flow speed calculated
4. Flow direction determined

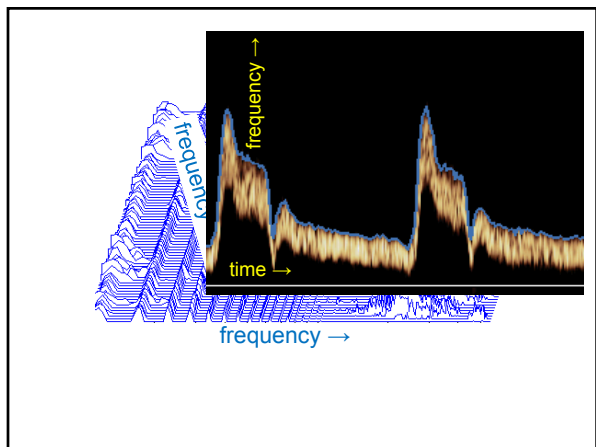
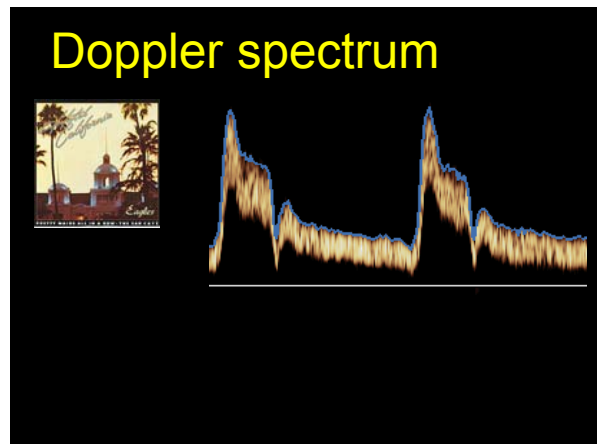
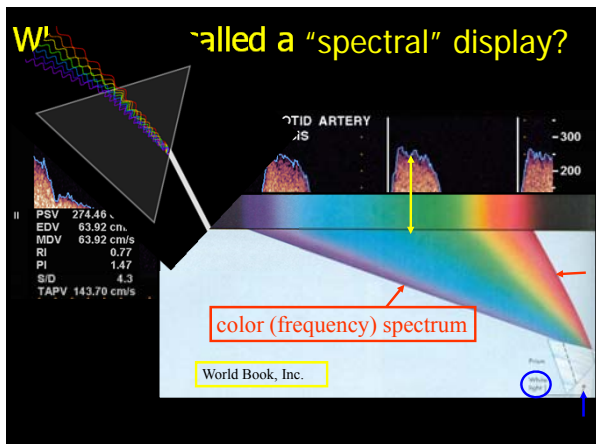


Traffic Stop

Power-Doppler does a better job than conventional color-Doppler at which of these?

1. **Presence of flow**
2. Direction of flow
3. Speed of flow
4. Character of flow

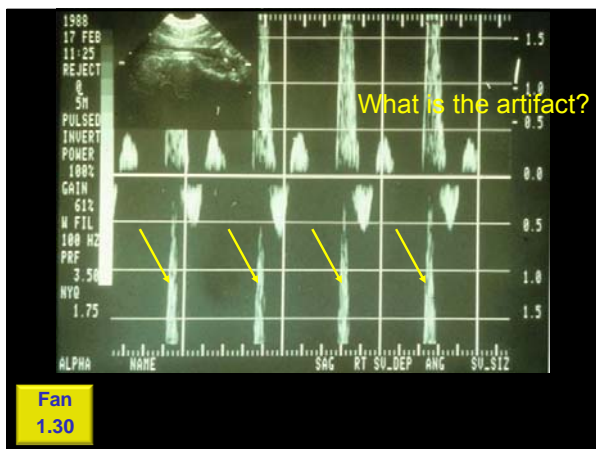




The musical group you just heard is the...

1. Legals
2. Beagles
3. Eagles
4. Vultures

Monkey Business



Aliasing is eliminated by

- a. shifting the baseline?
- b. increasing the scale
- c. decreasing the PRF
- d. both a) and b)

Sonography
Principles & Instruments
Fourth Edition
Frederick W. Kremkau

What control was used here? Scale
 This eliminated the aliasing [T/F].

Scale increase = PRF (sampling rate) increase.

What control was used here?
 This eliminated the aliasing [T/F].

No! Cut and paste... Baseline shift

CUT

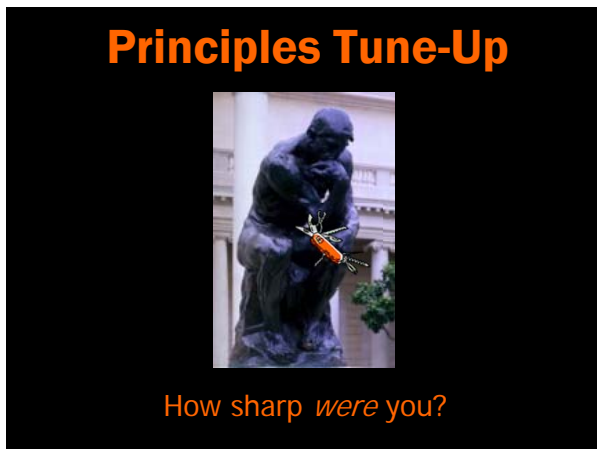
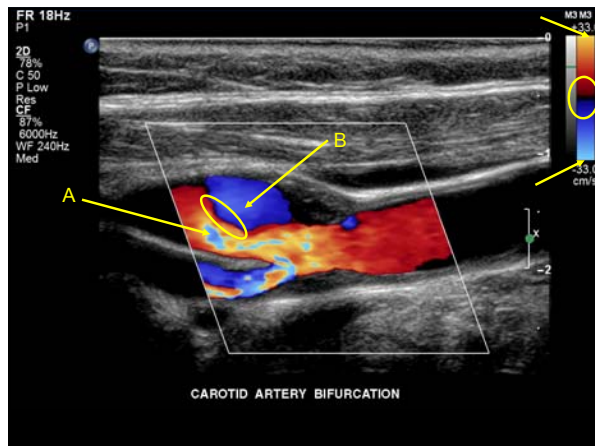
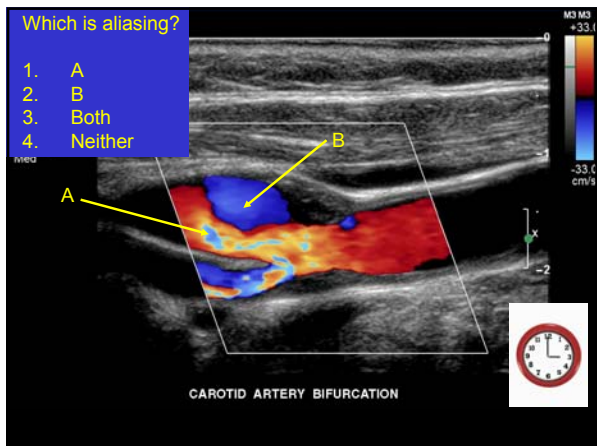
PASTE

If you got that one correct, you have won a wonderful, all-expense-paid, European vacation cruise!
 See the course director at the break...

Mediterranean cruise

You missed it?!

Mediterranean cruise



If you got more than half of these questions correct, congratulations! And if you are...

male female

...here is your entertainment for this evening.
(meet in the lobby at 10:00)



