

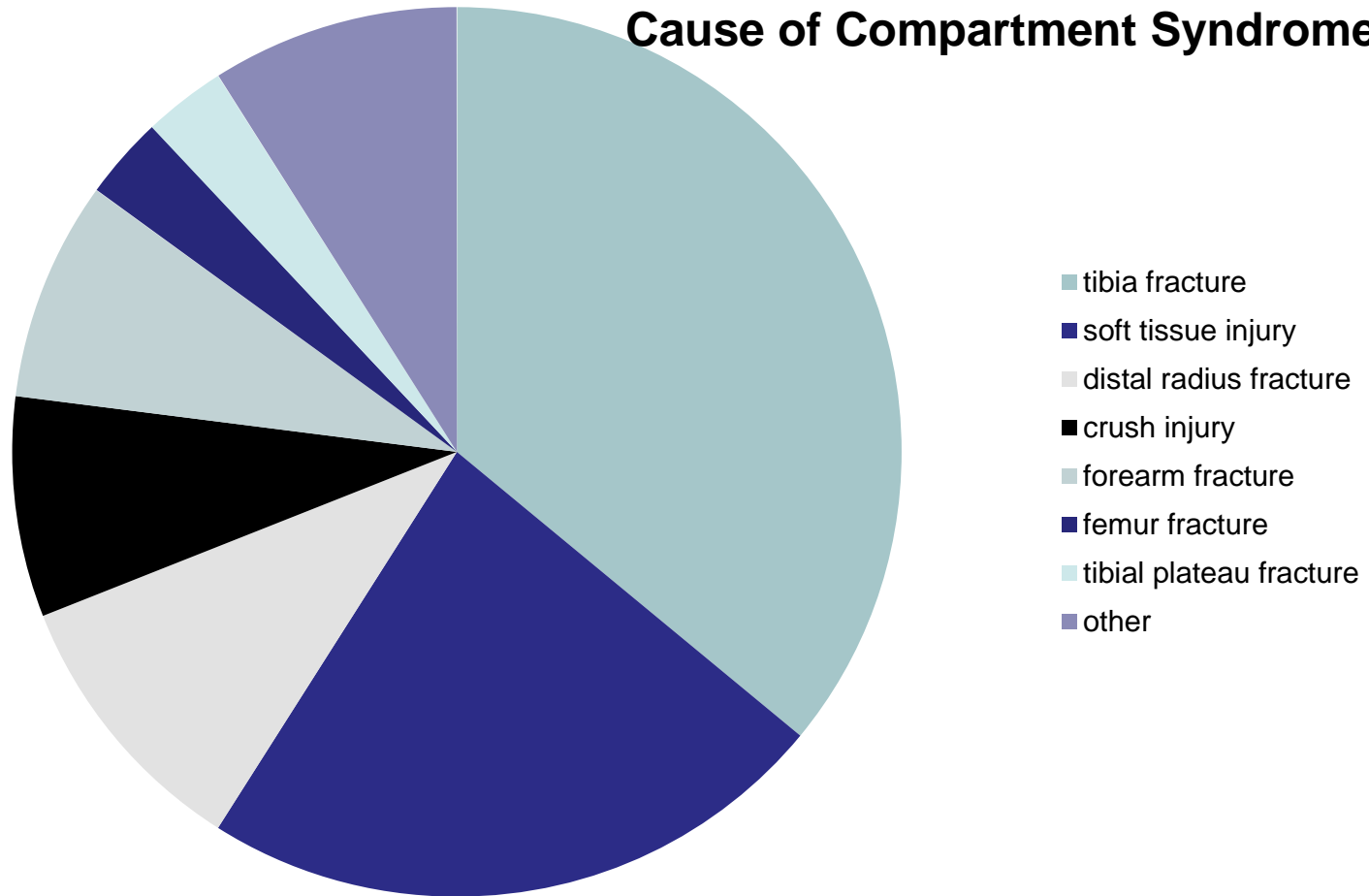
# Compartment Syndromes

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## Cause of Compartment Syndrome



# Risk Factors

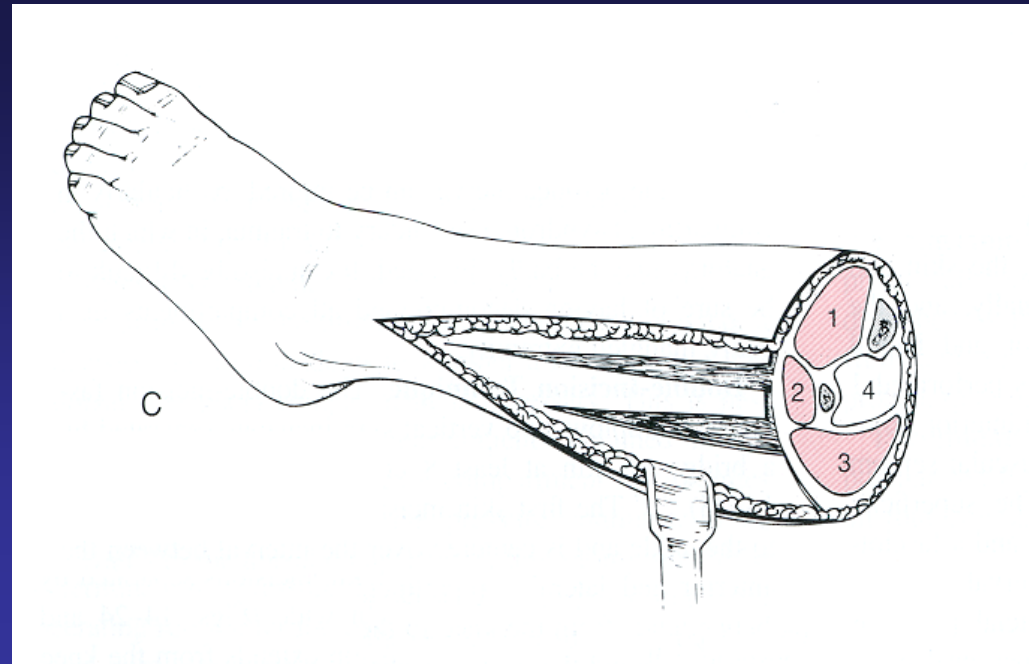
- Youth
- Male (10X when less than 30 yo)
- Tibia: not affected by energy with a slight increase in LOW ENERGY
- Femur/Forearm: High Energy
- Altered Pain Perception: ICU, Blocks, Regional Anes.

# Compartment Syndrome

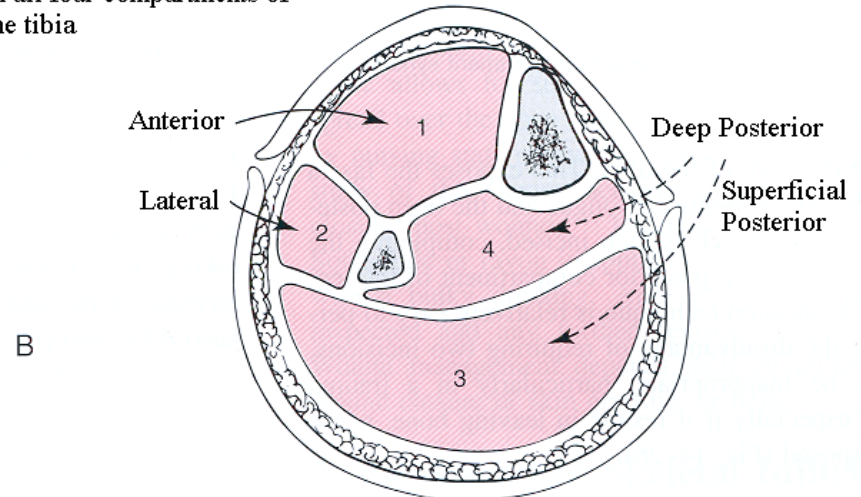
Increase of the contents within a closed space of limited compliance.

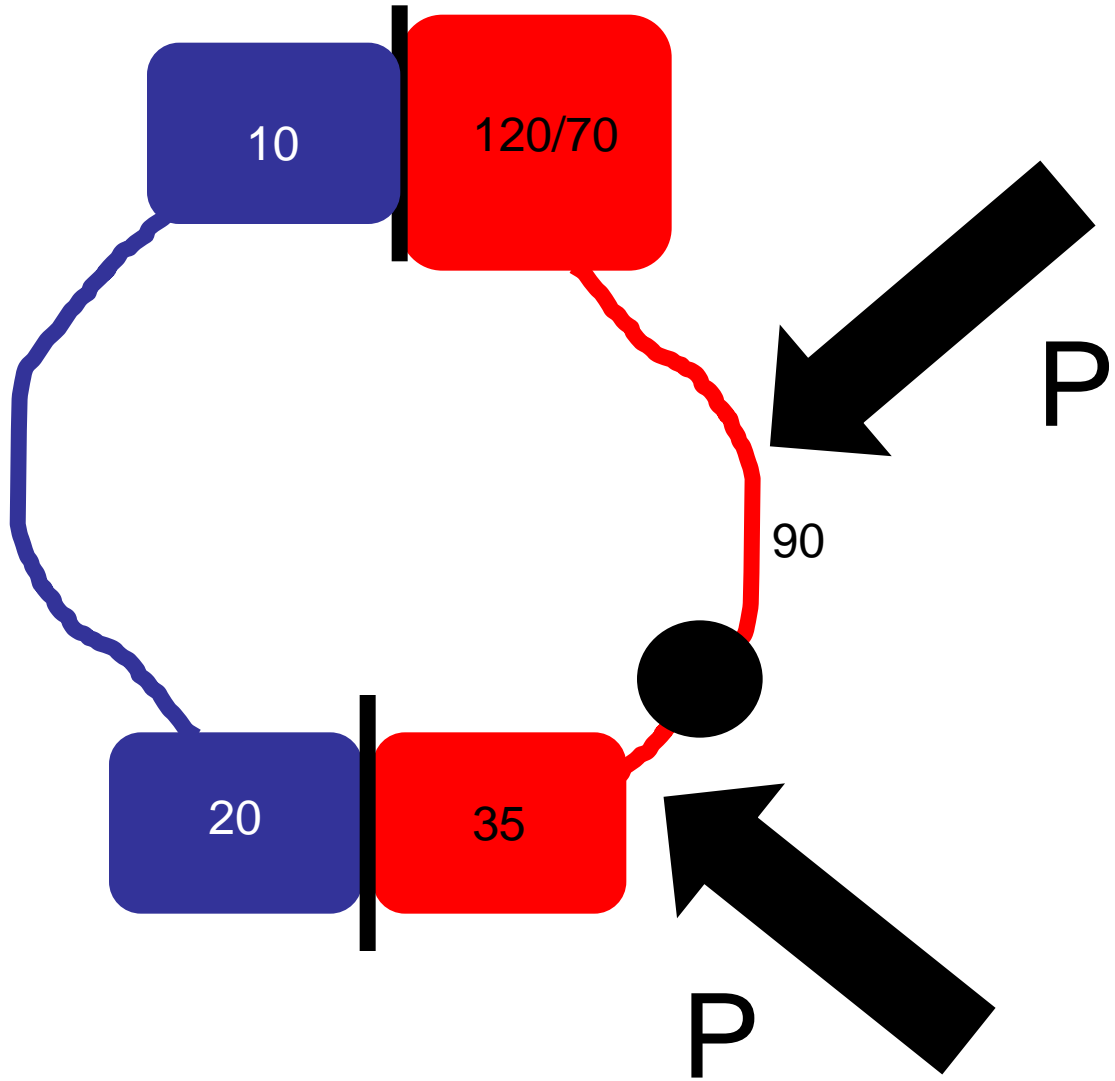
Leads to collapse of the small vessel system

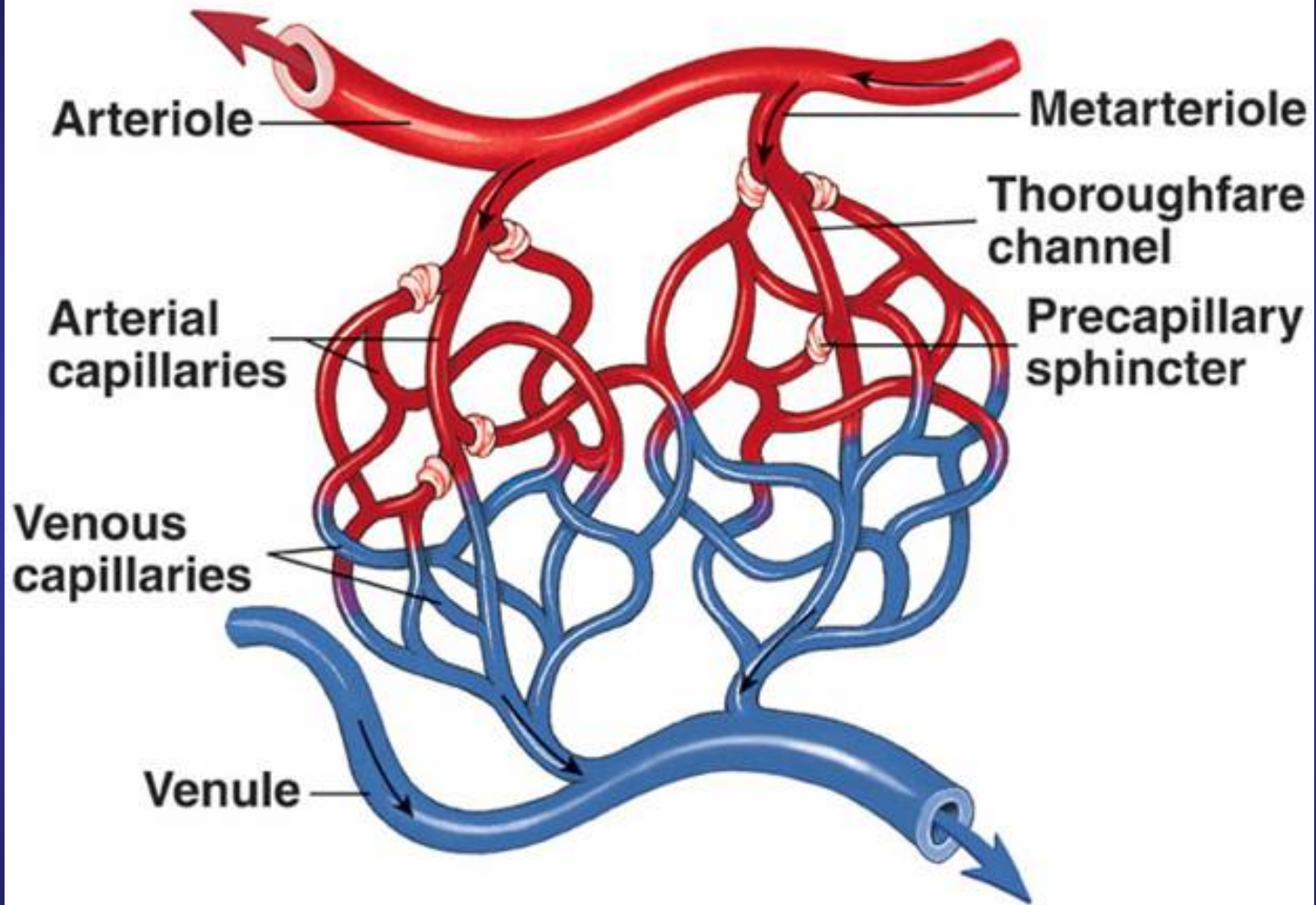
Debated whether arteriolar, capillary, or venule



Pressure needs to be checked in all four compartments of the tibia

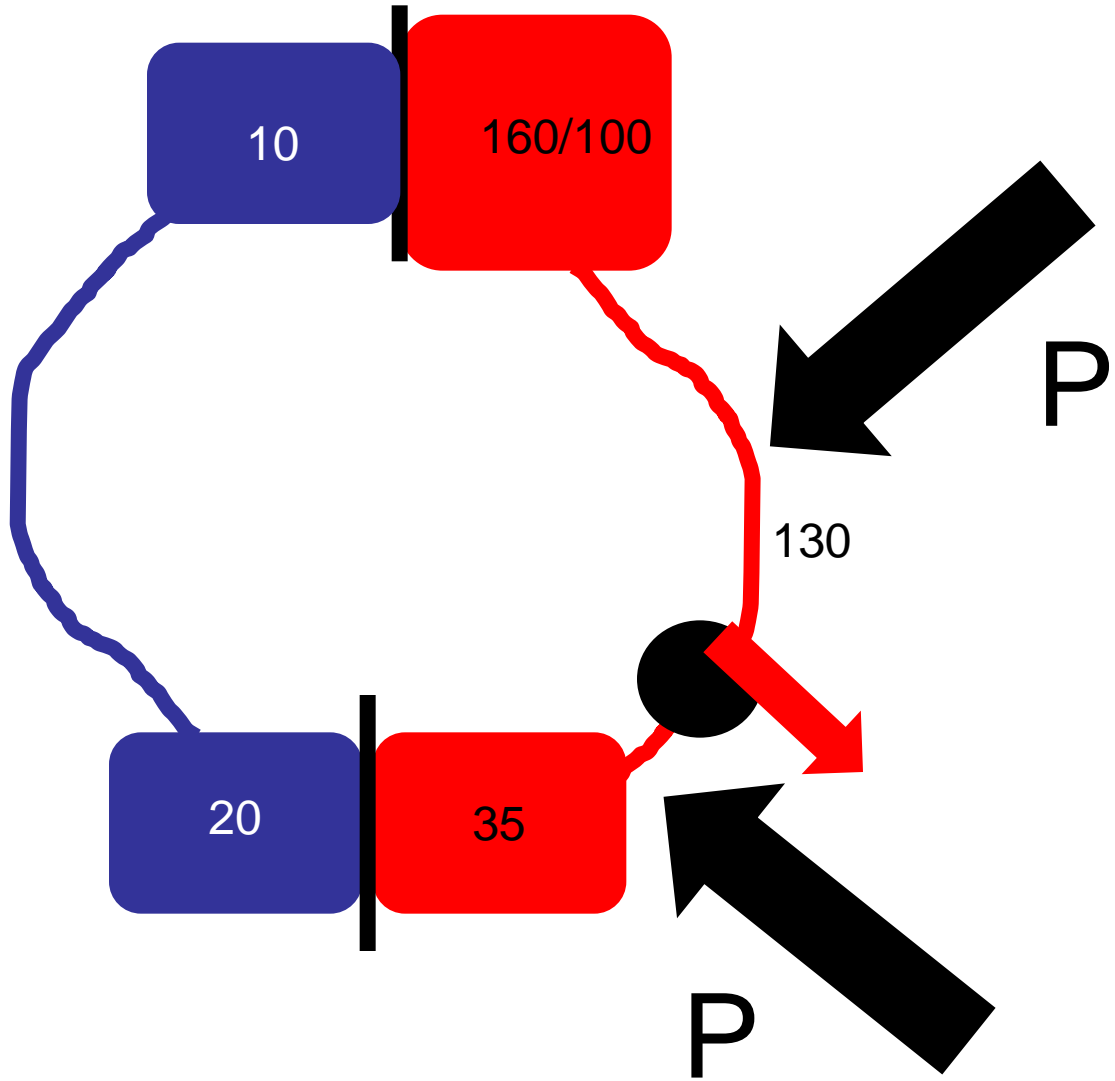






# Compartment Syndrome

- **PAIN.** Especially pain with passive range of motion
- Pink
- Pulses present
- Parathesias and Paralysis: late findings

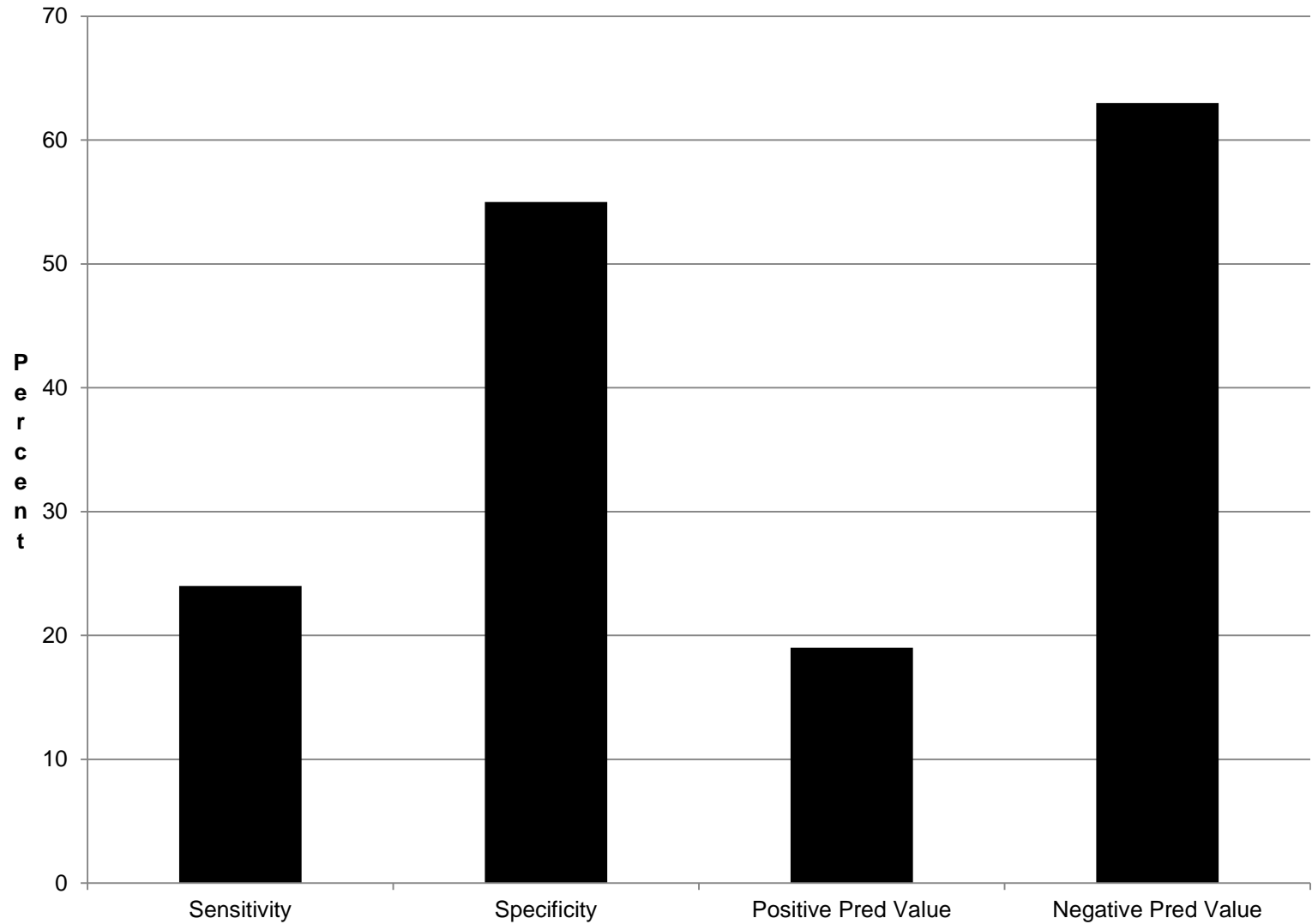




# Diagnosis of Compartment Syndrome

- Clinical diagnosis based largely on the experience of the observer. **YOU MUST HAVE A LOW THRESHOLD TO MAKE THE DIAGNOSIS.**
- Less than a 30 mm difference between compartment pressure and diastolic blood pressure (McQueen et al. J Bone Joint Surg Br. 1996)

# Physical Palpation of Compartment in a Cadaver Leg



# Pressure Measurements

- Affected by tissue compliance
- Very heterogeneous milieu
- Distance from injury
- Be careful. Trust your judgement.
- Error on the safeside.

# Suspected Compartment Syndrome

- If clinical diagnosis made, immediate fasciotomy
- If unsure, measure compartment pressures immediately
- Immediate fasciotomy if any pressure within 20-30 mm of diastolic pressure

# The ICU Obtunded Patient

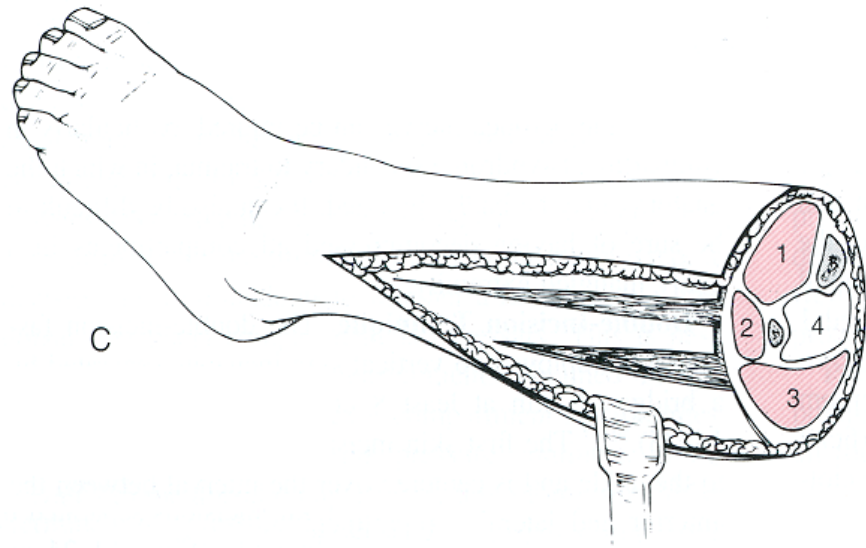
- Must have visual access to the limb
- Continuous monitoring: inconclusive
- Repeated exams
- WATCH diastolic pressures closely
- Move the limb around and see if it is positional

# Repeated ICU Measurements

- Exam, pressure measurements appx every 3-4 hours
- Speak directly with nursing.
- Delta P < 30 mm

# Surgical Principles

- Full length incisions. Bad place for “limited incisions”
- See the nerves
- Don't close the skin.



Pressure needs to be checked  
in all four compartments of  
the tibia

