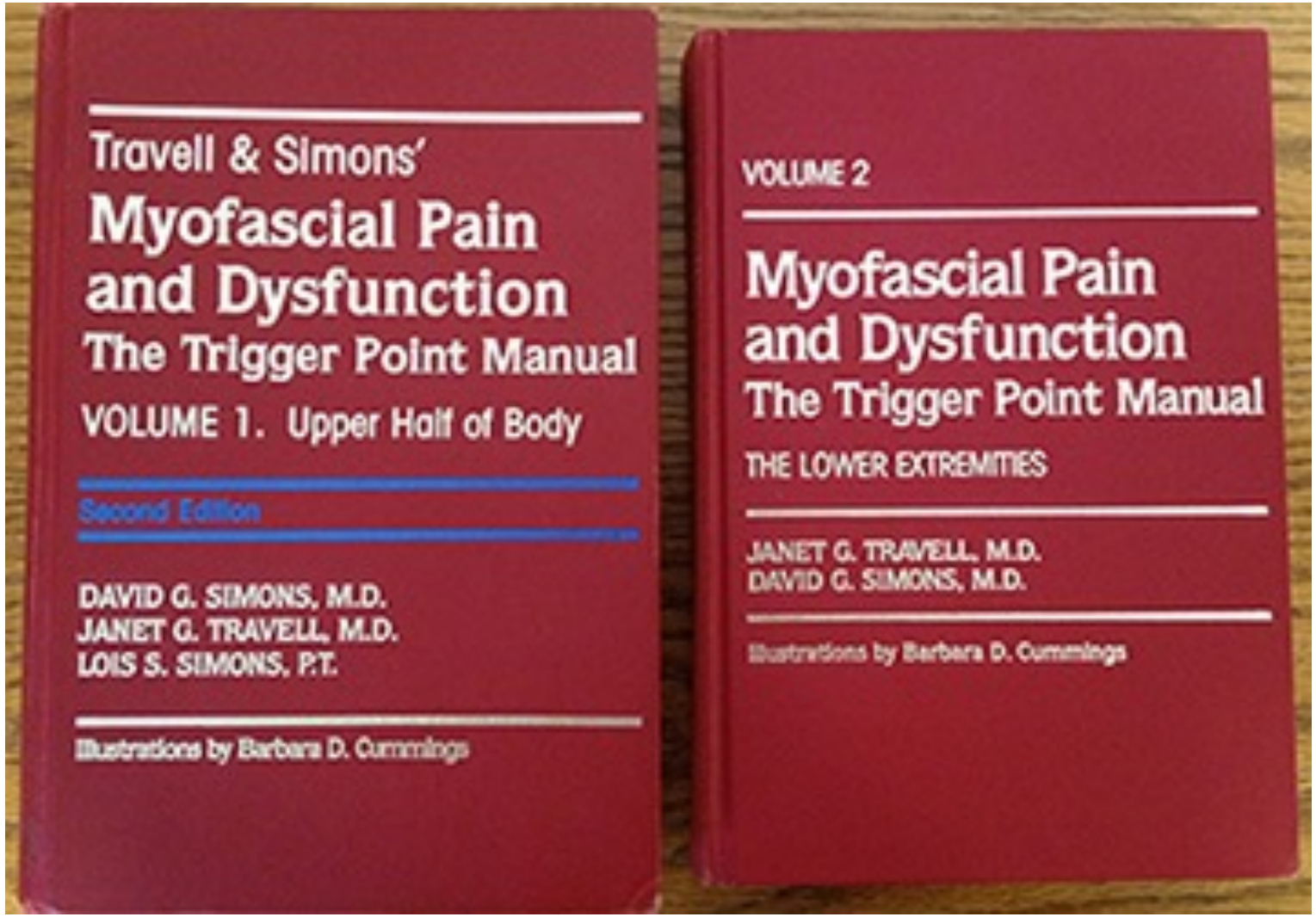
# Trigger Point Dry Needling Core Concepts Pre-Seminar Material

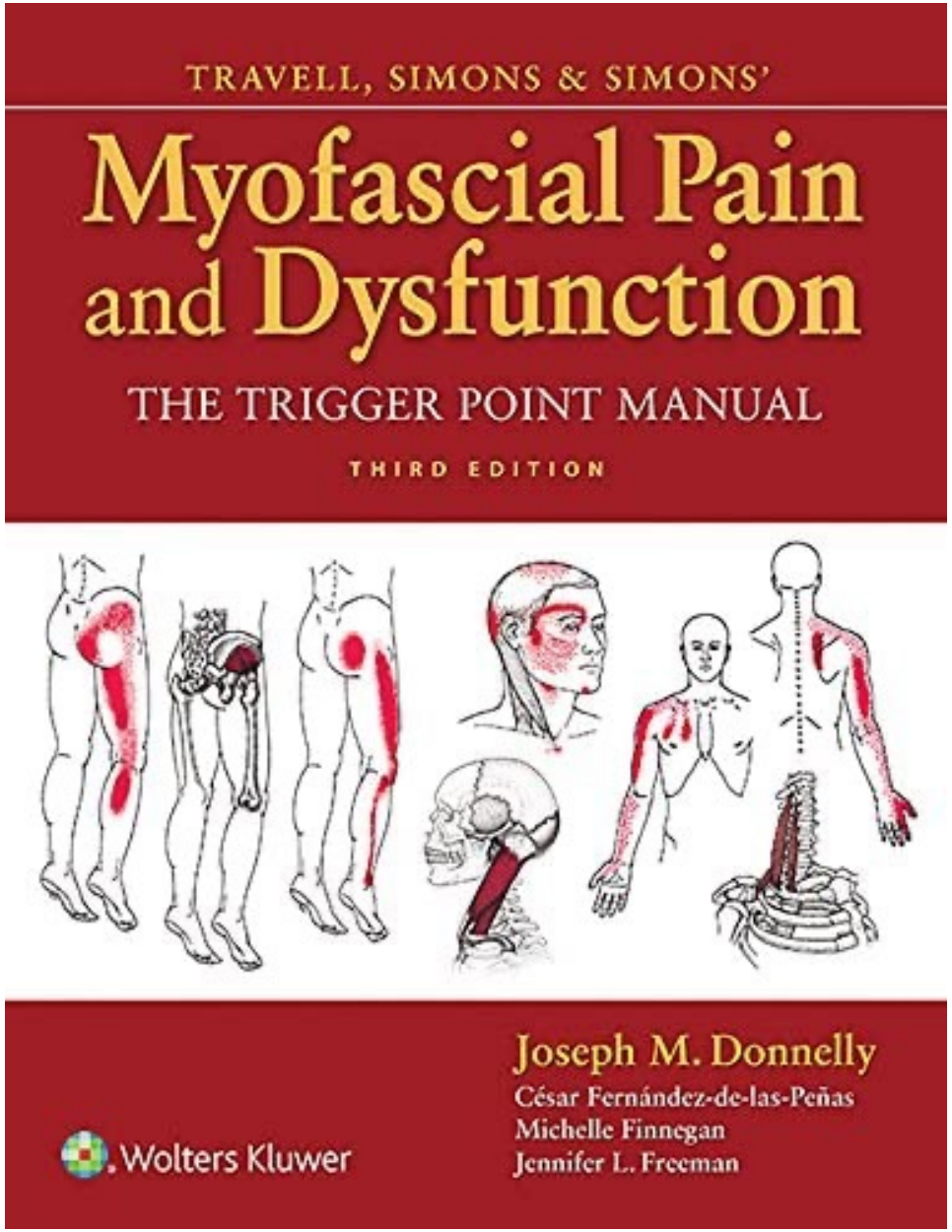
Pre-Requisite Presentation to Accompany the

Core Concepts Seminar November 12th-13th 2022

# Janet Travell, MD and David Simons

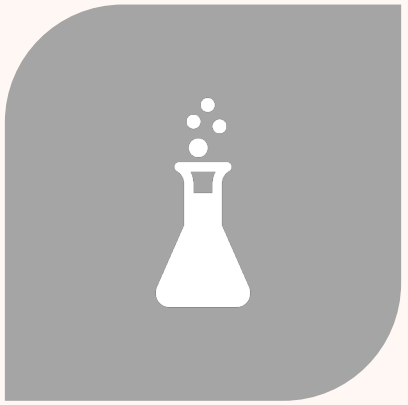


# Latest Edition



# 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**

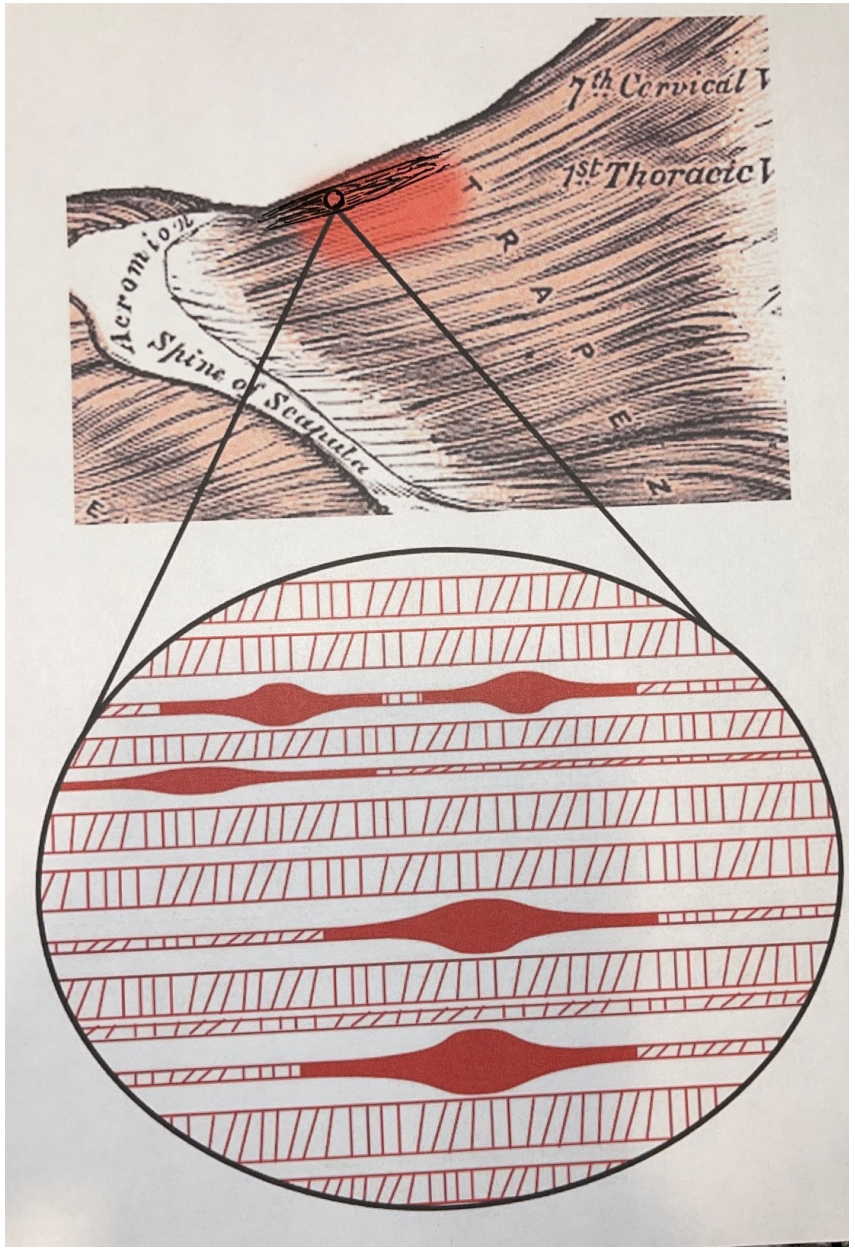
# What is a trigger point?

- 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 bad/TrP have same causes; TrP is a progression of conditions
- Physio-pedia.com

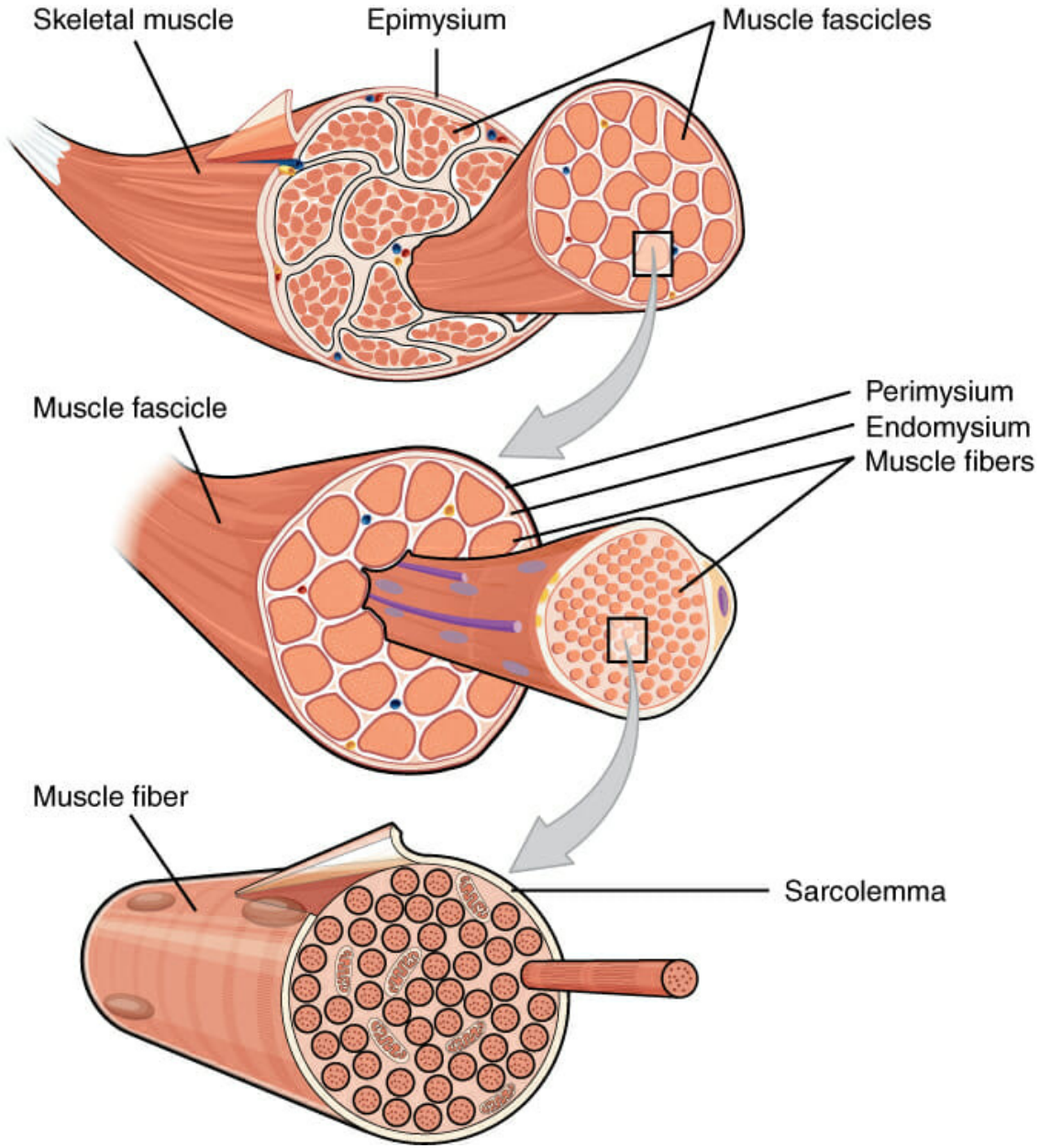
# Clinical diagnostic criteria for trigger points

- 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

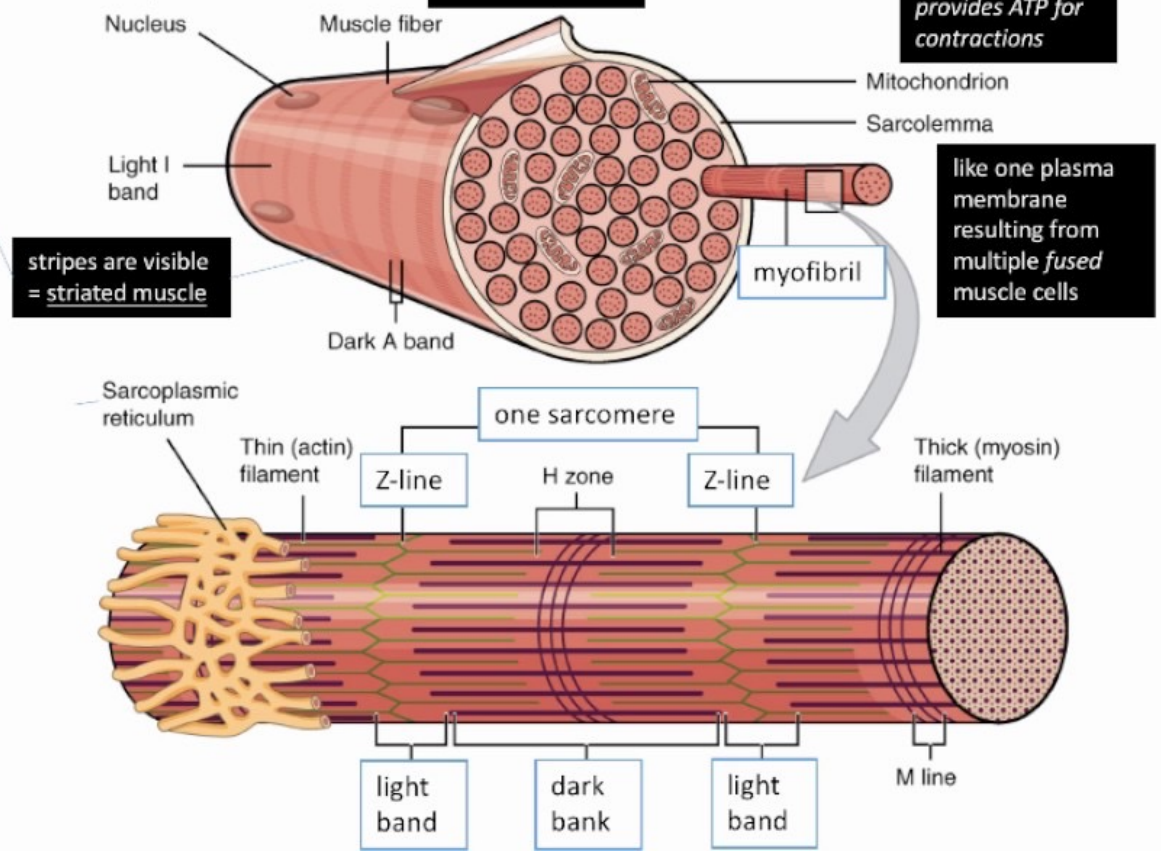


# Structure of muscle fibers

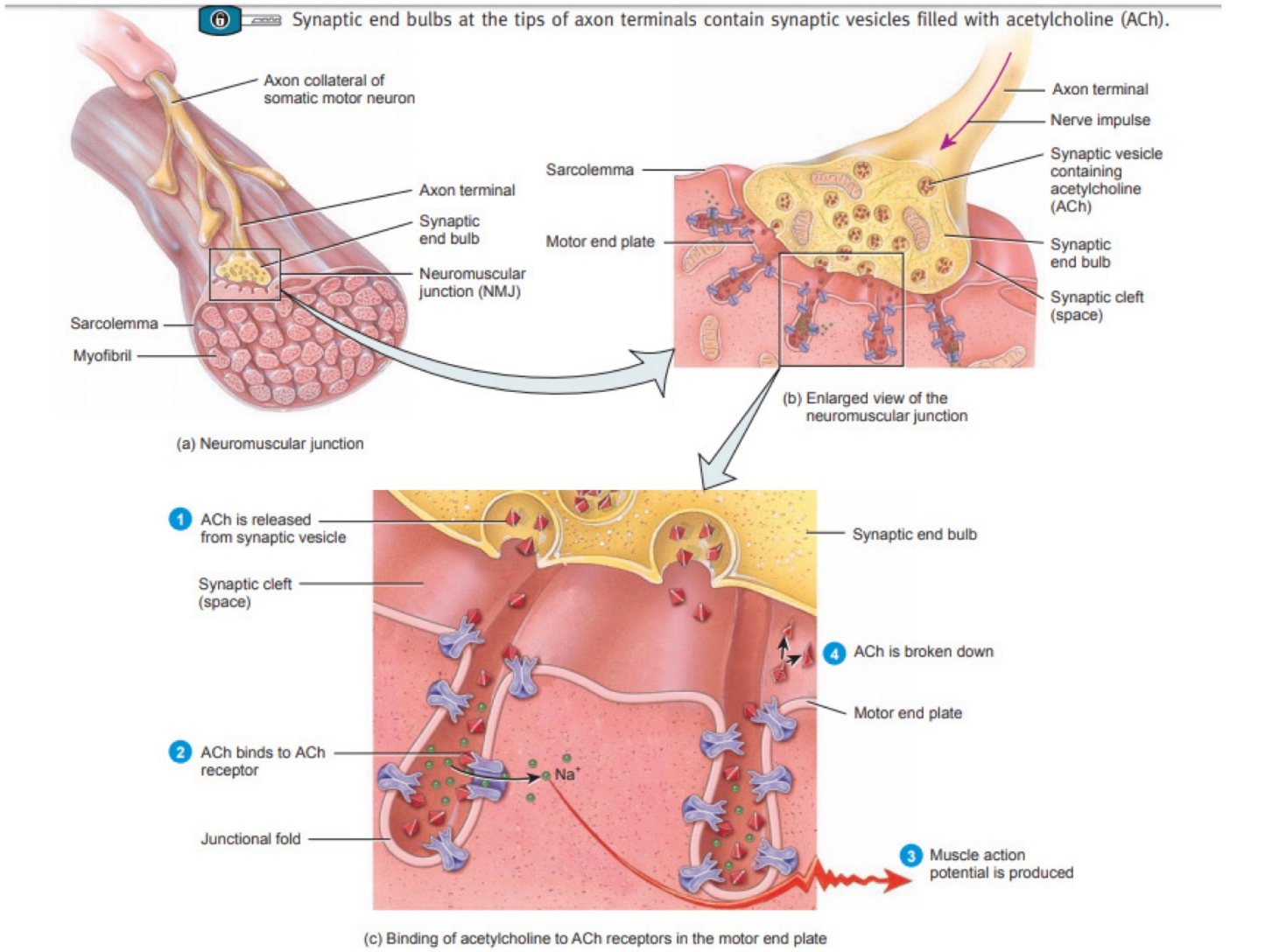
multinucleate

bundle of muscle cells

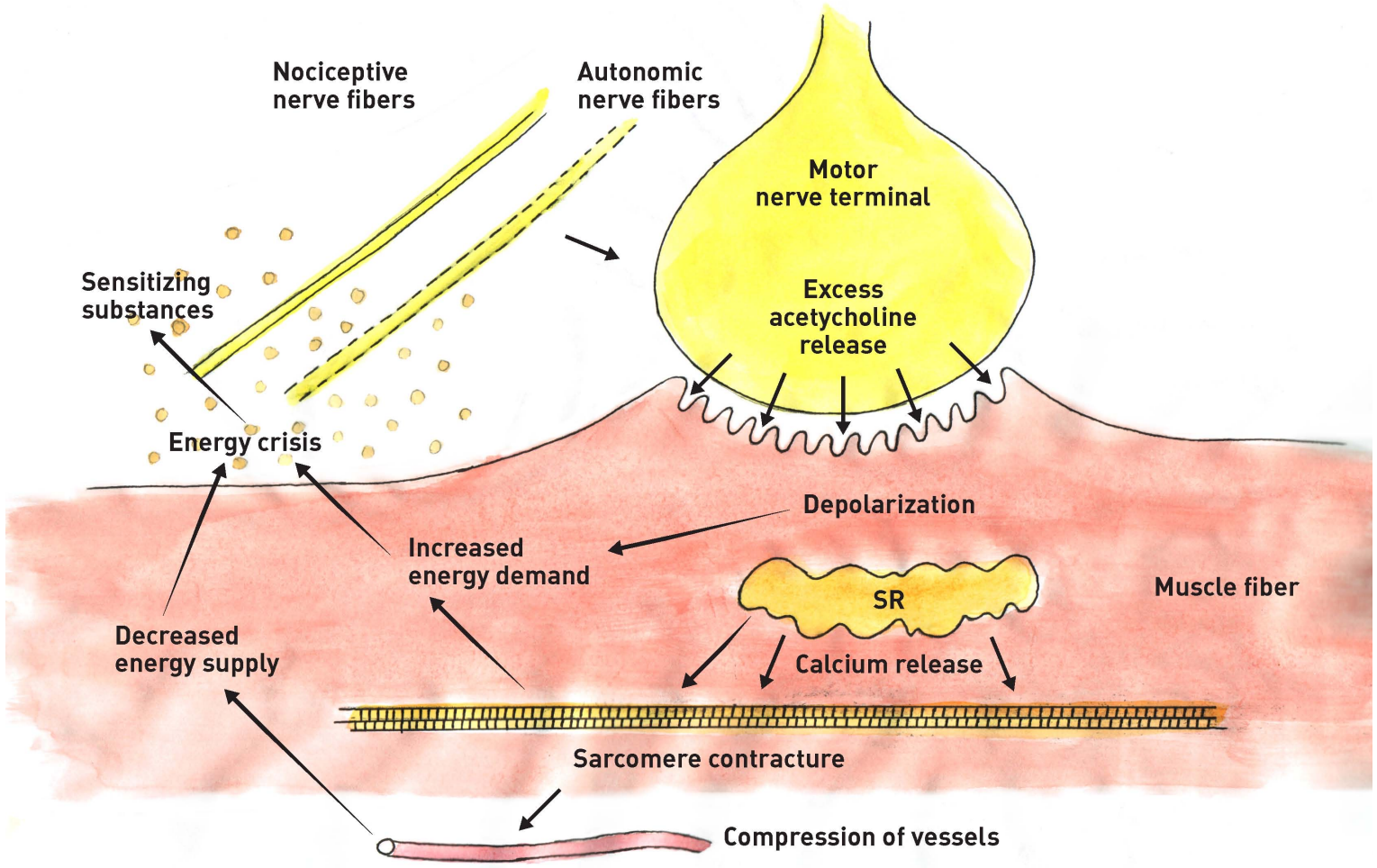
*provides ATP for contractions*



# Neuromuscular junction/motor endplate



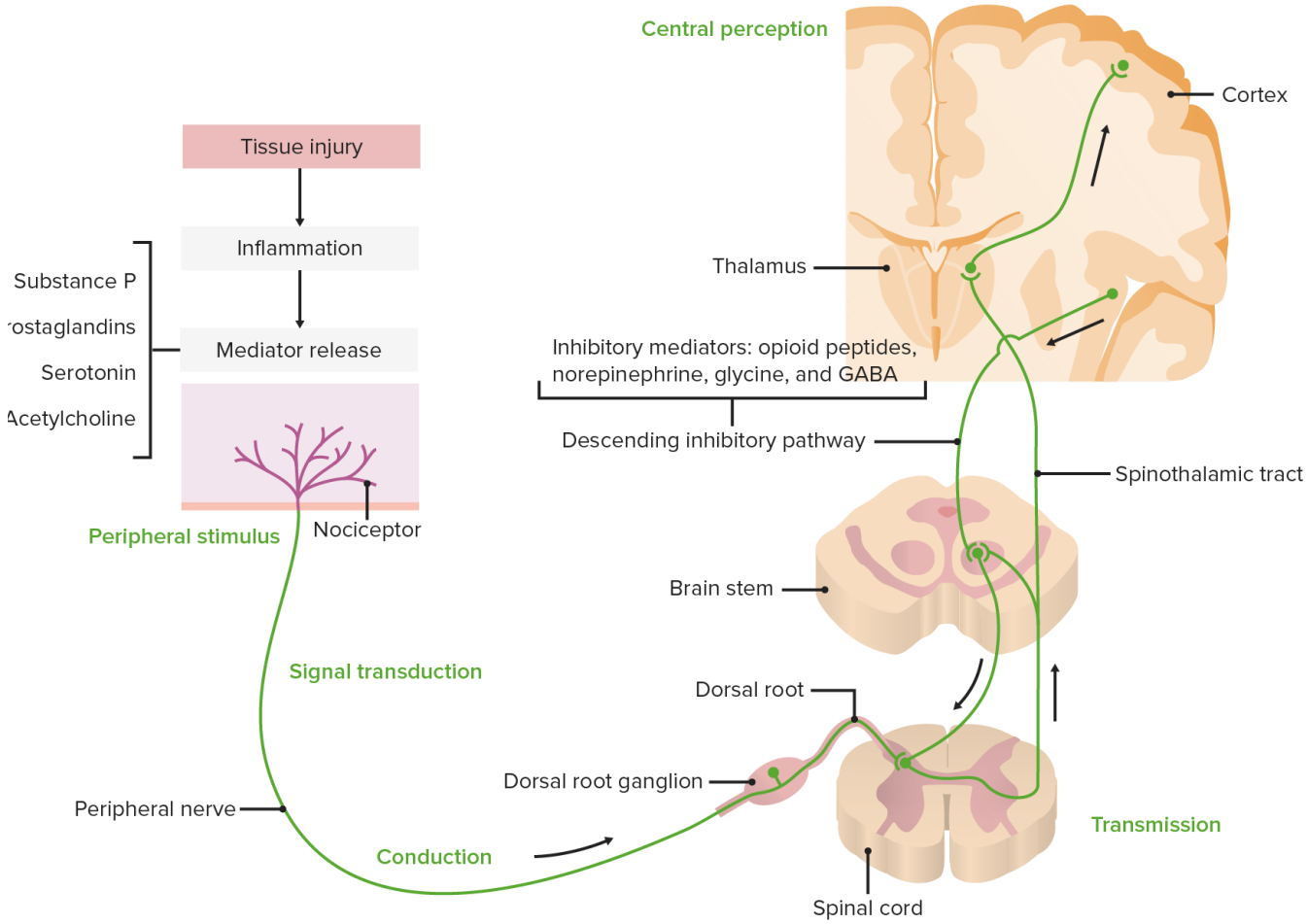
# Physiology of a TrP: Dysfunctional motor endplate



# 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

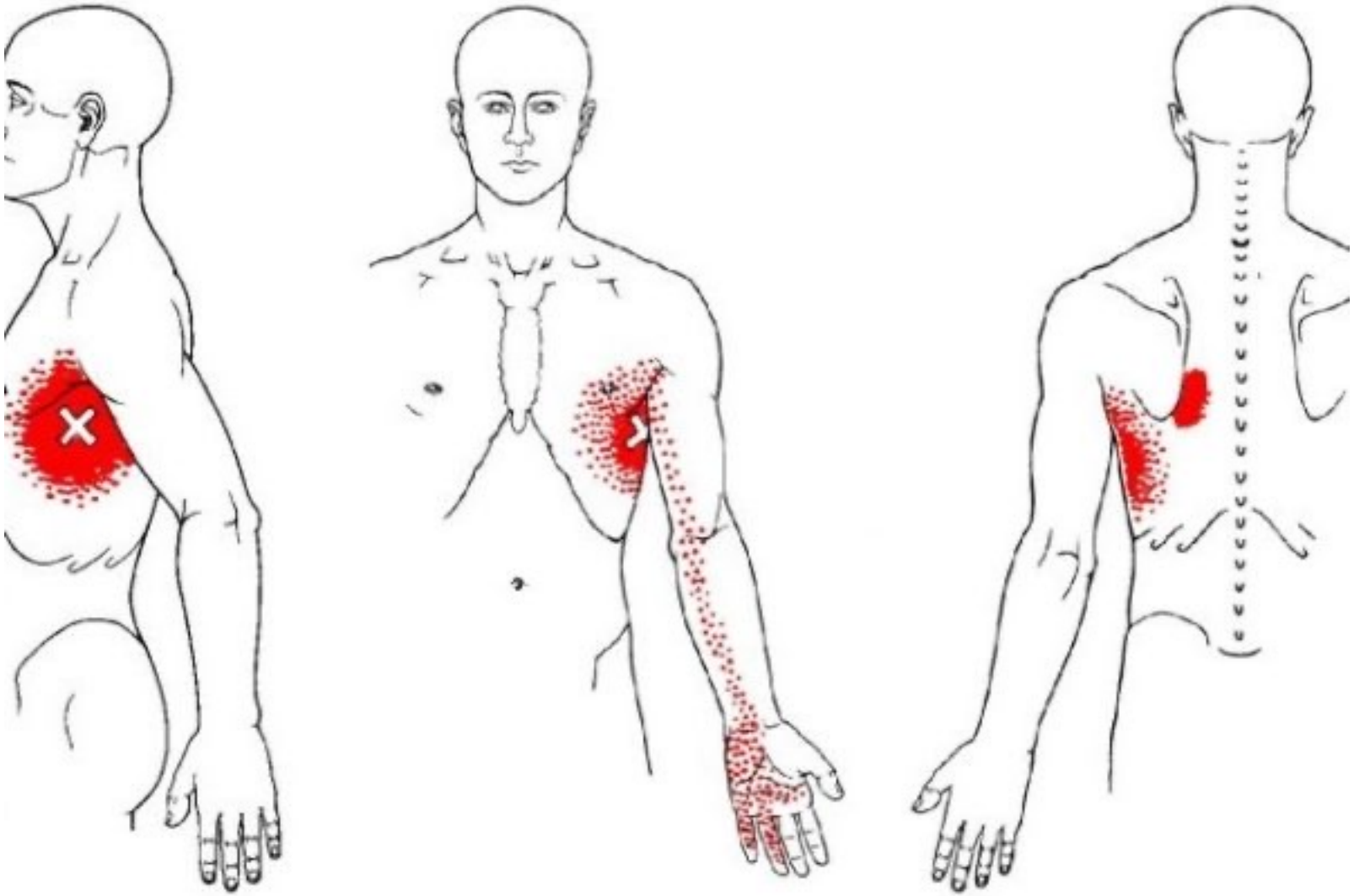
# Peripheral and Central Pain Paths



# 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

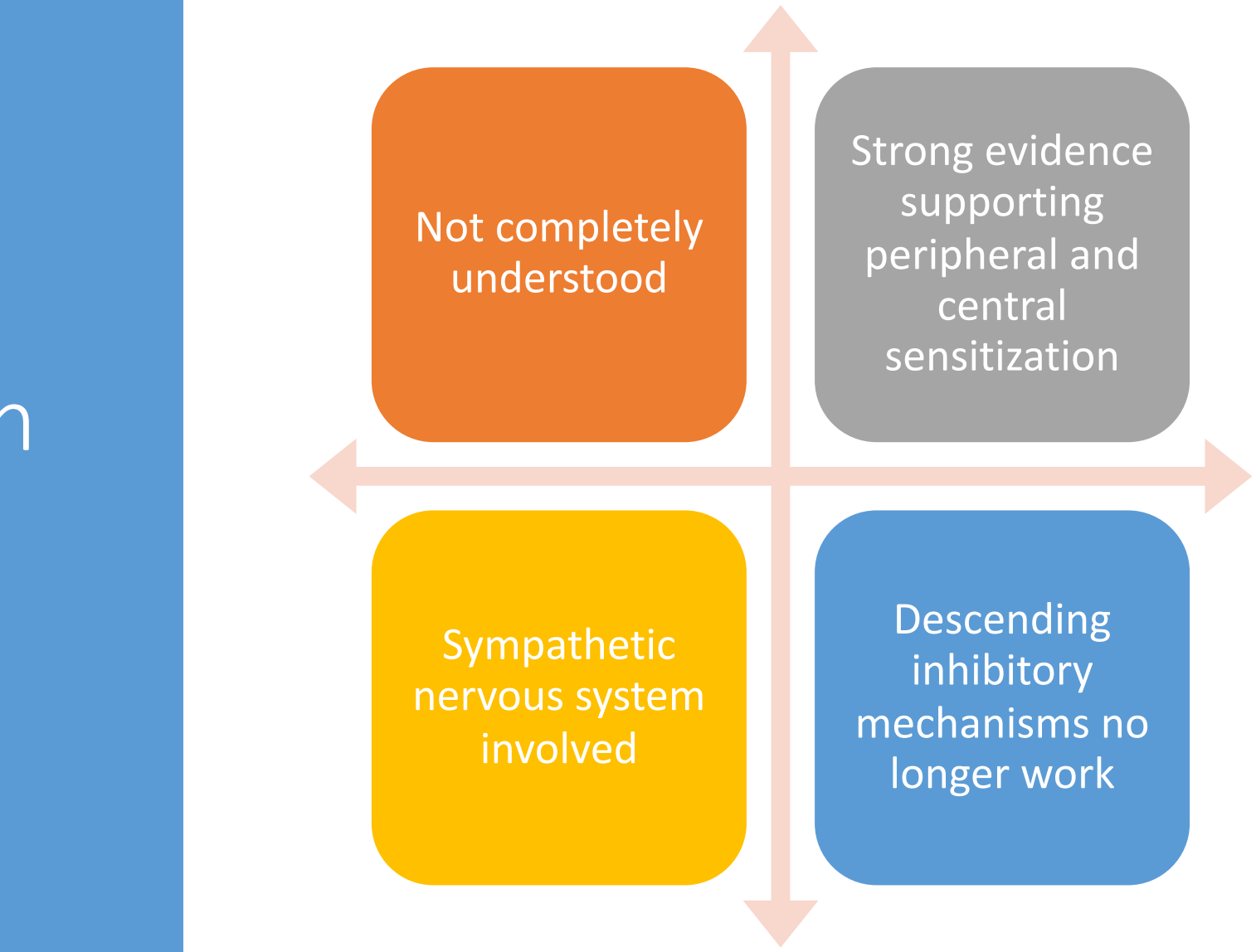


# Referred pain

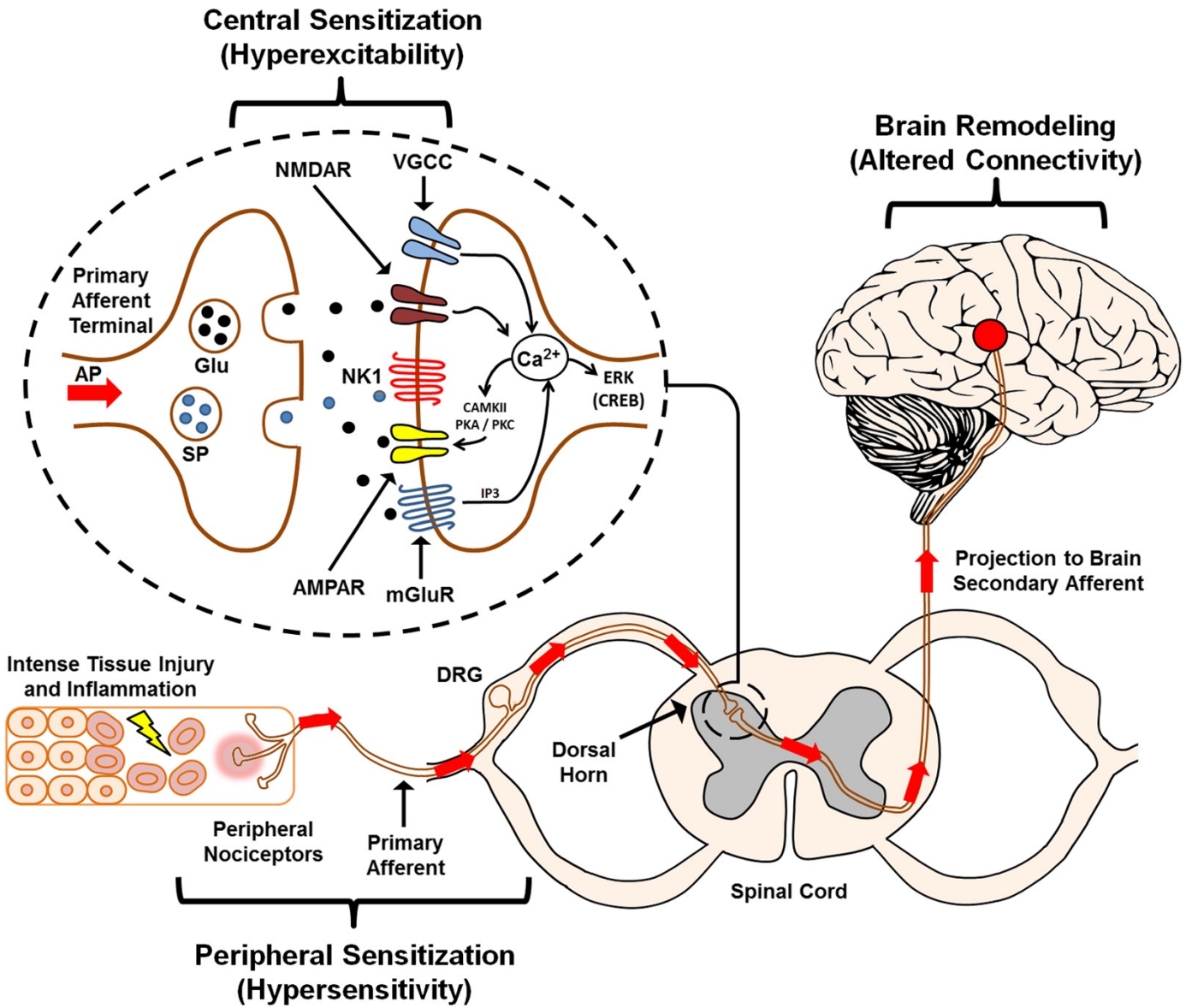
Definition: Pain experienced in a region other than the source of pain

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

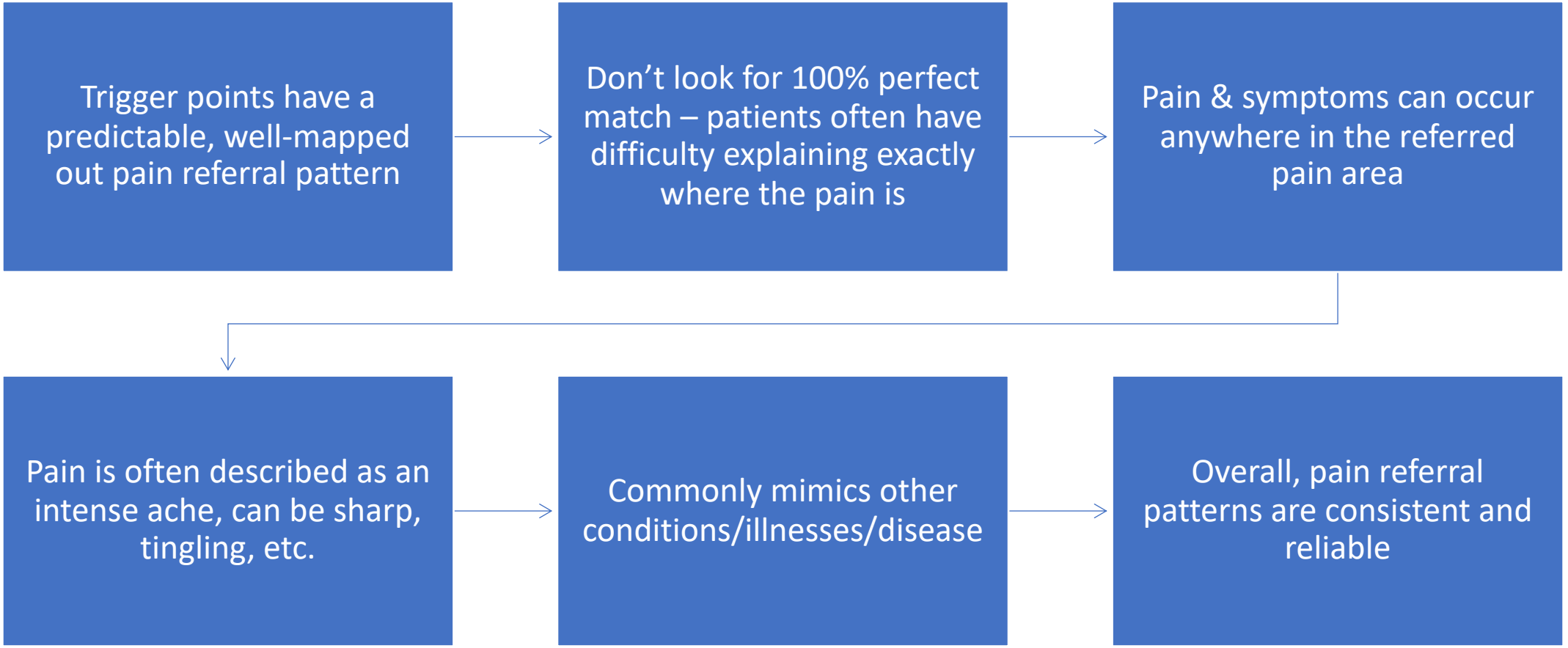
- CRPS
- Gallbladder or heart attack
- Migraine headache
- Sciatica

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 | ■ Anterior deltoid<br>■ Lateral side of arm to elbow | Posterior deltoid |
| Pectoralis major — Sternal | | Anterior deltoid |
| Pectoralis major — Clavicular | Anterior deltoid | |
| Pectoralis minor | | Anterior deltoid |
| Subclavius | | Infraclavicular area |
| Supraspinatus | Lateral deltoid | |
| Infraspinatus | ■ Anterior deltoid<br>■ Middle of biceps belly<br>■ 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 | ■ Lateral head of triceps<br>■ Anterior deltoid |
| Coracobrachialis | Anterior deltoid | |
| Biceps brachii | | Anterior deltoid to tendon of biceps |
| Brachialis | | Anterior arm over biceps belly |
| Triceps | Posterior deltoid | |

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# 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

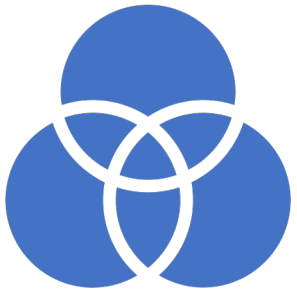
- Communicating with patients
  - Explain causes of their pain
  - Expectations of results and side effects
  - Soreness
  - Explain treatment plan and follow up
  - Refer out when necessary
- Understanding and addressing perpetuating factors

# Perpetuating factors of trigger point formation

- Overuse, misuse, disuse
- Work related/postural/RSI
- Antgonistic/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



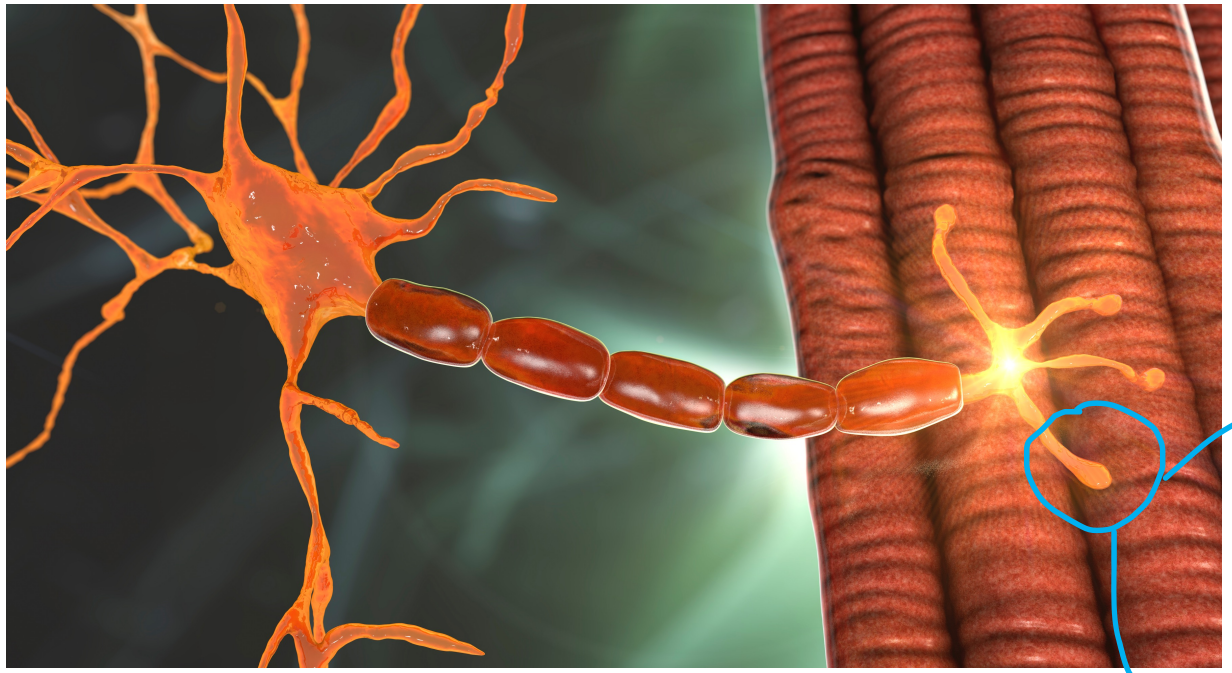
Differences: Many

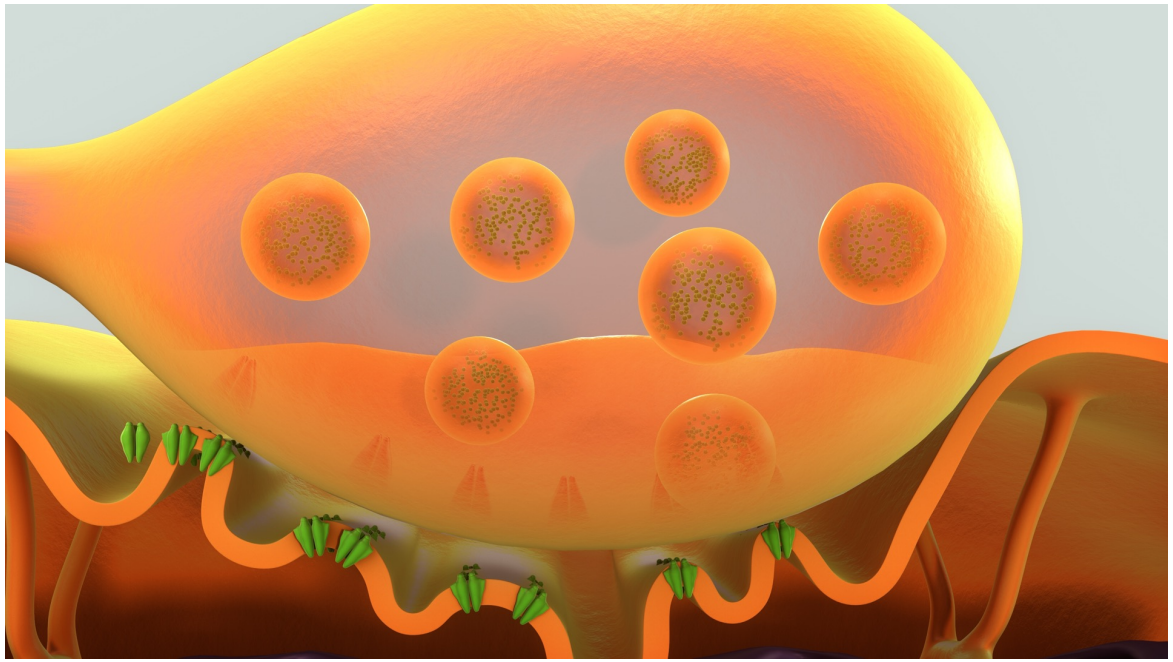
# Trigger points

- 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

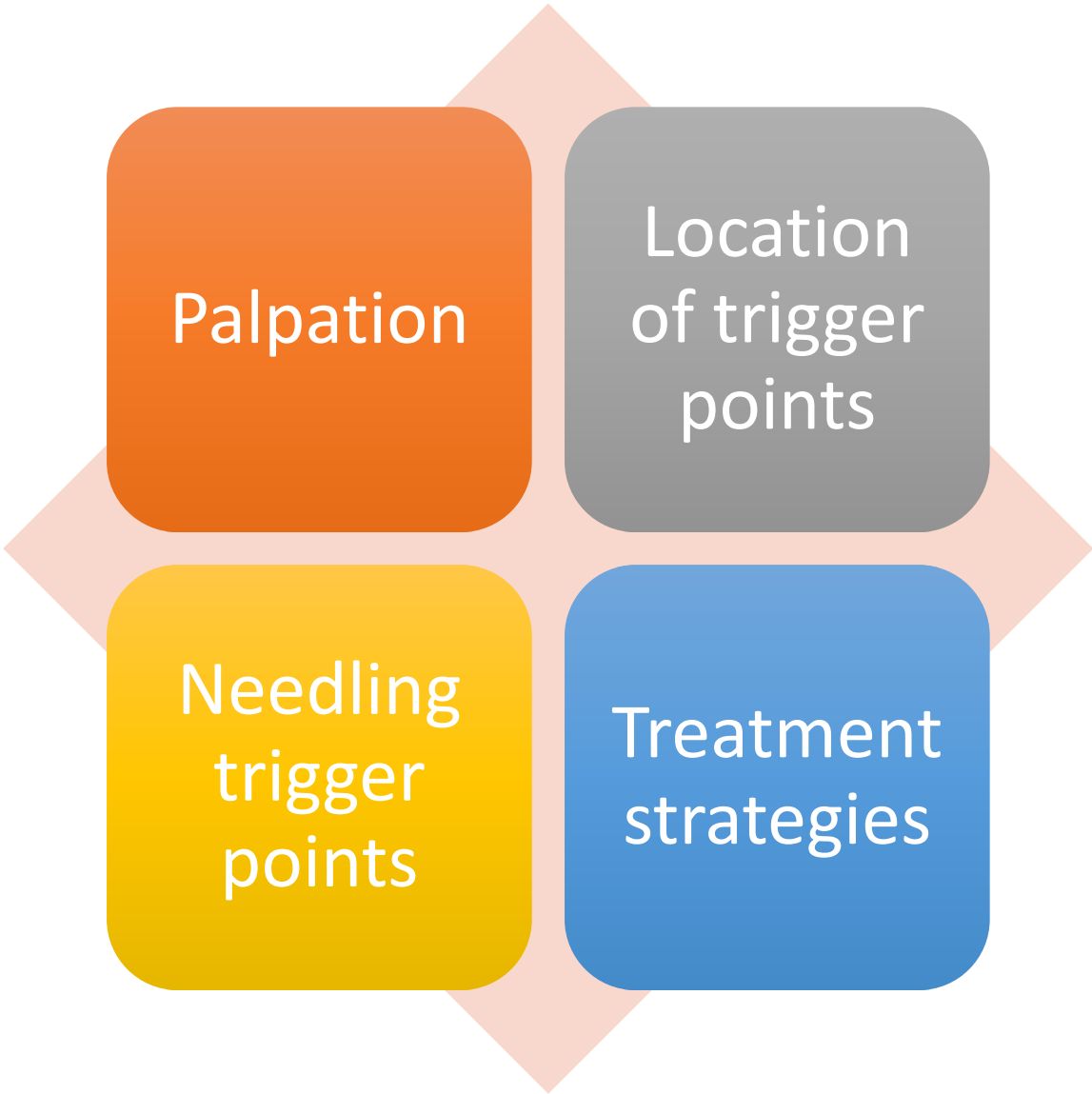
# Motor Points

- 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





# What is covered in the seminar

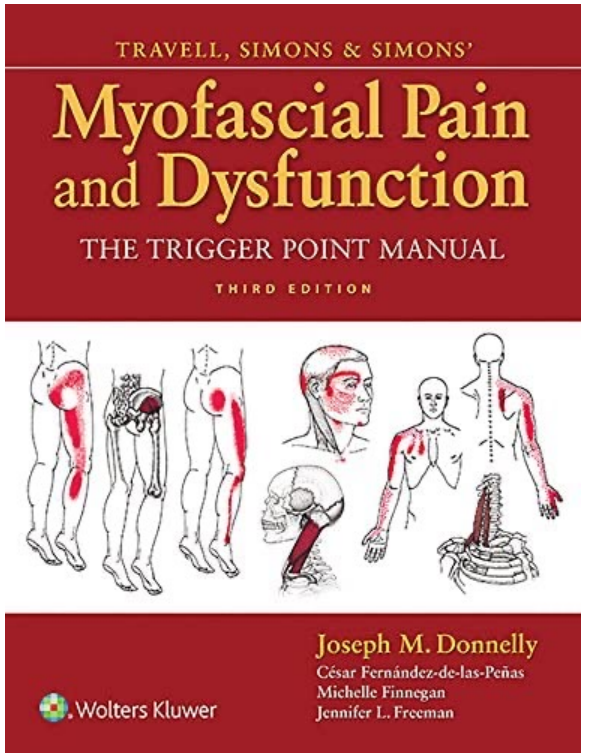


# Practice palpation

- 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!