BLOCKS EVERY AMBULATORY ANESTHESIOLOGIST SHOULD KNOW

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OBJECTIVES

- List those nerve blocks that are most useful in the ambulatory setting
- Discuss the significant advantages of these regional anesthetic techniques
- Describe the clinical pearls and potential pitfalls involved with their use

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BLOCKS WE WILL DISCUSS

- Interscalene
- Supraclavicular
- Paravertebral
- PECS 1 and 2
- Adductor canal
- Popliteal
- iPACK

Advantages

Clinical Pearls

Potential Pitfalls

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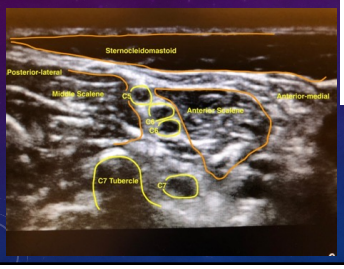
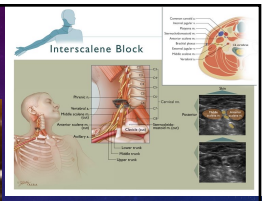
INTERSCALENE





Indications:
- Proximal humerus
- A/C joint
- Lateral 1/3 clavicle

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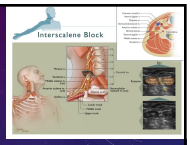
INTERSCALENE



- Advantages
  - Can provide nearly complete analgesia
  - Use of catheter can drastically decrease opioid use
  - Facilitates outpatient arthroplasty
- Pearls
  - C5-C6-C7 can actually be C5-C6-C6
  - Diaphragm hemiparesis may be tolerated by patients with mild lung pathology (need to be able to tolerate 25% decrease in lung function)
  - Numbness in thumb and forefinger = block working

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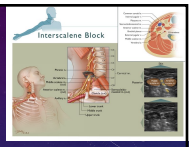
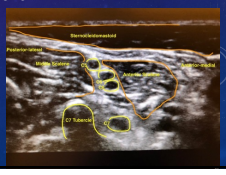
INTERSCALENE



- Potential Pitfalls:
  - Catheter notorious for becoming dislodged
  - Single shot with only LA may be worse than no block
  - Posterior shoulder pain
  - Accidental vascular injury:
    - Transverse cervical artery
    - Vertebral artery



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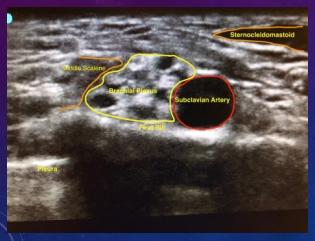
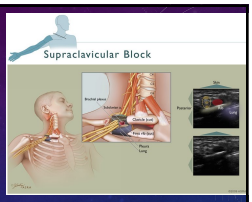
SUPRACLAVICULAR





Indications:
- Arm distal to mid-humerus

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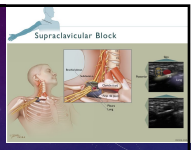
SUPRACLAVICULAR



- Advantages:
  - Reliable, complete anesthesia of arm
- Pearls:
  - Do this block using a 3-in-1 method (above, lateral, and below artery)
  - **Decreased** incidence of hemi-diaphragmatic paresis

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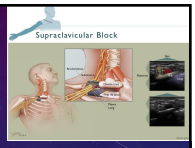
SUPRACLAVICULAR



- Pitfalls: 😱
  - Not waiting long enough for complete anesthesia (site-dependent)
  - Recognize that some ulnar sparing can occur

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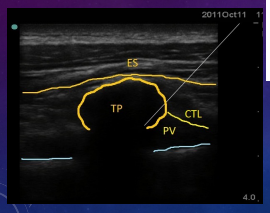
PARAVERTEBRAL (PVB)



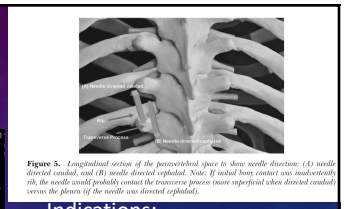


Figure 5. *Longitudinal section of the paravertebral space to show needle direction: (A) needle directed caudad, and (B) needle directed cephalad. Note: If initial bony contact was inadvertently nb, the needle would probably contact the transverse process (more superficial when directed caudad) versus the pleura (if the needle was directed cephalad).*

Indications:
- Breast surgery,
- Ventral hernia,
- Any thoracic/abdominal wall surgery

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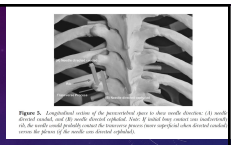
PARAVERTEBRAL (PVB)



- Advantages:
  - Enhanced recovery, decreased pain, decreased opioid compared to inhaled
- Pearls:
  - The closer to the target, the more effective the block
  - No pop, no [highly effective surgical] block (cross the CTL)

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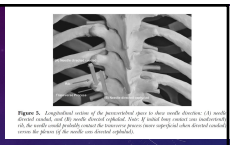
PARAVERTEBRAL (PVB)



- Pitfalls: 😱
  - Assuming the patient has sensory deficit
  - Pneumothorax (0.5%)
  - Vascular puncture (3.8%)
  - Not heeding ASRA anticoagulation guidelines

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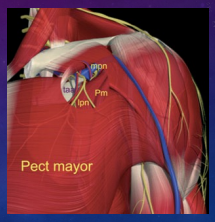
PECS 1 & 2

Indications:

- breast surgery
- sub-pec pacemakers
- portacaths
- chest injuries



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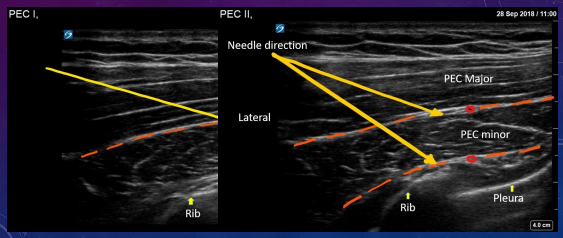
PECS 1 & 2



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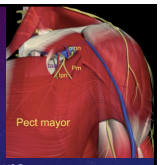
PECS 1 & 2

- Advantages:
  - Not as invasive as PVB
  - Adequate for more limited surgical exposure
  - Most reliable of fascial plane blocks
- Pearls:
  - Look for elliptical spread of LA (vs globular spread)
  - Do PECS 2 first



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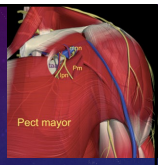
PECS 1 & 2

- Pitfalls: 😱
  - Avoid the thoraco-acromial artery
  - Do not use as surgical anesthetic
  - Not a contraindication for surgical field infiltration



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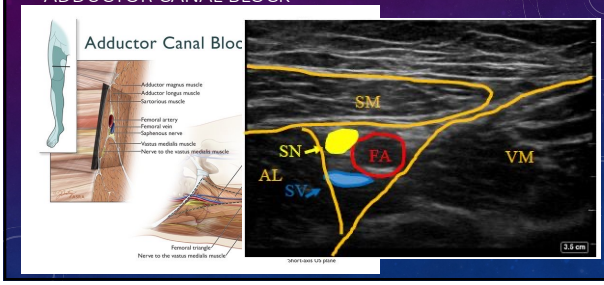
ADDUCTOR CANAL BLOCK



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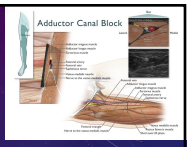
ADDUCTOR CANAL BLOCK

- Indications:
  - TKA
  - knee ligament repair
  - superficial surgery distal anterior thigh or medial leg
  - distal femur



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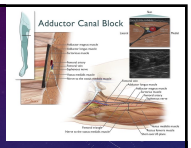
ADDUCTOR CANAL BLOCK



- Advantages:
  - Little/no motor block
- Pearls:
  - Use midpoint of thigh as starting point. May then need to move probe cephalad.
  - 10-15 ml LA enough

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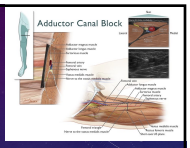
ADDUCTOR CANAL BLOCK



- Pitfalls: 😱
  - High volume blocks more likely to lead to motor block
  - Be aware that one may not be able to see saphenous nerve
    - DON'T POKE AROUD REPEATEDLY INTO AC

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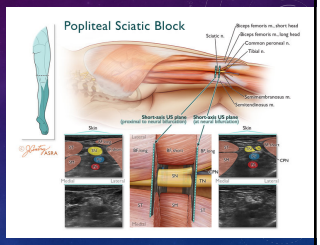
POPLITEAL

Indications:
- Ankle arthroplasty
- Bony work of ankle / proximal foot
- Achilles tendon
- Gastrocnemius recession
- Tibia/fibula repair
- ACL (?)
- TKA (?)



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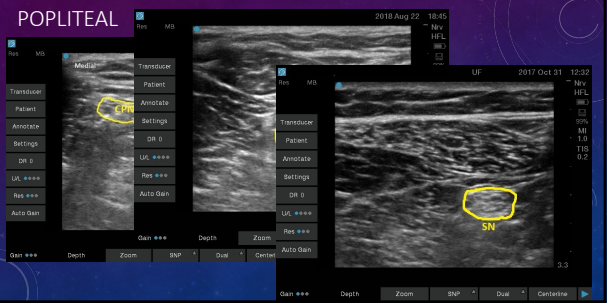
POPLITEAL



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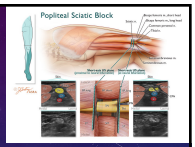
POPLITEAL



- Advantages:
  - Analgesia of majority of leg
- Pearls:
  - Visualize the sciatic bifurcation; block cephalad to it
  - Saphenous (e.g. adductor) block may still be required

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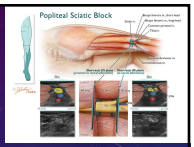
POPLITEAL



- Pitfalls: 😱
  - Significant motor weakness of LE distal to knee should be expected
  - Probably one of most challenging needle movements to learn well

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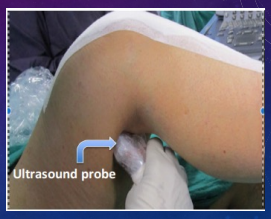
IPACK

Indications:
- TKA
- ACL
- Posterior knee surgery



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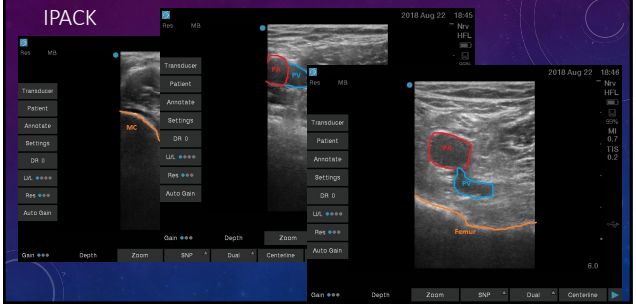
IPACK



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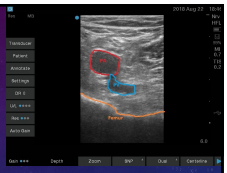
IPACK

- Advantages:
  - No motor blockade
- Pearls:
  - Use 3-step technique (lateral-medial-cephalad)
  - Either linear or curvilinear probe



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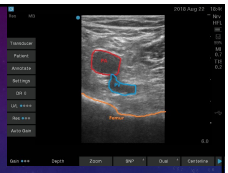
IPACK

- Pitfalls: 😱
  - May not be possible in all patients
    - Depth
    - Distance between popliteal artery and femur
  - Evidence is still forthcoming



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SUCCESS!

- Know the block
- Know your patient
- Adjust as needed

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REFERENCES

- https://members.asra.com/image-gallery/
- Ardon AE, Prasad A, McClain RL, Melton MS, Nielsen KC, Greengrass RA. Regional anesthesia for the ambulatory anesthesiologist. Anesthesiol Clin. 2019; 37(2): 265-287.

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