

### Utility of Toe Brachial Index Done In Conjunction with Ankle Brachial Index

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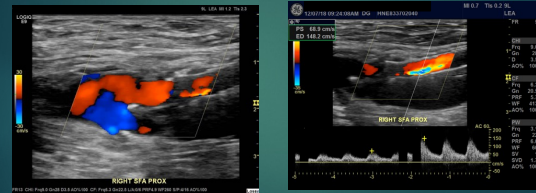
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I Have No Disclosures

### “We Know” Physiologic Testing

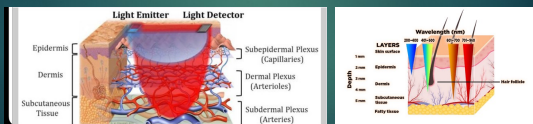
- A PVR includes waveforms and ankle pressures
- Ankle pressures are less reliable in the face of medial sclerosis
- Should every physiologic exam include both ABI and TBI?

### DUS Diagnosis of Stenosis



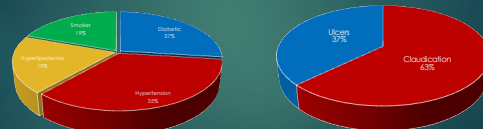
### Photoplethysmography

- Optical method detects blood volume changes in microvasculature
- Infrared light (wavelength 940 nm) penetrates skin and tissue
- PPG pulse wave frequency range 0.5 – 4.0 Hz
- Reflectance mode
- AC senses pulsatile (arterial) changes...DC senses non-pulsatile (venous) changes



### Risk Factors and Symptoms

100 consecutive arterial patients with DUS, ABI, TBI



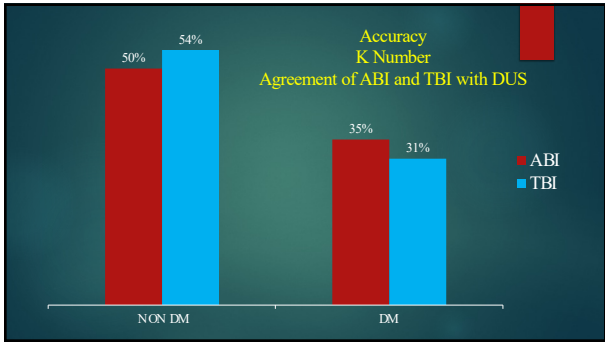
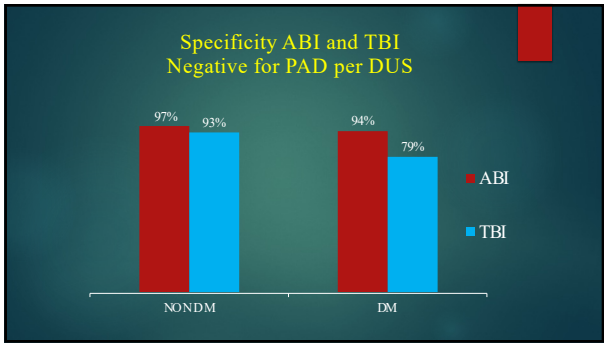
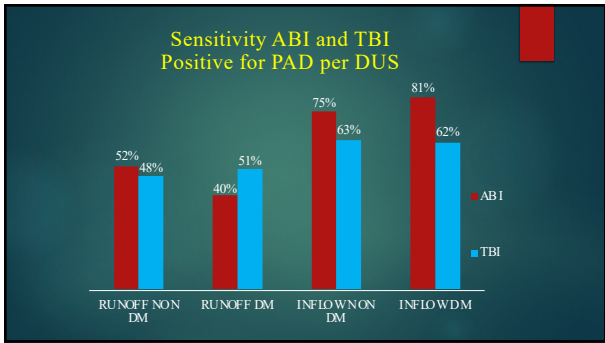
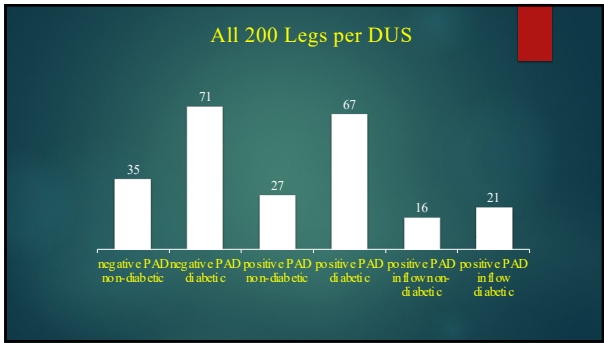
### Methods and Materials

**Anatomy**  
 "Inflow" vessels at and above knee  
 "Runoff" Infrapopliteal vessels

**DUS**  
 "Gold Standard"  
 Stenosis at least doubling of PSV between adjacent segments  
 Occlusion is an absent Doppler signal

**ABI**  
 Normal 0.9 – 1.2

**TBI**  
 Normal 0.5 – 0.9



### Conclusions

- 53 limbs Positive for PAD & Negative ABI (False Negative)
- 22 limbs Positive for PAD & Negative ABI had Positive TBI

ABI and TBI move concordantly for non-diabetics and diabetics  
 ABI and TBI have low sensitivity, moderate specificity, equivalent accuracy

"ABI and TBI are strongly associated ..... TBI does not allow for earlier detection of ischemia in diabetics....." *Stoekenbroek, RM 2015 European Journal of Endovascular Surgery*

TBI may not be adequate as a routine adjunctive exam to ABI

The Beautiful Bronx

