

Decreasing Opioid use in the Perioperative Period

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Disclosures

I have no financial relationships to disclose

Multimodal Approach

- Opioids
- Non-opioids
- Local anesthetics
- Peripheral Cryoneurolysis

Opioids

- Effective
- BUT!
 - Addictive
 - Nausea
 - Zofran, Phenergan, Marinol
 - Constipation
 - Stool softeners, Laxatives, OIC antagonists
 - Confusion

Non-opioids

- Tramadol
- Cymbalta
- NSAIDS
- Muscle Relaxers

Local Anesthetics

- Short acting <24 hours
 - BKK, ropi-epi-toradol
 - Peripheral nerve block
- Long acting
 - Pain Pumps
 - Liposomal bupivacaine
 - Bupivacaine & meloxicam -extended relief

Pain Pumps

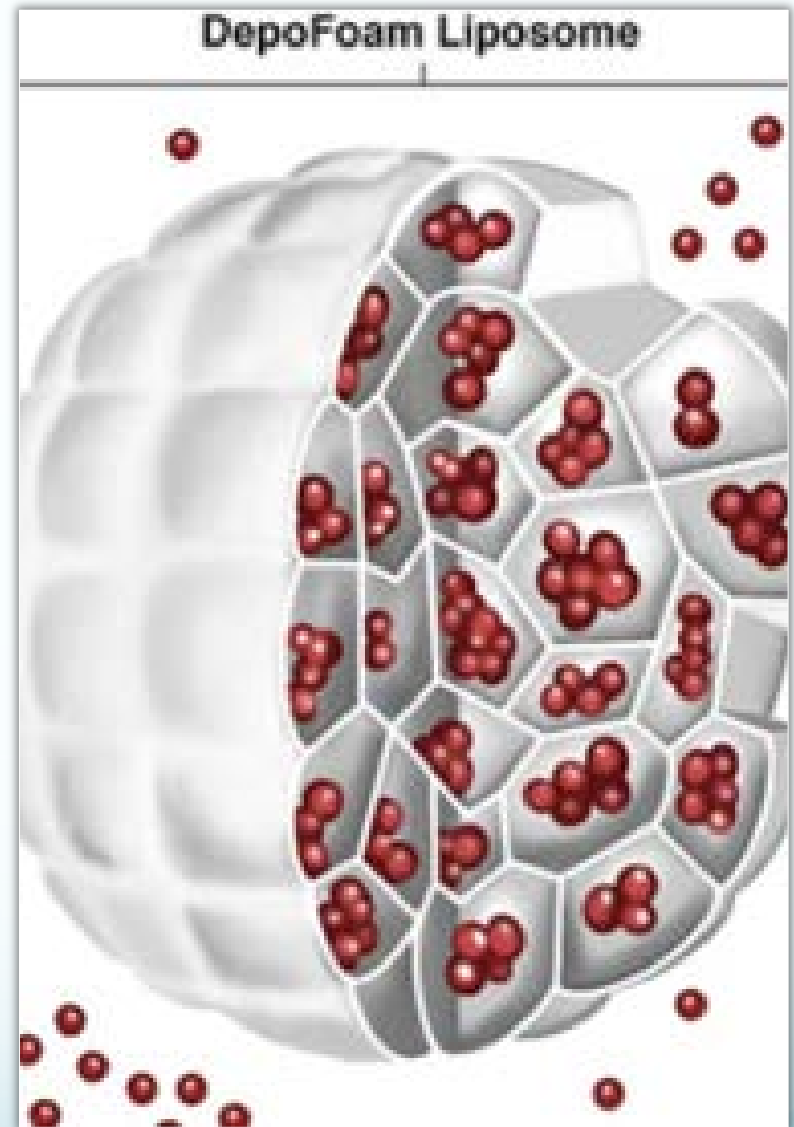
- Effective
- Cumbersome
- Inefficient placement with time delays

Liposomal Bupivacaine

- Up to 72 hours
- Expense
- Technique dependent
- Injection fatigue

Liposomal Bupivacaine

20 ml exparel
combined with up to
133 mg free
bupivacaine & 100cc
injectable saline



Bupivacaine and Meloxicam

- Slow release from a polymer for up to 72 hours of delivery



Peripheral Cryoneurolysis

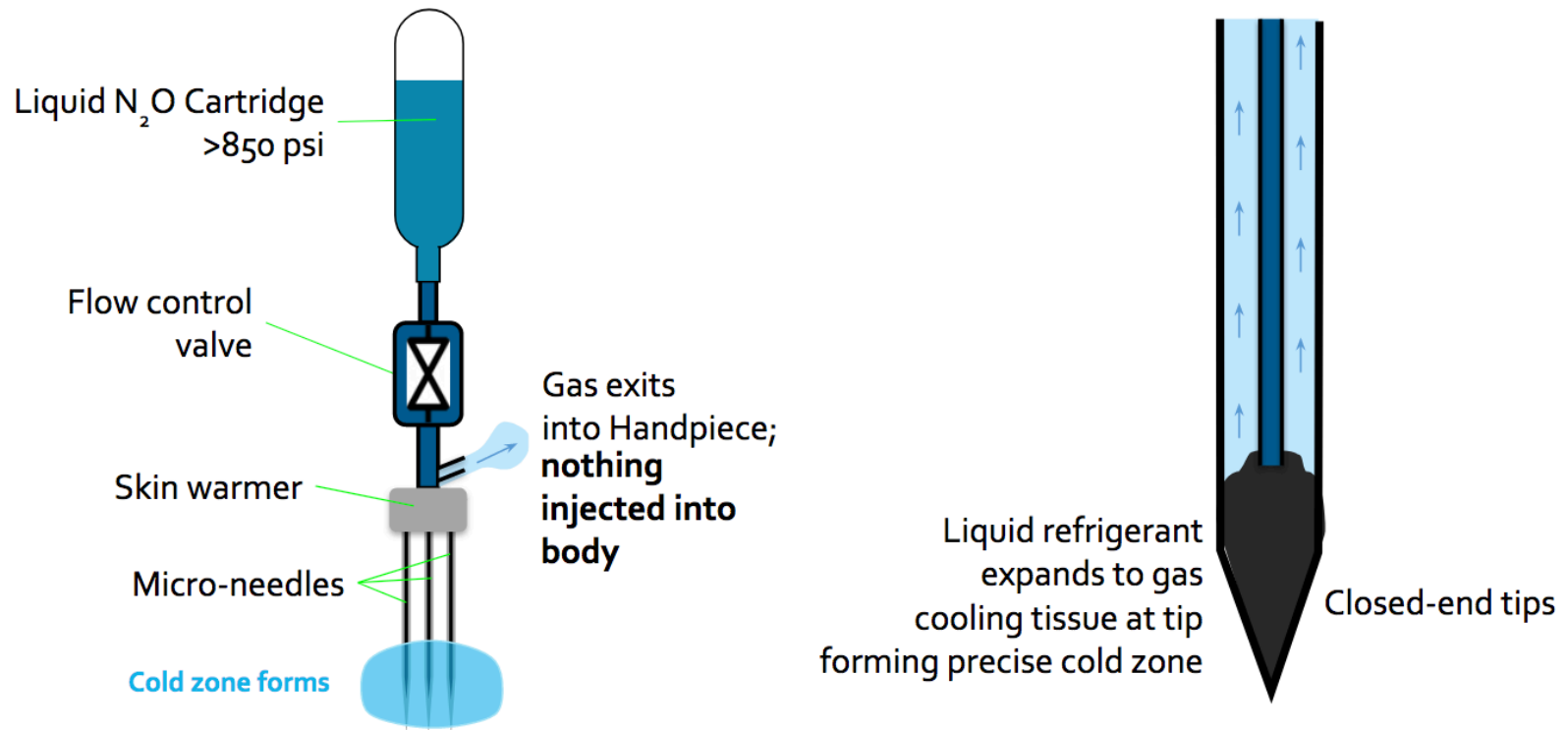
Sunderland Nerve Injury Classification¹⁻³

Reversible	
1st Degree Neuropraxia – Interruption of conduction; Short recovery time	+10°C to -20°C
2nd Degree Axonotmesis – Loss of axon continuity with preservation of endo-, peri-, and epineurium; Wallerian degeneration	-20°C to -100°C <i>iovera° (-88° C)</i>
Non Reversible	
3rd/4th Degree Neurotmesis – Loss of axon continuity; Endoneurium damage; Perineurium damage (4 th degree); Epineurial sheath may be intact; Wallerian degeneration	-140°C and colder <i>Not possible with iovera°</i>
5th Degree Transection (Severe Neurotmesis) – Gross loss of continuity	<i>Not possible with iovera°</i>

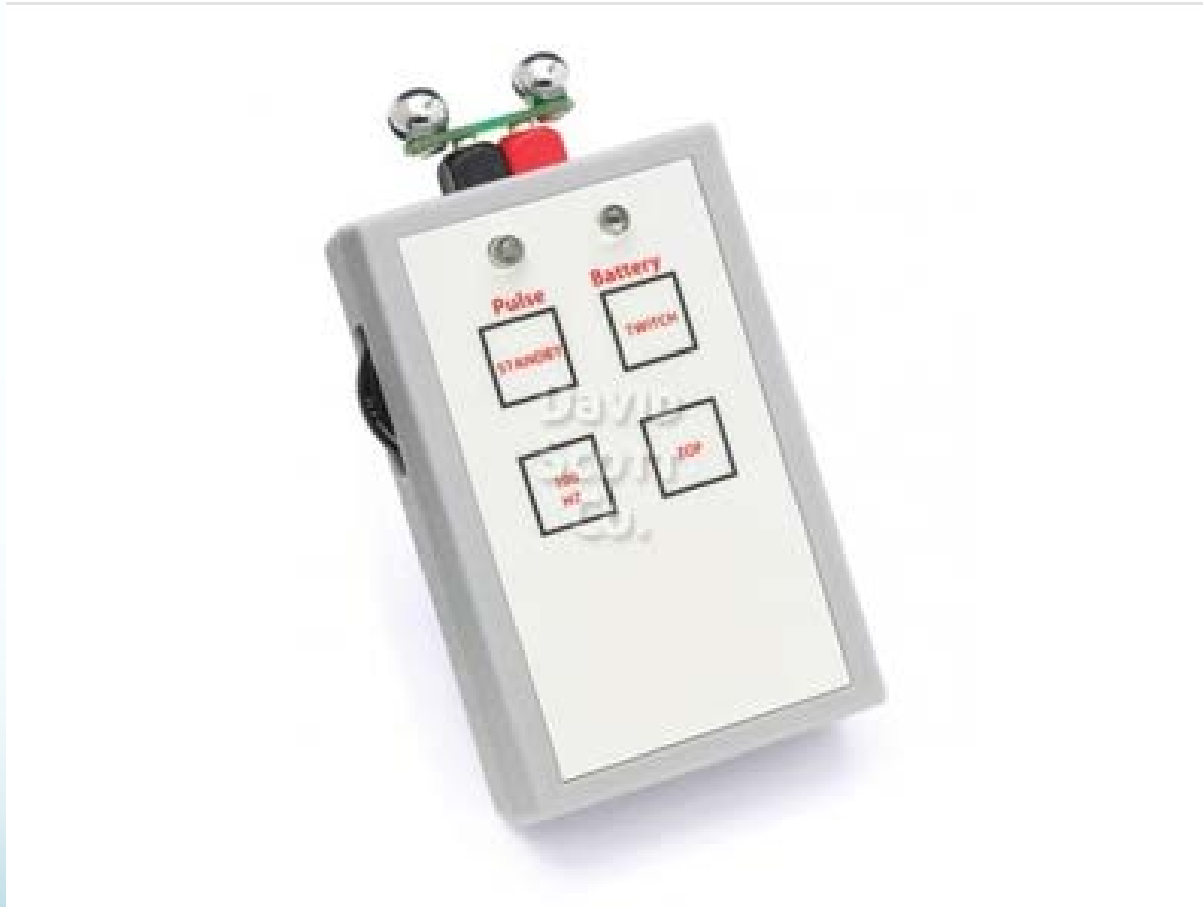
1. Seddon H. *Brain: A Journal of Neurology*. 1943;66(4):237-288; 2. Sunderland S. *Nerves and Nerve Injuries*. Edinburgh & London: Livingstone; 1968;
 3. Ilfeld BM, et al. *Expert Rev Med Devices*. 2016;13(8):713-725.

Iovera

Method of Operation



Nerve Stimulator

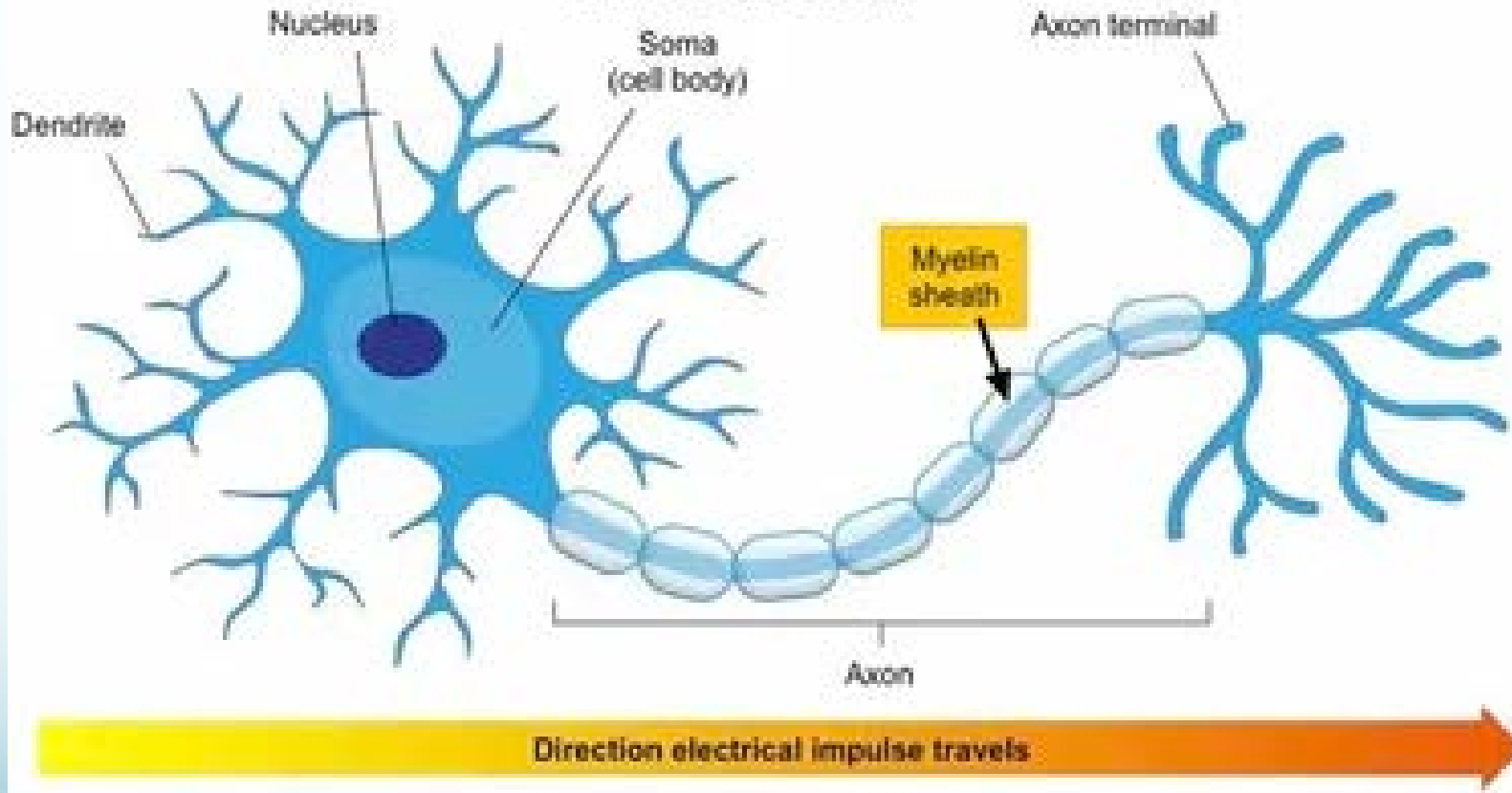


Handheld Ultrasound

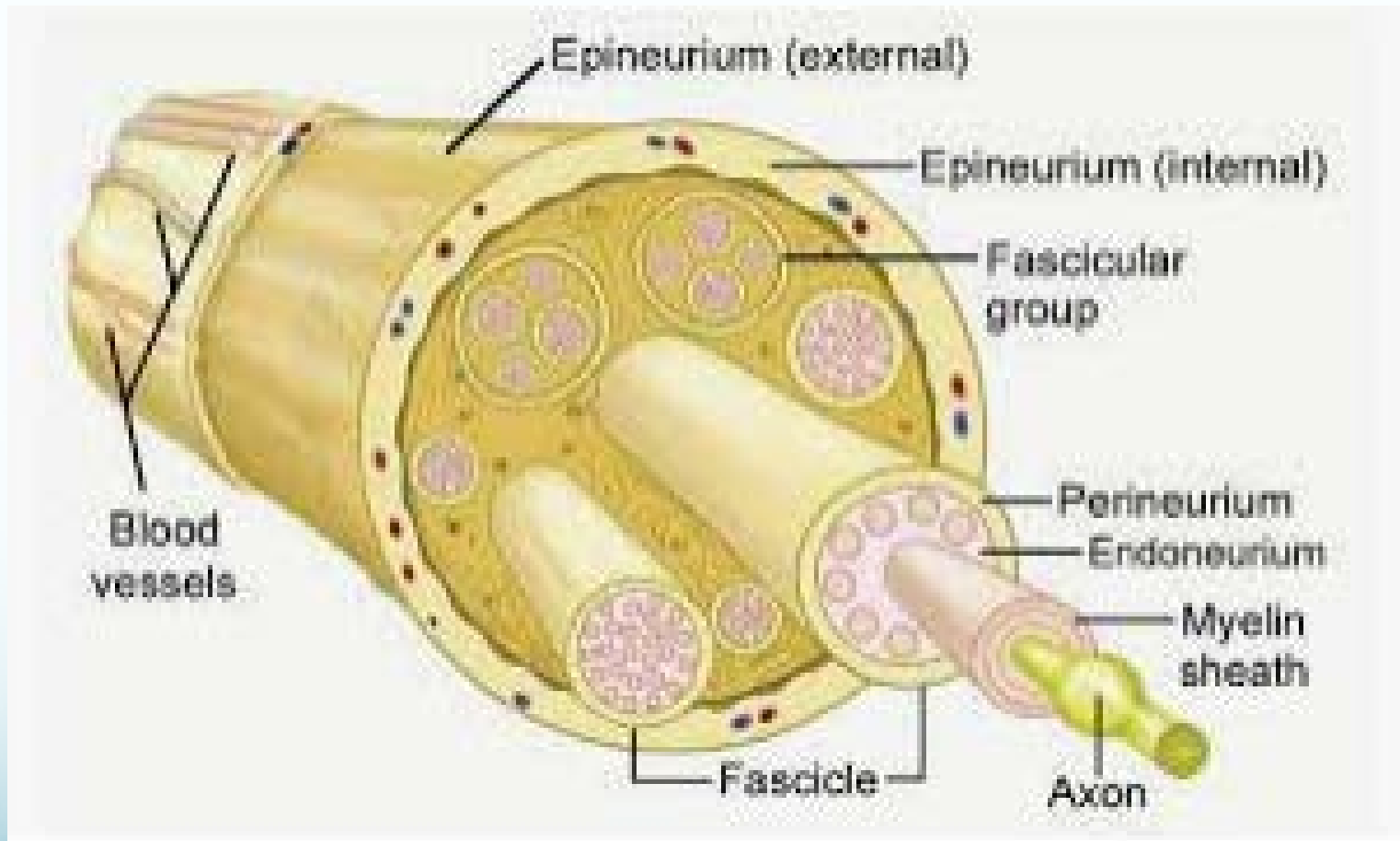


Peripheral Nerve Anatomy

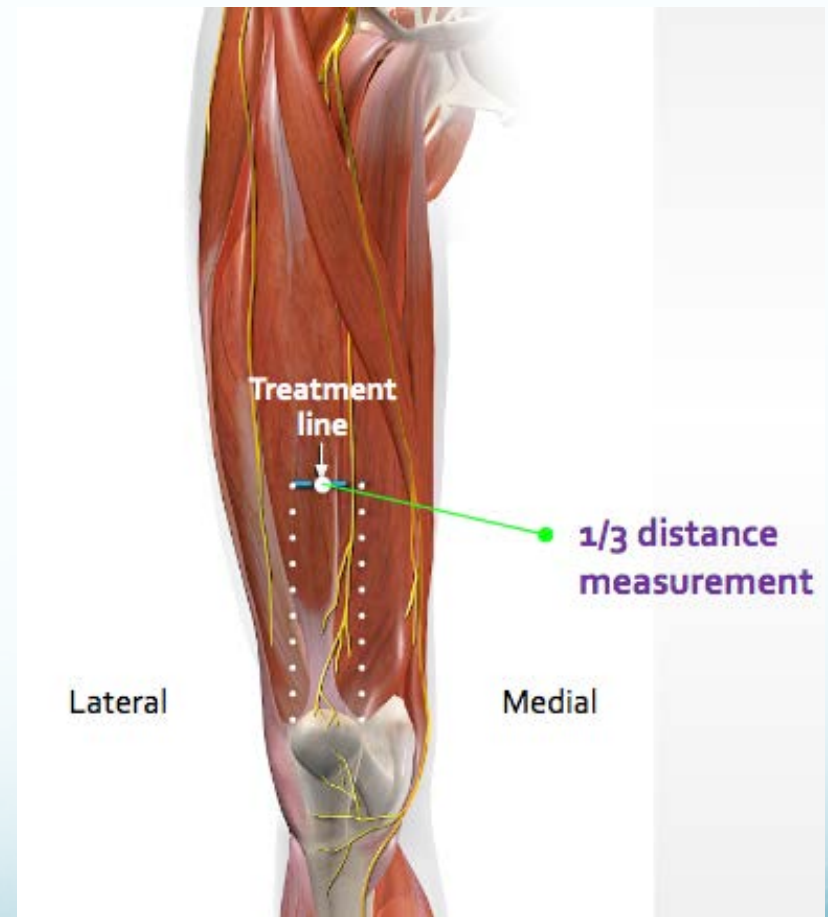
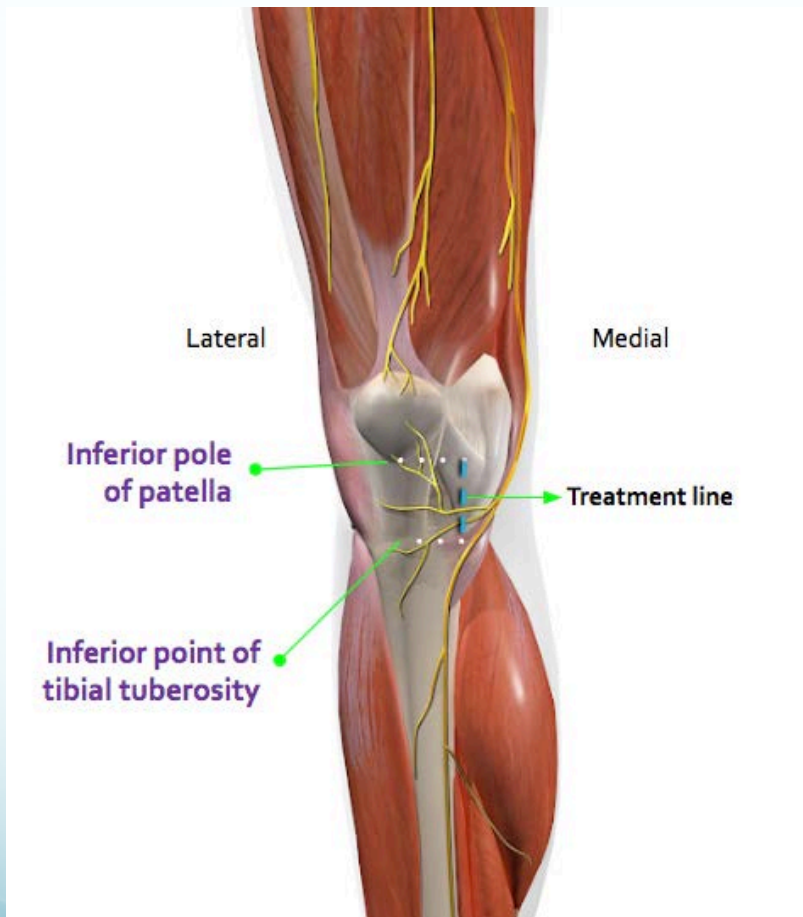
Neuron



Peripheral Nerve Anatomy



Treatment Area



Treatment Sites



Anterior Femoral Cutaneus



Branch of Saphenous



Thank You

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