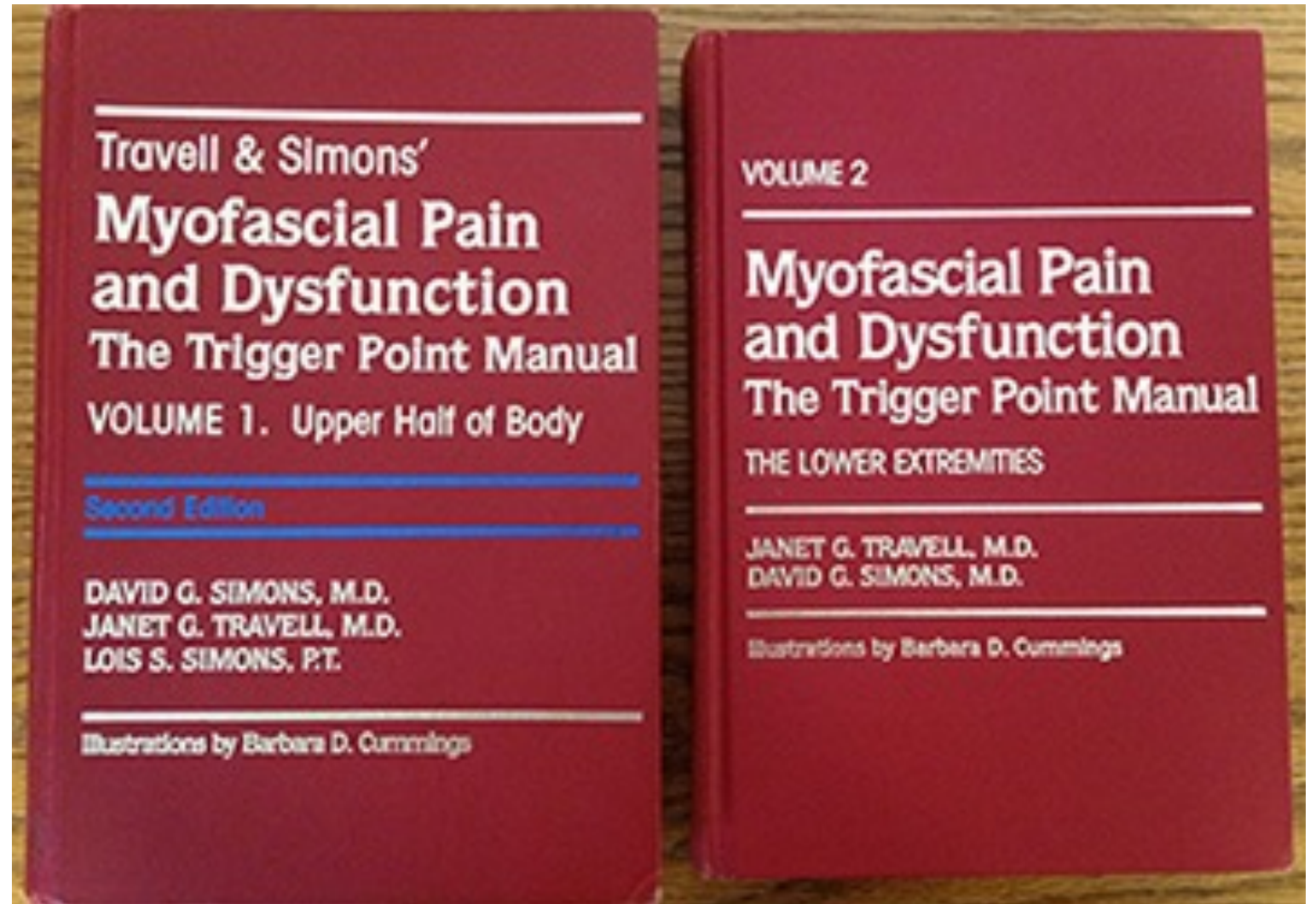


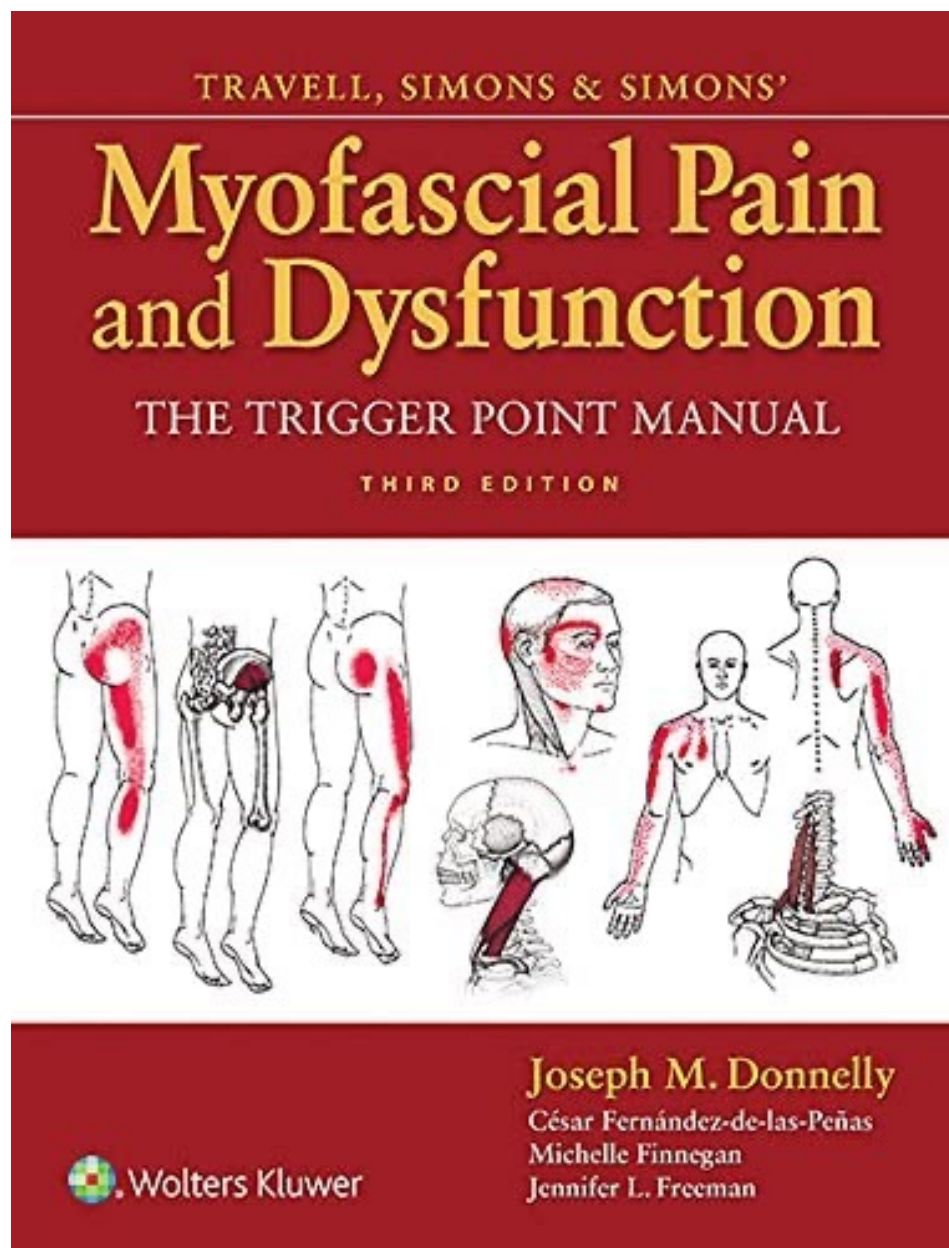
Trigger Point Dry Needling Core Concepts Pre-Seminar Material

Pre-Requisite Presentation for Trigger Point Dry Needling Seminars

Janet Travell,
MD and
David
Simons



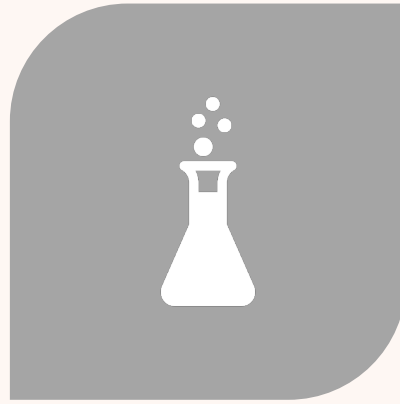
Latest
Edition



About the latest edition



EXPANDED SCIENCE AND LATEST
WORKING THEORIES/HYPOTHESES



LATEST ON PAIN SCIENCE



MORE STUDIES AND CITATIONS

Goals of this presentation & seminar



Keep it simple

There is a lot of information out there –
easy to get confused or overwhelmed



Keep it clinical

Focus on what is necessary to start
treating myofascial trigger points

What you need to get results

Focus on being safe



Only offer what it needed to get started



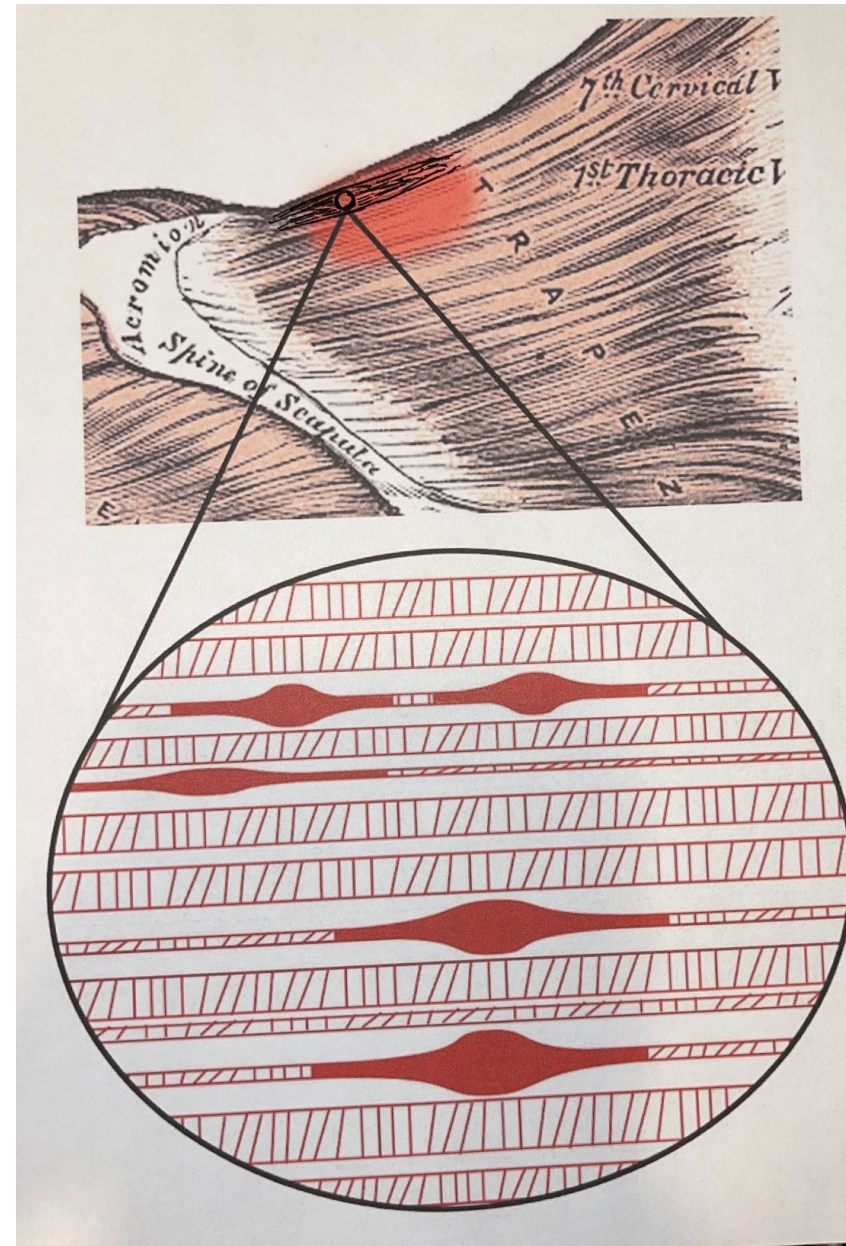
Learn in a logical sequence with a solid foundation

What is a trigger point?

- A Trigger Point (TrP) is a hyperirritable spot, a **palpable nodule** in the **taut bands** of the skeletal muscles' fascia. Direct compression or muscle contraction can elicit **jump sign**, local tenderness, **local twitch response** and **referred pain** which usually responds with a pain pattern **distant from the spot**.

1. Simons DG, Travell JG, Simons LS. Travell & Simons' myofascial pain and dysfunction: upper half of body. Lippincott Williams & Wilkins; 1999.[1][2]
 2. Jump up to: 2.0 2.1 2.2 Alvarez DJ, Rockwell PG. Trigger points: diagnosis and management. American family physician. 2002 Feb 15;65(4):653-62.[3]
 3. Jump up to: 3.0 3.1 Davidoff RA. Trigger points and myofascial pain: toward understanding how they affect headaches. Cephalalgia. 1998 Sep 1;18(7):436-48.[4]
 4. Eduardo Vázquez Delgad, et al. Myofascial pain syndrome associated with trigger points: A literature review. (I): Epidemiology, clinical treatment and etiopathogeny Med Oral Patol Oral Cir Bucal. 2009 Oct 1;14(10):494-498.[5]
- www.physio-pedia.com

Anatomy of a taut band & trigger point



What is a taut band

- Definition: “The taut band is **the first sign of the muscular response to biomechanical stress**. This can lead to the formation of latent trigger points, which can eventually evolve into active trigger points.”
- Taut band/TrP have same causes; TrP is a progression of conditions
- Physio-pedia.com

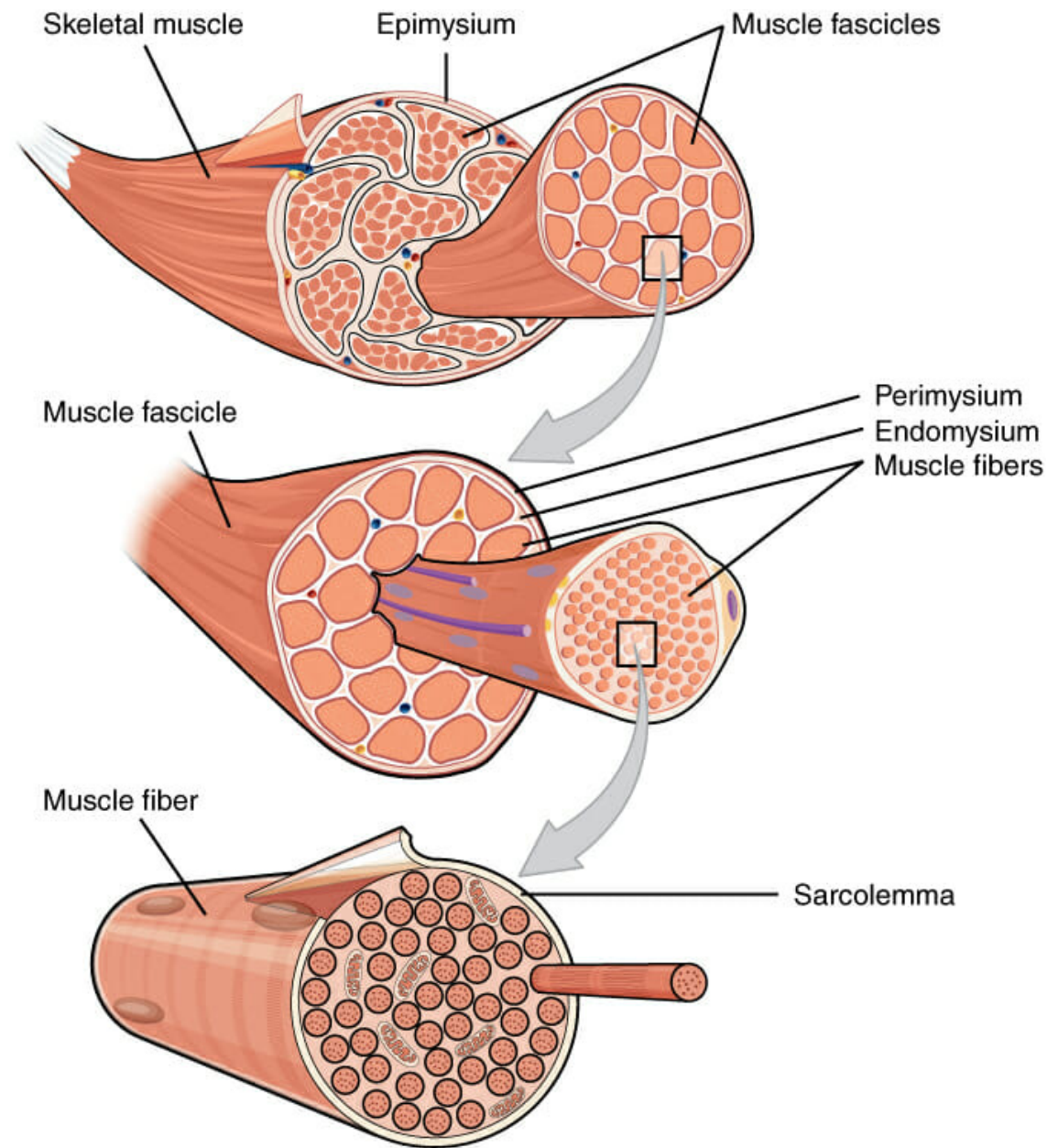
Clinical diagnostic criteria for trigger points

- Dr. Janet Travell:
 1. Palpable taut band (if muscle is accessible)
 2. Exquisite spot tenderness of a nodule in a taut band
 3. Patient's recognition of current pain complaint by pressure on the tender nodule (identifies an active trigger point)
 4. Painful limit to full stretch ROM
 5. Pain or altered sensation in the distribution expected from a TrP in that muscle, on compression of the tender nodule

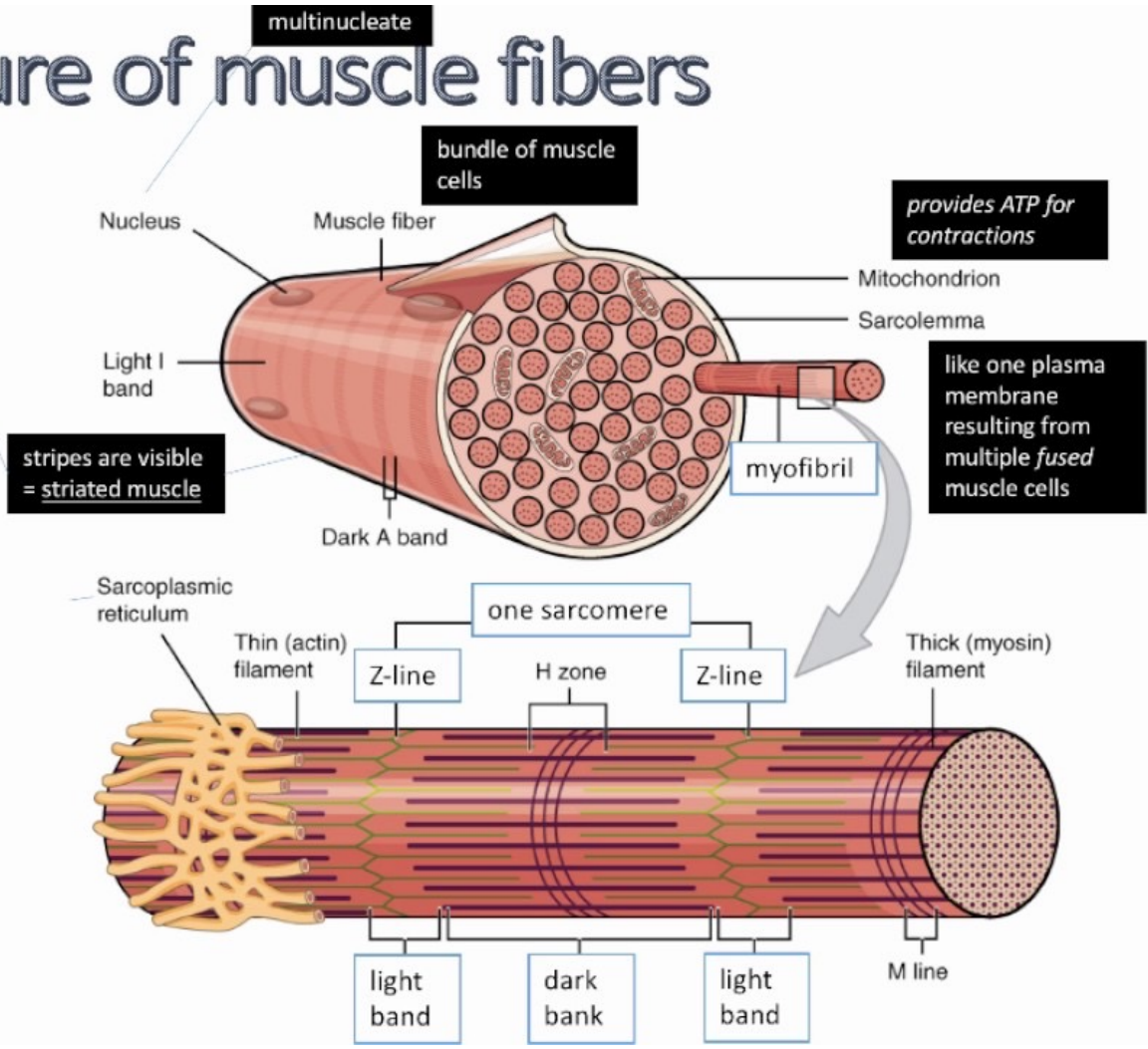
Clinical diagnostic criteria – What this means to you

- Develop palpation skills and heightened sense of touch
- Know your muscles and depths
- Be able to “feel” with the needle
- Must be able to palpate, locate, and needle trigger points effectively and safely


Anatomy of muscle review

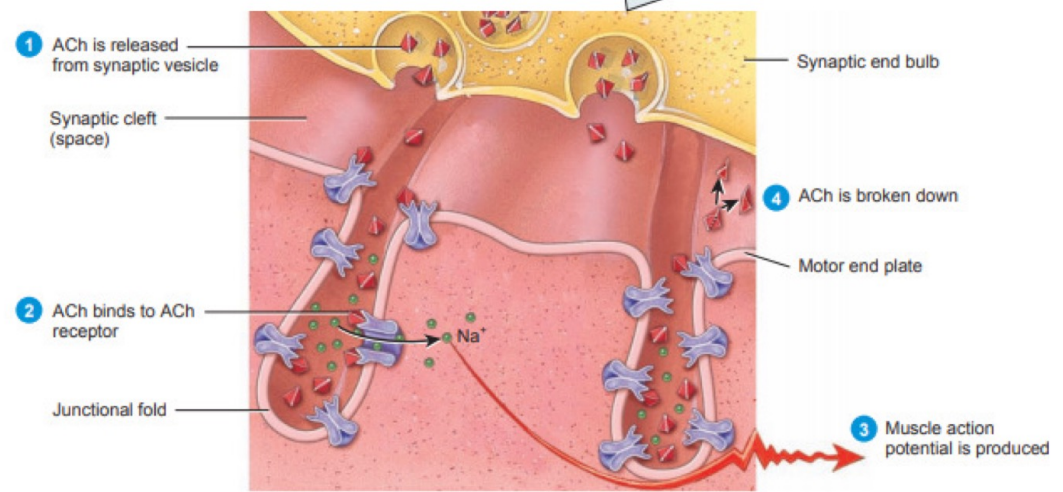
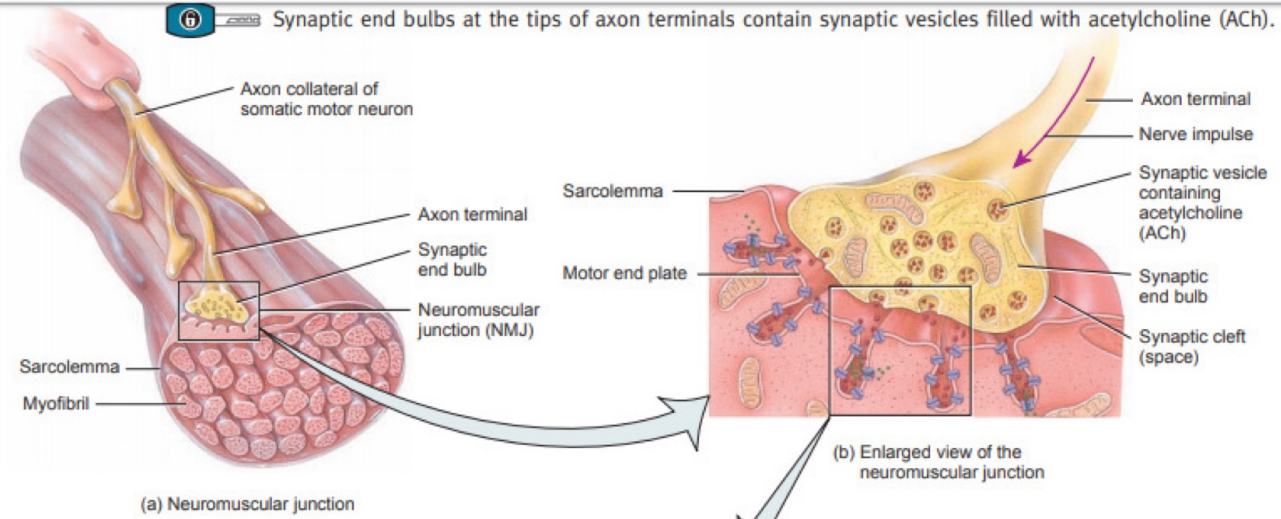


Structure of muscle fibers



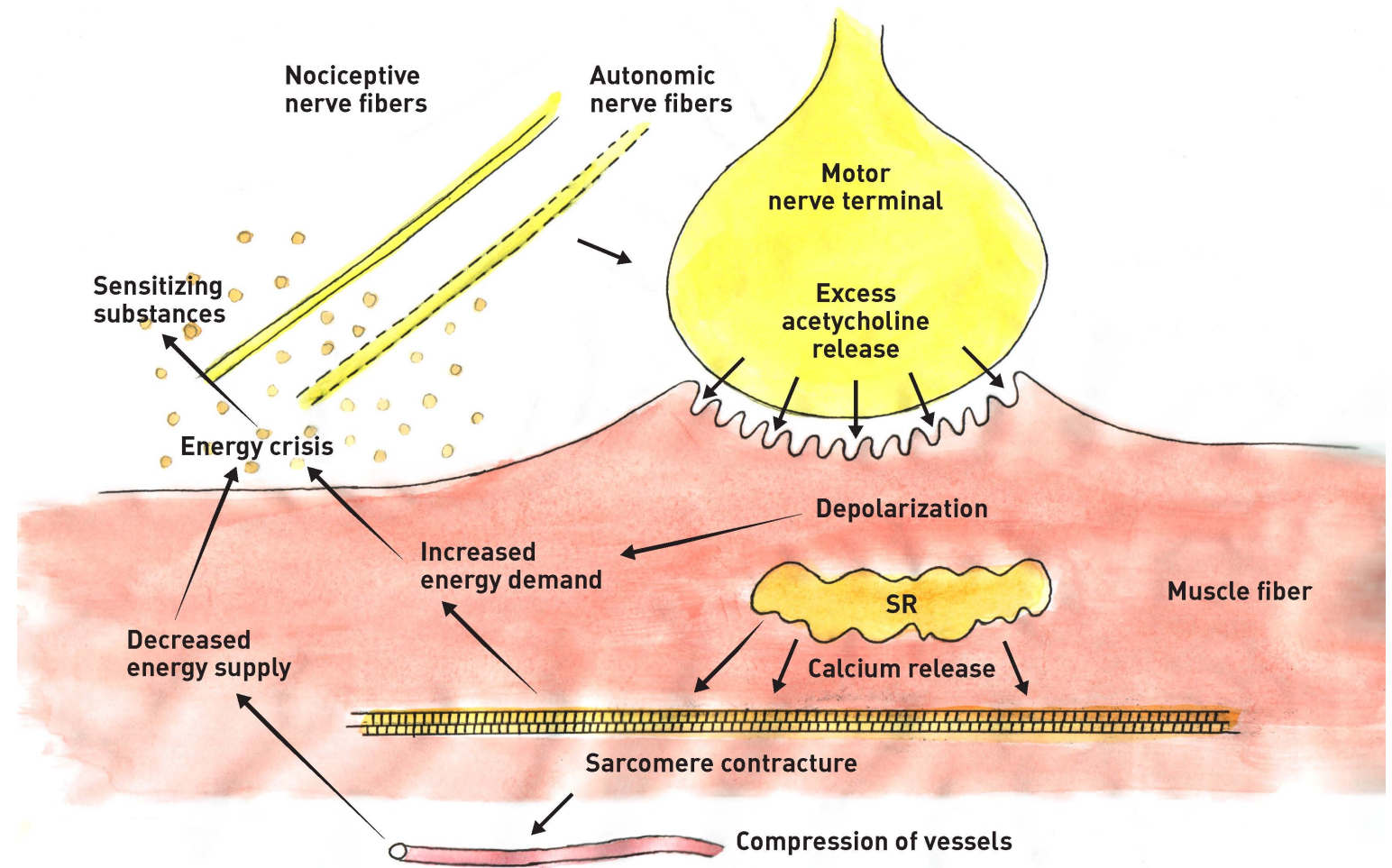
Neuromuscular junction/motor endplate

 Synaptic end bulbs at the tips of axon terminals contain synaptic vesicles filled with acetylcholine (ACh).



(c) Binding of acetylcholine to ACh receptors in the motor end plate

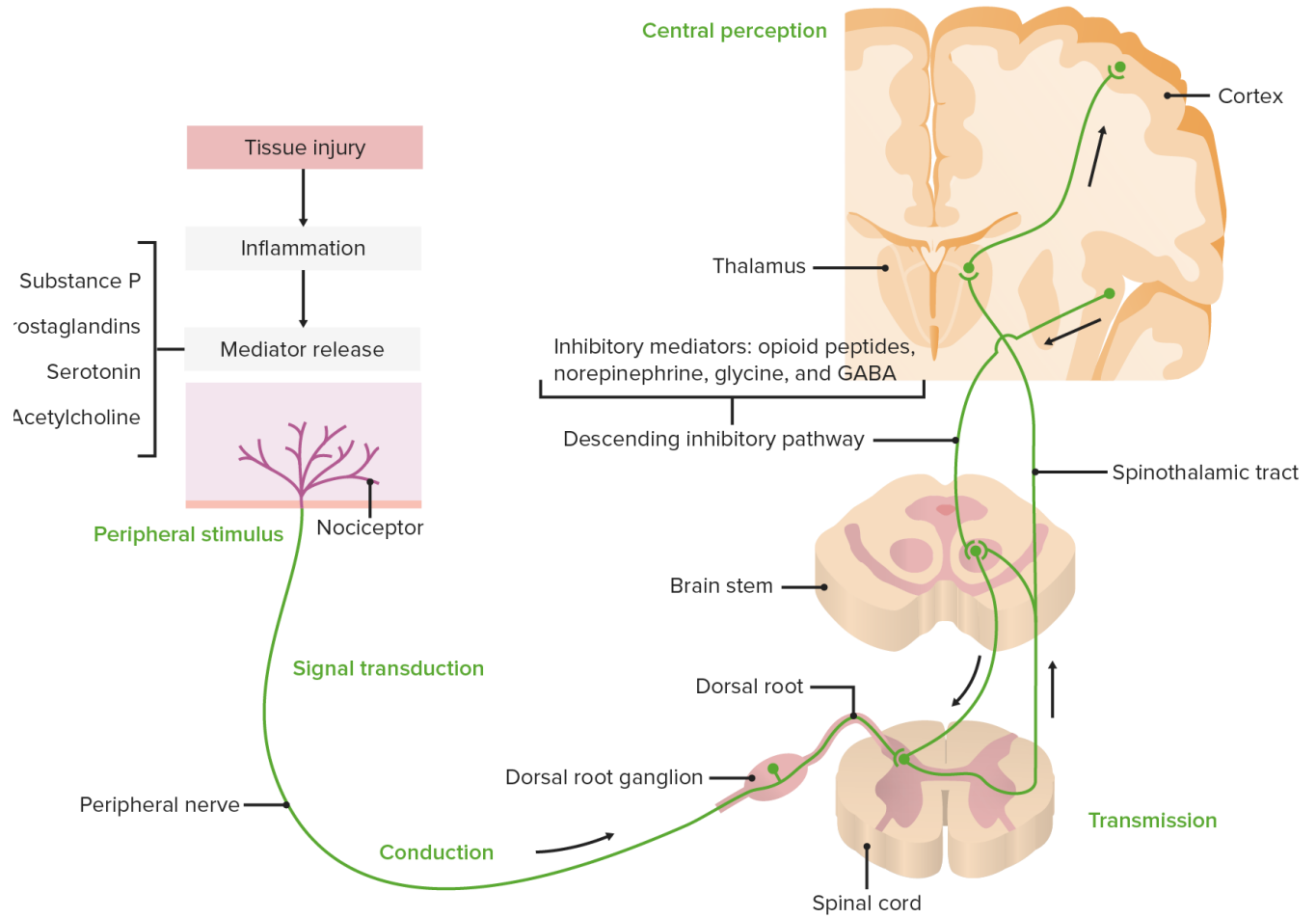
Physiology of a TrP: Dysfunctional motor endplate



Summary

- Muscle overload (from variety of causes and perpetuating factors)
- Increased ACh activity
- Increased motor endplate noise (m. contraction)
- Reduced blood flow/ischemia
- Decreased metabolic capability; ↓ ATP
- Increased Ca^{2+} in cytosol
- Increased inflammatory and sensitization substances
- Increased peripheral sensitization / reduced threshold
- Cycle repeats

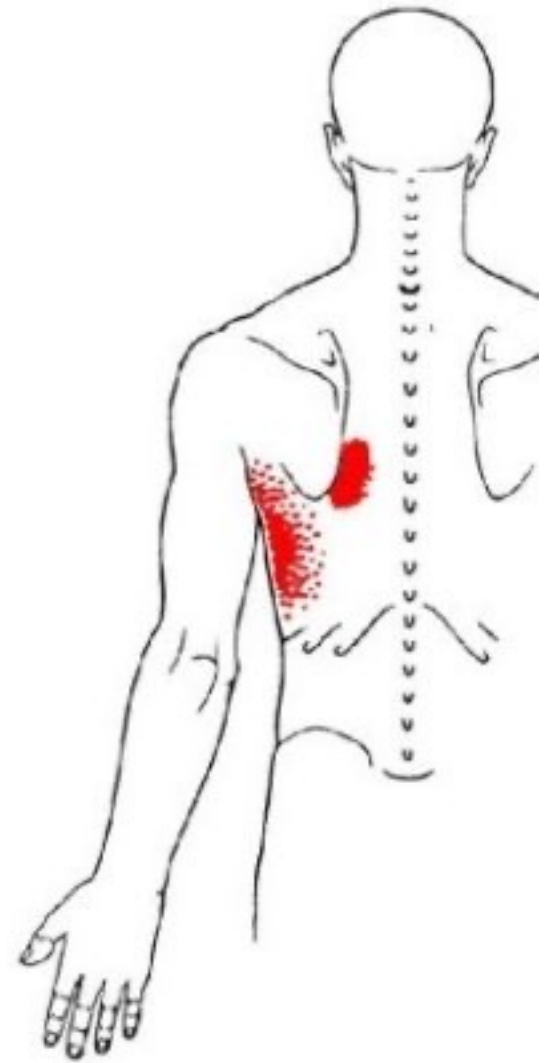
Peripheral and Central Pain Paths



Peripheral sensitization caused by a TrP

- TrP forms and causes peripheral sensitization
 - Continuous stimulation of a nociceptor results in hyperalgesia
 - Threshold for delivering pain signals drops
 - Typically non-noxious stimuli becomes noxious
 - Continues & worsens the cycle and unable to self-resolve

Referred pain from TrPs

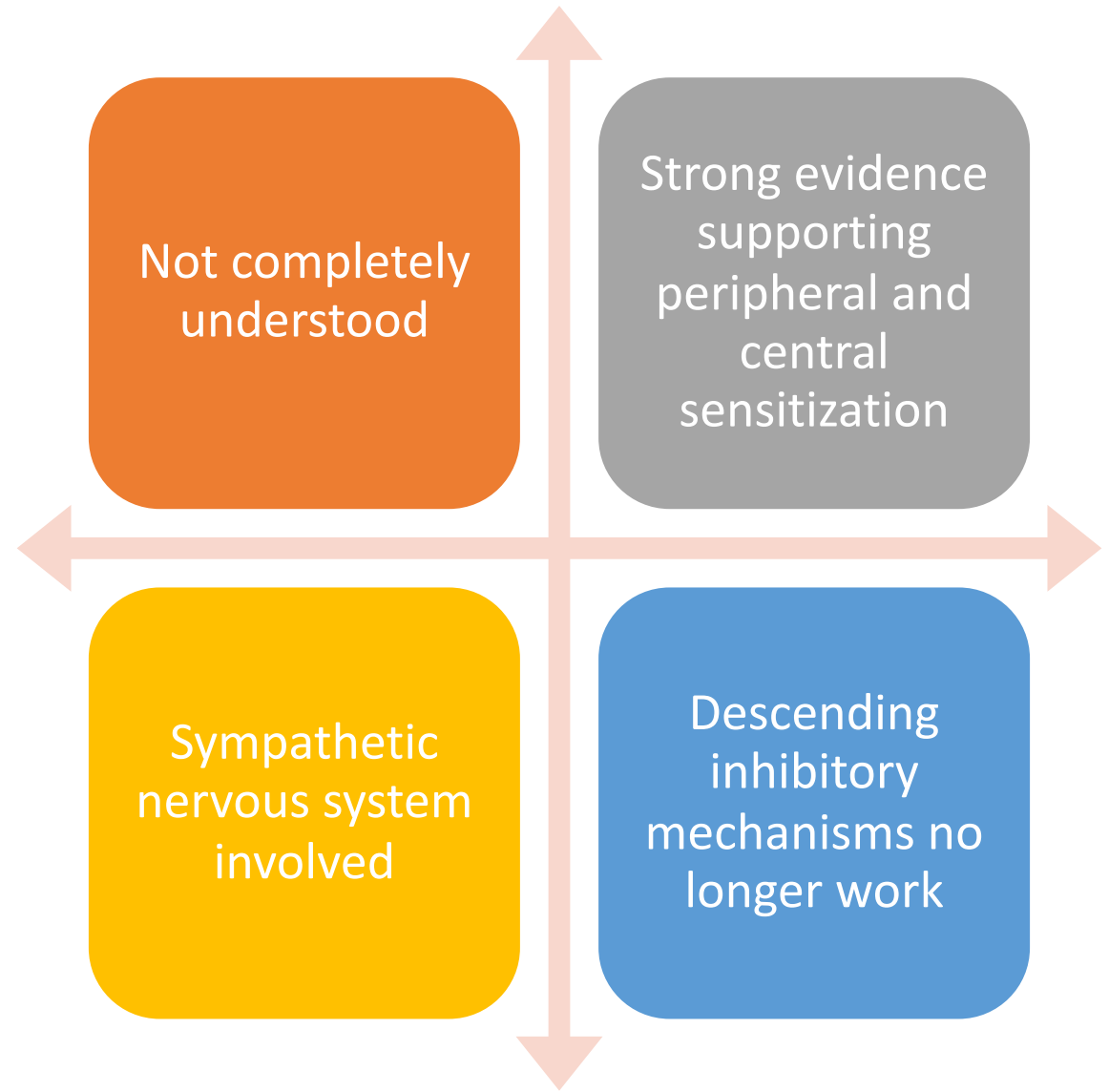


Referred pain

Definition: Pain experienced in a region other than the source of pain

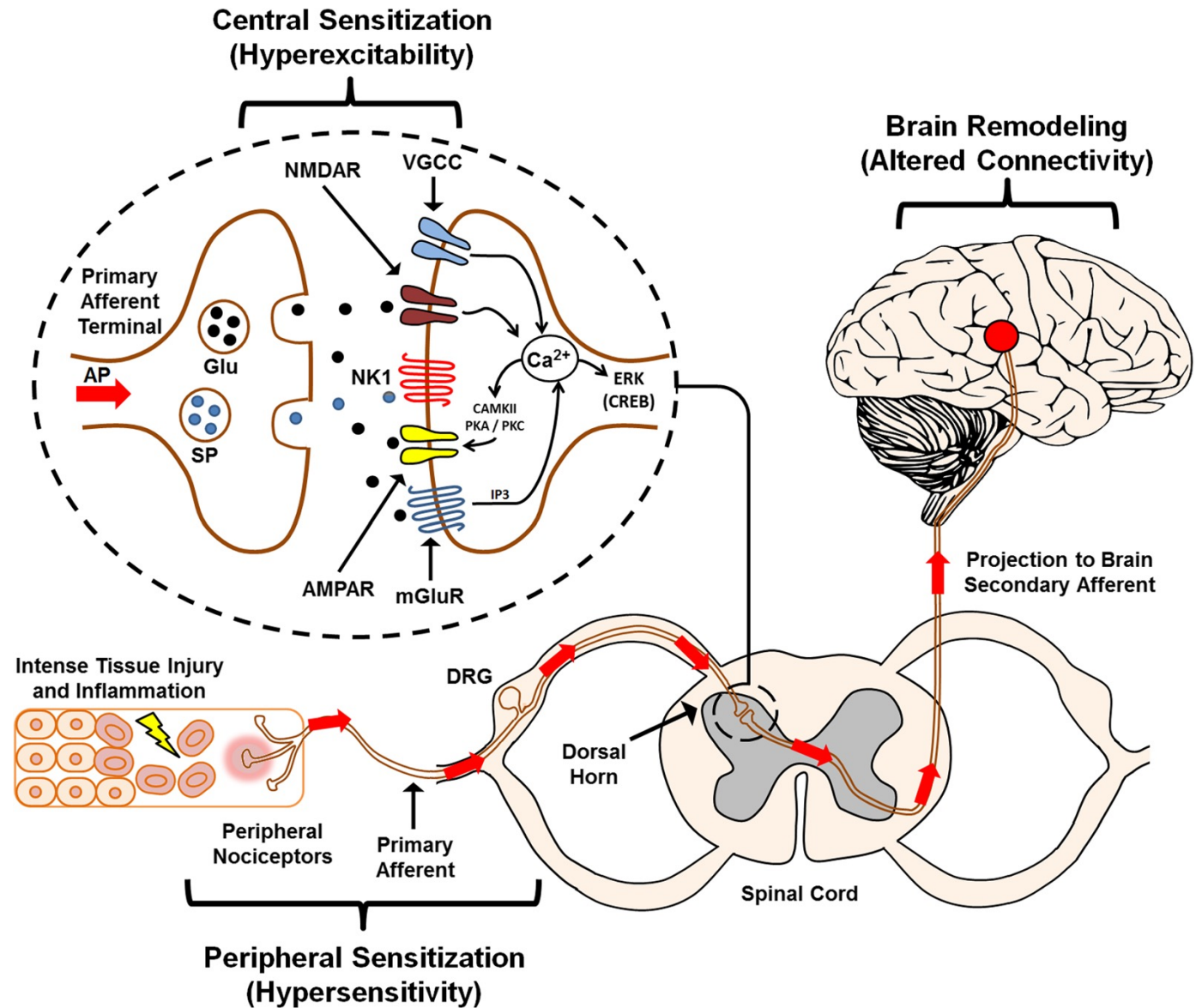
Typically the referred area is distal to the site causing the pain

Theories and hypotheses on pain referral, summary



Prevailing theory for cause of referred pain – Central Sensitization

Bazzari, A.H., Bazzari, F.H. Advances in targeting central sensitization and brain plasticity in chronic pain. *Egypt J Neurol Psychiatry Neurosurg* 58, 38 (2022). <https://doi.org/10.1186/s41983-022-00472-y>



Central Sensitization

Recruitment of second order neurons in DH and CNS

Neuroplastic changes in the DH

[Click here to watch video](#)

Referred pain/ referred sensations

Pain can be achy,
sharp, intense,
and mimic other
conditions

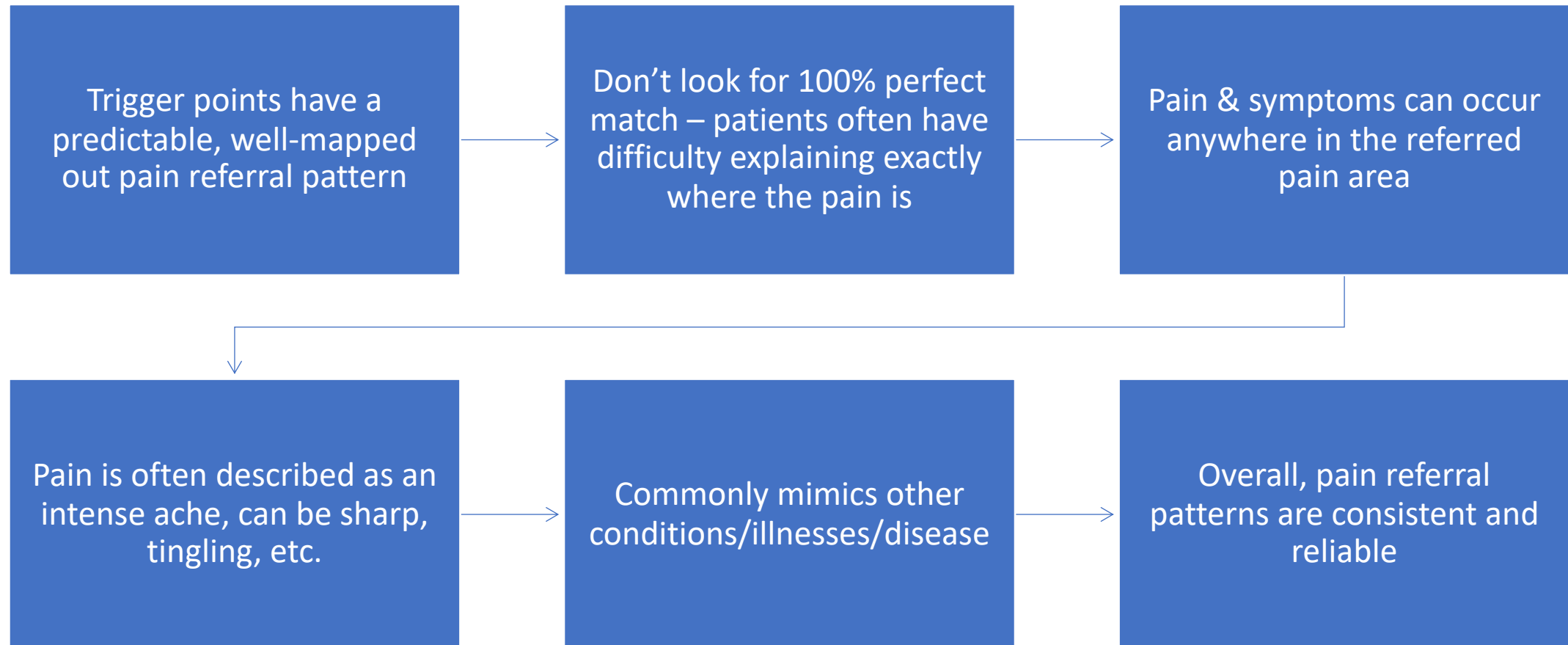
- CRPS
- Gallbladder or heart attack
- Migraine headache
- Sciatica

Always double
check history and
refer out as
needed

More than just
pain can be
experienced in
the referral zones

- Neuro/Tingling
- Temperature change
- Skin changes
- Tenderness

Referred pain patterns



Examples of pain referrals

Source: "[Referral areas around the glenohumeral joint from active trigger points](#)" by [sportEX journals](#) is licensed under [CC BY-ND 2.0](#).

TABLE 3: REFERRAL AREAS AROUND THE GLENOHUMERAL JOINT FROM ACTIVE TRIGGER POINTS

Muscle in which trigger point lies	Area of referral	
	Strong referral	Strong referral
Trapezius	Posterior aspect ACJ	
Scaleni	<ul style="list-style-type: none"> ■ Anterior deltoid ■ Lateral side of arm to elbow 	Posterior deltoid
Pectoralis major	Sternal Clavicular	Anterior deltoid
Pectoralis minor		Anterior deltoid
Subclavius		Infraclavicular area
Supraspinatus	Lateral deltoid	
Infraspinatus	<ul style="list-style-type: none"> ■ Anterior deltoid ■ Middle of biceps belly ■ Lateral deltoid 	
Teres minor	Distal aspect of posterior deltoid	
Teres major	Posterior deltoid	
Subscapularis	Posterior deltoid to lateral scapular border	
Anterior deltoid	Anterior deltoid to middle of antero-lateral humerus	Lateral and posterior deltoid
Posterior deltoid	Posterior deltoid to lateral aspect of spine of scapula	<ul style="list-style-type: none"> ■ Lateral head of triceps ■ Anterior deltoid
Coracobrachialis	Anterior deltoid	
Biceps brachii		Anterior deltoid to tendon of biceps
Brachialis		Anterior arm over biceps belly
Triceps	Posterior deltoid	



Treating Trigger Points & Referred Pain



Types of
trigger points

Active

Latent

Active trigger point

Always painful/tender (tenderness = pain on palpation)

Causes the muscle to be shortened & prevents lengthening

Can cause weakness of the muscle it resides in

Can cause referral of pain & symptoms into the pattern zone with or without palpation

The referral zone is larger

Latent trigger point

Quiet unless palpated

Can still cause stiffness and reduced ROM

Not painful nor refers pain w/o palpation

More common

Try pressing SI11 or pincer grasp GB21 or angle of the neck and see if they refer

Treating trigger points: How and why it works



Several theories and mechanisms



Most have the same key concepts in common



Reducing motor endplate noise is #1



Needling & obtaining the Local Twitch Response (LTR) ↓ endplate noise

The Local Twitch Response (LTR)

- Causing an LTR can reduce motor endplate noise
- Too many LTRs can be noxious; dose of txt is important
- Some authors and practitioners do not believe an LTR is necessary
- Prevailing consensus however is that you must obtain an LTR for therapeutic benefit

Treating TrPs and the importance of palpation

Palpation is key to being
successful in treating
trigger points

Necessary for proper
location and needling

Examples of different
techniques

Pincer

Flat

Develop the
ability to feel
what is going
on in the
tissues

Feel different depths, different muscles

Fascial lines/divisions

Taught bands

Trigger points themselves (2-10mm)

You will practice palpation in the seminar

Differences in needling TrPs and Acupuncture pts

Acupuncture needling:

- Tends to be more superficial (relative)
- Locations are more specific, based on cun measurements
- Twitch response not expected
- Needles are retained

Trp needling:

- Tends to be deeper
- Always located via palpation
- Thicker gauges used (relative to the area)
- LTR – Local Twitch Response expected
- No retention of needle

Cautions and contraindications



Same cautions and contraindications as Acupuncture



Deeper needling may require more attention to safety



Further understanding of anatomy and underlying structures



Palpation skills are critical

Treating patients with Trps

- Communicating with patients
 - Explain causes of their pain
 - Expectations of results and side effects
 - Soreness
 - Explain treatment plan and follow up
 - Refer out when necessary
- Understanding and addressing perpetuating factors

Perpetuating factors of trigger point formation

Overuse, misuse, disuse

Work related/postural/RSI

Antagonistic/Agonist imbalances

Chronic illness; Medications

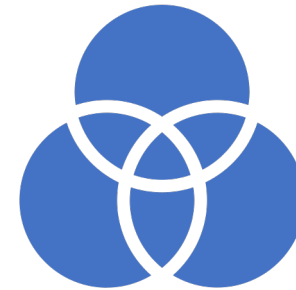
Maladaptations over time

Poor posture

Trigger points vs motor points



Similarities: Both located at or near the belly of the muscle



Differences: Many

Trigger points

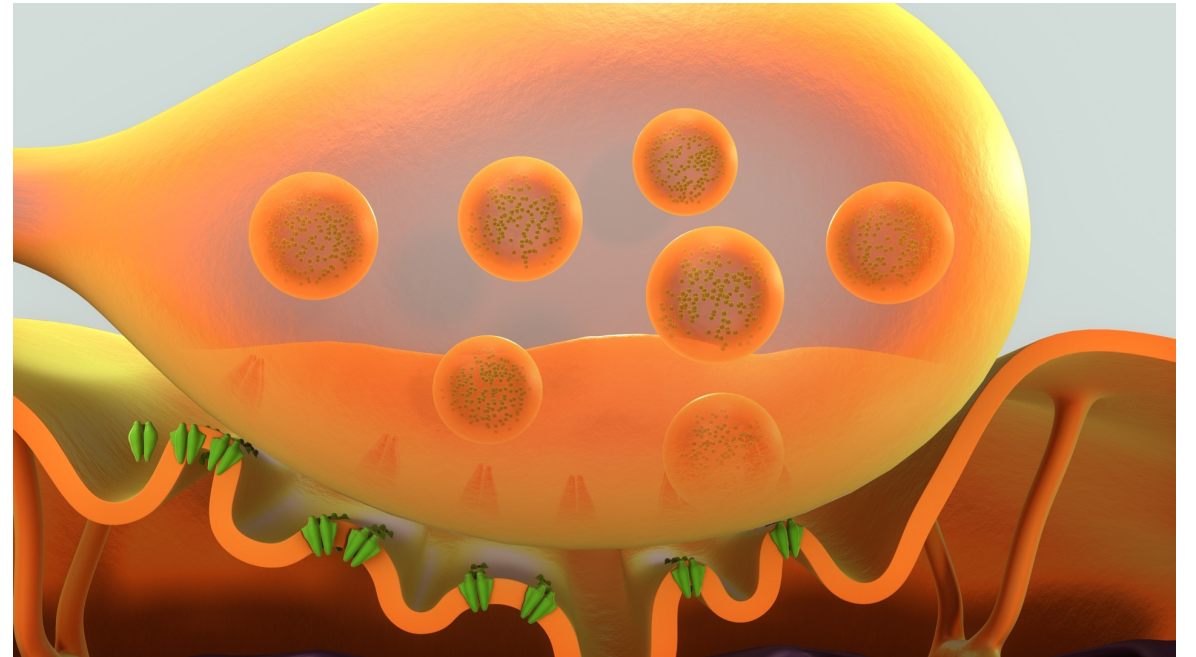
- A trigger point is a pathological state of tissue that causes pain
- Are relatively deeper – in the muscle vs on the surface
- Trigger points are located by palpation
- Trigger points are the *consequence* of dysfunction
- Treatment and needling approach is different
 - Manual manipulation with pistoning and LTR

Motor Points

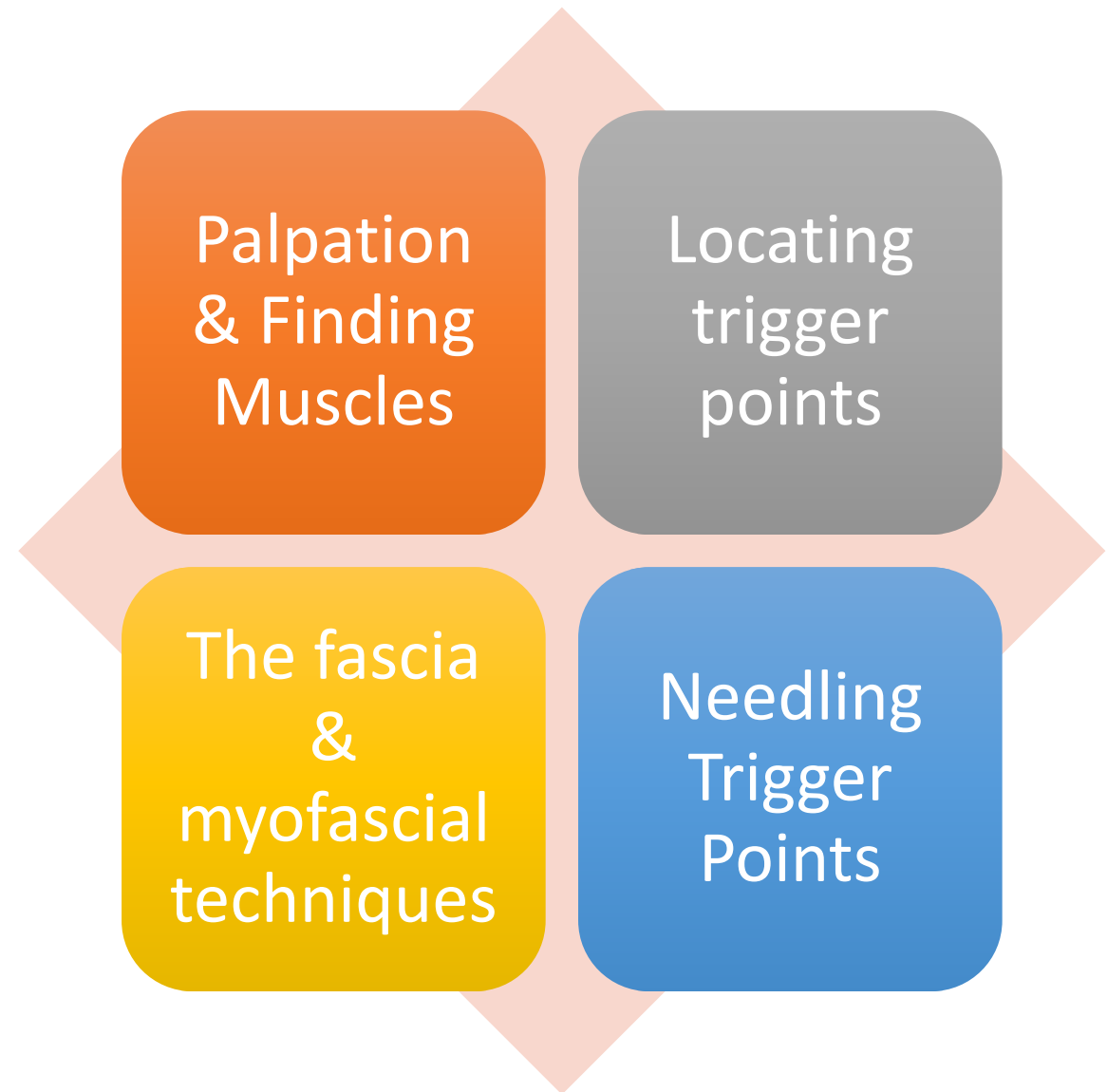
- Motor points are always present – they ARE the neuromuscular junction
- They are relatively superficial
- Motor points are **not** an anatomical anomaly or pathology
- Treatment and needling is different
 - Estim is used with no pistoning and no LTR



Neuromuscular junction & motor endplate



What is covered in the seminar

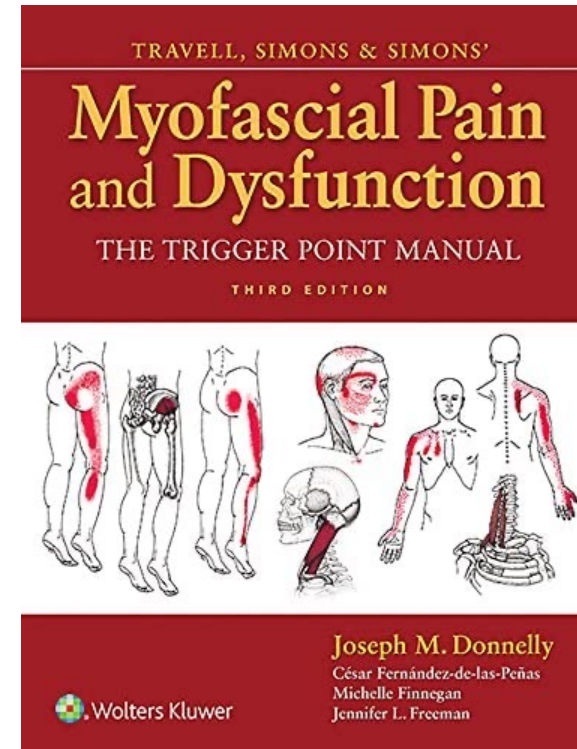


Practice palpation

- Practice palpating & locating taut bands and TrPs
- Many Acupuncture points are trigger points
 - GB21
 - SI11
 - LI8

Recommended reading

- Click [HERE](#) for link to purchase
- We have no affiliation with Amazon



Questions



PLEASE EMAIL
ASESEMINARS@GMAIL.COM WITH ANY
QUESTIONS



THANK YOU AND WE WILL SEE YOU
SOON!