

a brief glance to
DRY NEEDLING



Instructor:

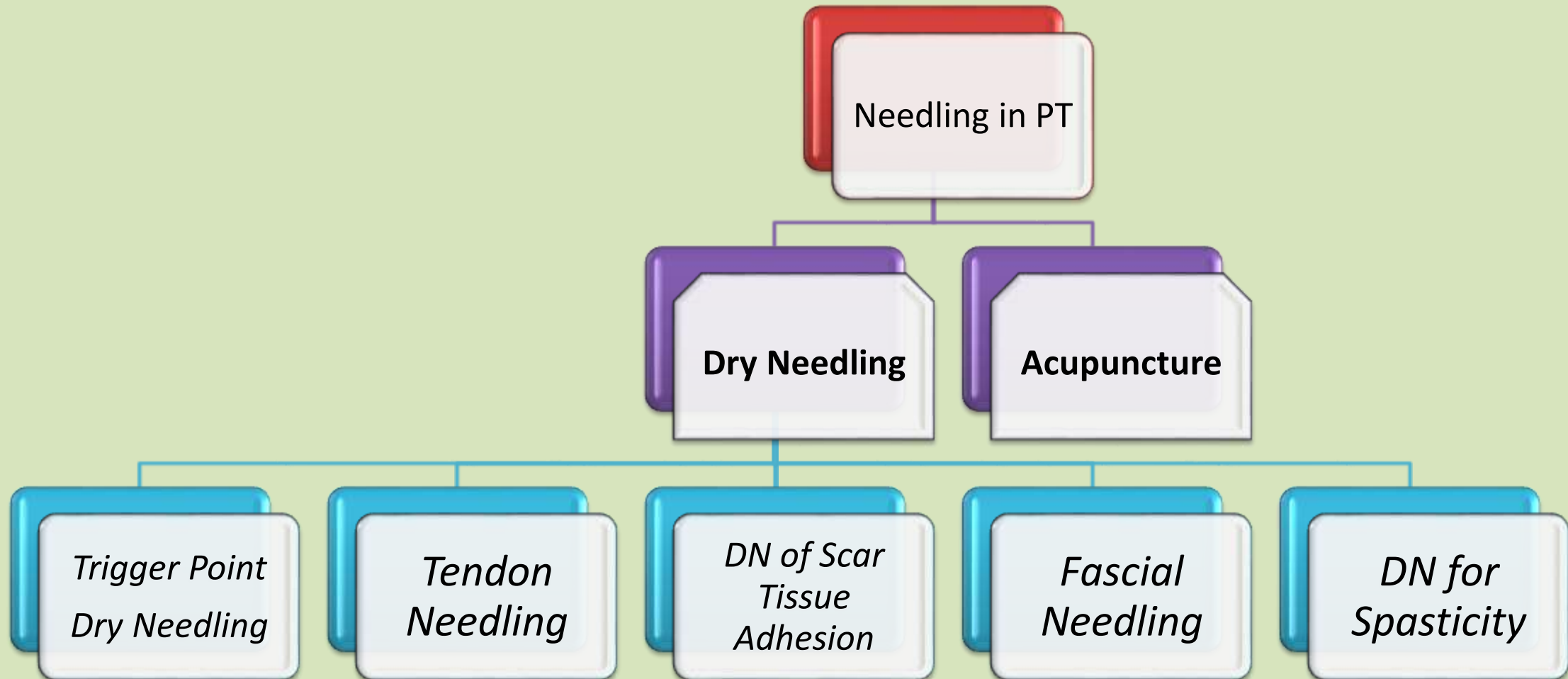
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Needling Procedures in Physical Therapy



A Brief Definition to Initiate

- Dry needling, also referred to as intramuscular manual therapy, is an invasive procedure that involves inserting an acupuncture needle into an active myofascial trigger point
- Dry needling refers to inserting fine needles into the soft tissue to reduce pain, promote healing, normalize tissue mechanics and restore normal tissue function.

Objectives of Dry Needling

- ① *Differential diagnosis – myofascial vs. structural factors*
- ② *Pain control – deactivation of trigger points*
- ③ *Facilitate other therapeutic approaches – exercise, motor control, manual treatments*
- ④ *Improve function*
- ⑤ *Removing scar tissue*
- ⑥ *Treating Myofascial Pain Syndrome*

Trigger Point Dry Needling

Superficial Dry Needling Vs. Deep Dry Needling

Patient Selection

1. The patient's physical therapy diagnosis and dysfunction.
2. Expectation of a reasonable benefit from DN therapy.
3. The patient's medical conditions and history and recognize conditions that require precaution or contraindication
4. The patient's ability to understand the rationale for treatment
5. Capacity for the safe application and management of precautions and side-effects

Diagnostic Criteria for Trigger Points

- ❖ **Taut Band:** *Palpable focal muscle spasm or tightness within the muscle belly*
- ❖ **Local Tenderness:** *Increased muscle soreness or referred pain with direct palpation of the trigger points*
- ❖ **Twitch response:** *Palpable local contraction of the fibers within the muscle with direct pressure on the trigger point or stretching of the muscle*

Different Types of Myofascial Pain

1. Trigger points

Tender point?

2. Muscle spasm

Tension point?

3. Muscle tension

4. Muscle deficiency



**There are multiple
trigger points!
Which one to
choose?!**



Mechanisms of Effect of Dry Needling on Myofascial Pain

- ☑ Mechanical Effects**
- ☑ Neurophysiologic Effects**
- ☑ Chemical Effects**

Mechanisms of Effect of Dry Needling on Myofascial Pain (cont'd)

Mechanical Effects

- ❖ Dry Needling may mechanically disrupt the integrity of the hypertone muscle fibers – trigger points
- ❖ Inserted needle can provide a **localized stretch** to the muscle fibers
- ❖ Can induce Local Twitch Response (LTR), which can cause **muscle relaxation** through **reflex inhibition**


Mechanisms of Effect of Dry Needling on Myofascial Pain (cont'd)

☑ Neurophysiologic Effects

- ❖ Stimulation of Enkephalinergic inhibitory dorsal horn interneurons through stimulation of A δ - sensory fibers***
- ❖ Pre and Post synaptic inhibition of nociceptive signals –
Raphe nuclei stimulation***

Mechanisms of Effect of Dry Needling on Myofascial Pain (cont'd)

Chemical Effects

 Normalizing chemical changes at the trigger point site

Dry Needling for Tendon

- **Aim:** Converting a degenerative process into an acute inflammatory condition
- **Duration:** 20 mins with manipulation every 3 minutes
- **Manipulation:** Rotating the needle ↷ to lengthen fibroblasts and ↓ nociceptive pain / rotating the needle until the patient's symptoms are provoked.
- **Location:** The most painful spot / throughout the tendon / musculotendinous or osteotendinous region
- **Mechanism:** Tendon trauma, bleeding & vasodilatation, tenocyte disruption, collagen proliferation, & local inflammatory response ↷ ↑ growth factor



Dry Needling of Scar Tissue Adhesion

1. **Technique** ➔ “surrounding the dragon”
2. **Location** ➔ directly into each adhesion or densification
3. **Manipulation** ➔ rotating unidirectionally
4. **Duration** ➔ as much as possible to the pain tolerance level



Dry Needling of Fascia

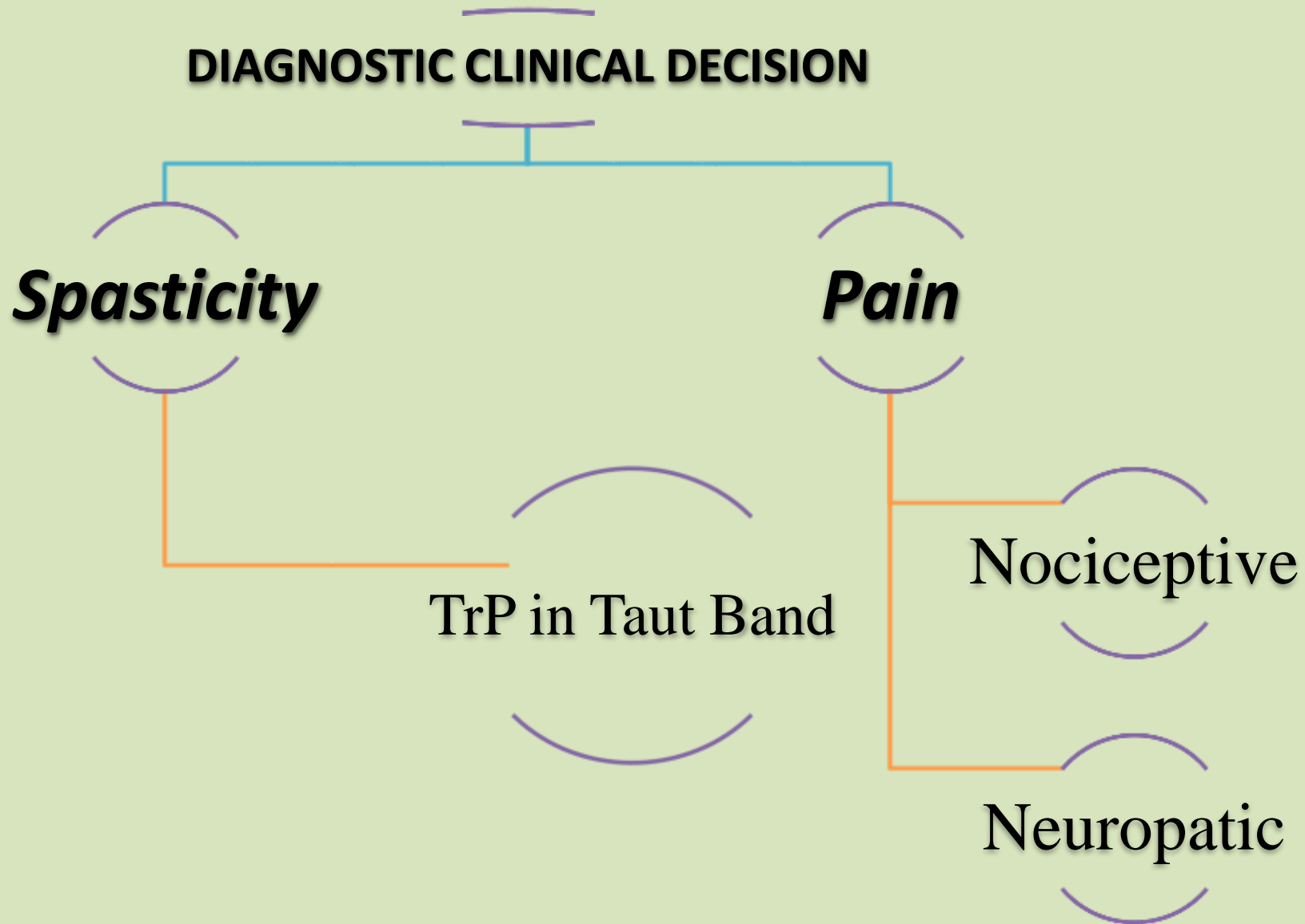
■ **Mechanism:** Rotating the needle in taut band ↪ stretching of taut band or muscle contracture

Increasing the number of mitochondria ↪ improving energy metabolism in the muscle ↪ ↓ focal adhesion

■ **Manipulation:** Rotating / Pistoning / Retension



Dry Needling for Neurological Conditions



Dry Needling for Neurological Conditions (cont'd)

Recommended cluster of clinical diagnostic criteria:

- ☒ Palpate (if possible) taut band in a spastic muscle;
- ☒ hypersensitive (thicker) spot in the taut band; and
- ☒ an increase in resistance to passive movement.

Dry Needling for Neurological Conditions (cont'd)

DRY NEEDLING PROCEDURE

- **Position** ⇒ Pre-stretched (submaximal stretched) position
- **Muscle reaction** ⇒ Global twitch response! OR even involving ANTAGONIST muscle!



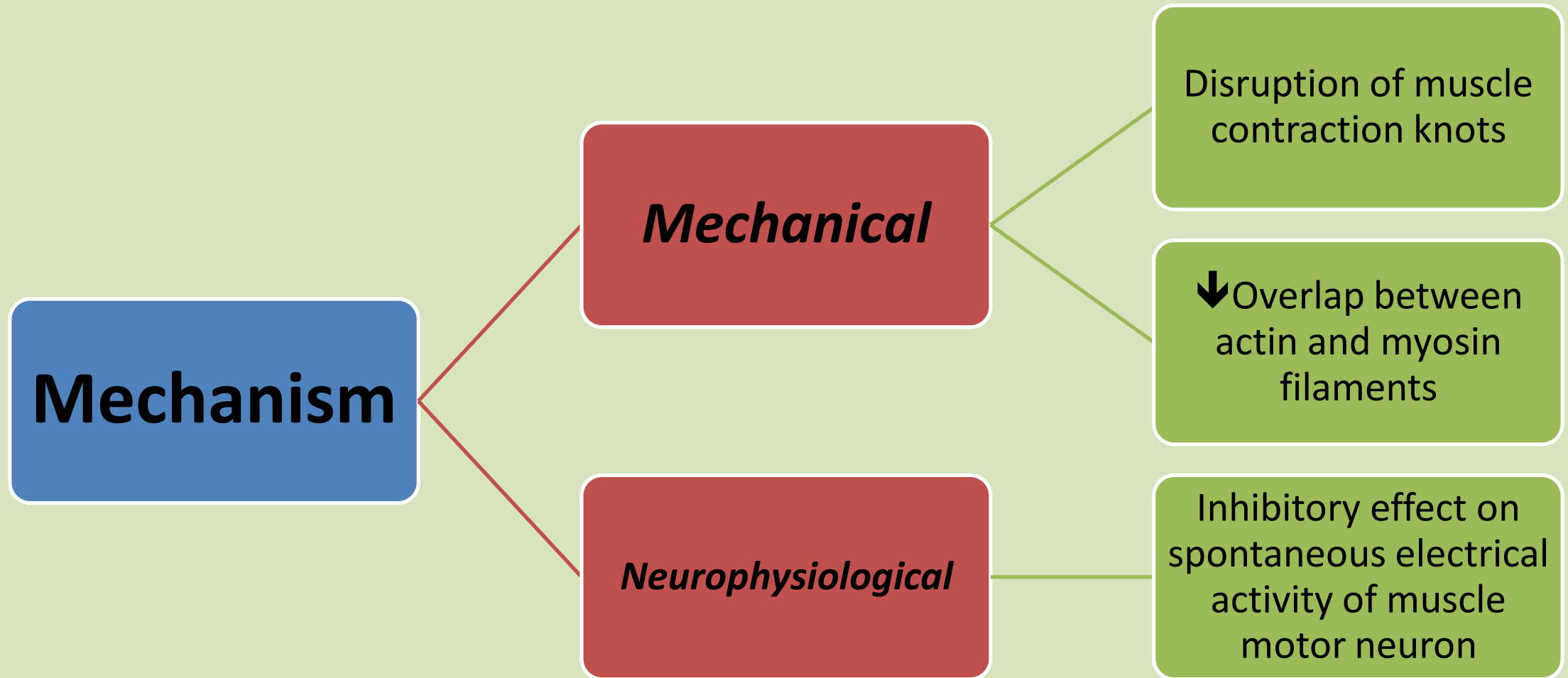
Dry Needling for Neurological Conditions (cont'd)

DRY NEEDLING PROCEDURE

- **Following a release of the taut band** ⇒ Stretching the muscle until engaging a new barrier
- **Repetition** ⇒ 2-3 times depending on the patient's tolerance
- **Frequency** ⇒ 7 days between the sessions



Mechanisms of the Effect of Dry Needling for Neurological Conditions



Dry Needling Techniques

- ✿ **Pistoning** technique
- ✿ **Needle Rotation** technique
- ✿ **Needle Tenting** technique
- ✿ **Electrical Stimulation** technique
- ✿ **Needle Redirection** technique

Absolute Contraindications

Inadequately trained practitioner

Needle phobia

Cognitive impairment

Patient's unwillingness to be treated

Patient's inability to give consent

Local skin lesions

Local or systemic infections

Needling directly over implants

Relative Contraindications

First trimester of pregnancy

Vascular disease

Abnormal bleeding tendency (anticoagulant therapy, thrombocytopenia)

Compromised immune system

Intercostal area

Needle aversion

Anatomical Considerations

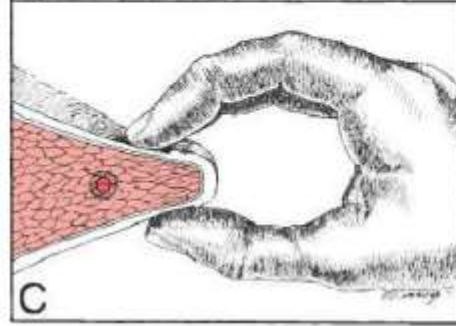
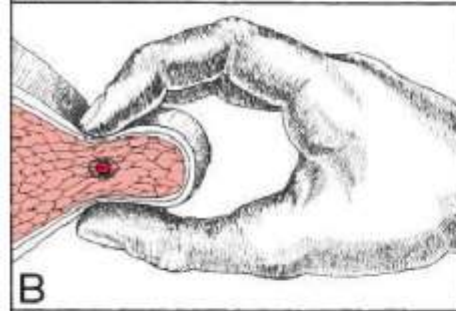
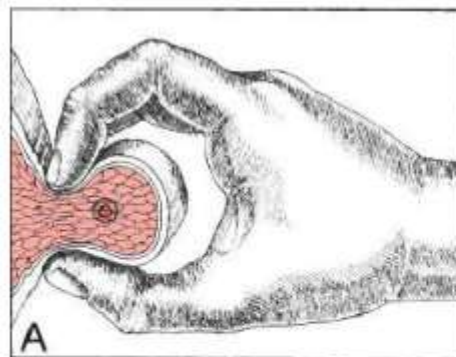
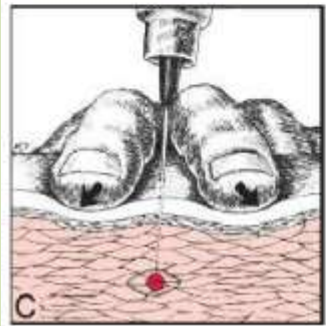
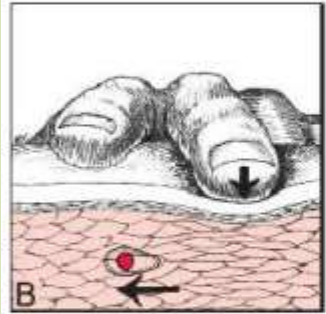
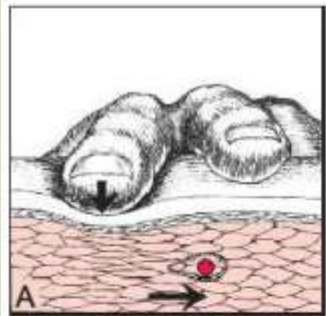
- ☆ **Pleura and lung**
- ☆ **Blood vessels**
- ☆ **Nerves**
- ☆ **Organs**
- ☆ **Joints**
- ☆ **Prosthetic implants**
- ☆ **Implanted devices**

When the Emergency Care Is Required

- Shortness of breath
- Persistent cough
- Unusual chest or rib cage pain
- Malaise

✚ *While a pneumothorax is less likely to occur when using a **filiform needle** than when using a **hypodermic needle**, it has been reported.*

Trigger Point Palpation for Needling



Complications of Dry Needling

- ✓ **Pneumothorax**
- ✓ **Vasovagal response**
 - *Sudden drop in BP, fainting, feeling lightheaded*
- ✓ **Muscle Soreness**
- ✓ **Fatigue**
- ✓ **Bruising**
- ✓ **Stuck needle**
 - *Tissue grasping the needle not being able to pull the needle out*
- ✓ **Infection**
- ✓ **Nerve Injury**
- ✓ **Vascular Injury**
- ✓ **Hematoma**
- ✓ **Penetration of visceral organs**
- ✓ **Lesion to brainstem or spinal cord**




Possible Reasons for Failure of Dry Needling

- 1.** Disregarding perpetuating factors *is probably the most important reason for failure*
- 2.** Needling a latent TrP, not an active TrP
- 3.** Needling the area of referred pain and referred tenderness, not the TrPs
- 4.** Failure to needle the TrP itself
- 5.** Inappropriate needle gauge

Possible Reasons for Failure ... (cont'd)

- 6.** Inadequate hemostasis followed by irritation of the TrP due to local bleeding
- 7.** Overlooking other active or associated TrPs
- 8.** Failure to provide post-needling care
- 9.** Failure to establish a home exercise prescription that includes intensity, frequency, and duration of the home management program

Measures to Prevent Trigger Point Reactivation

-  ***Postural disorders***
-  ***Management of stress***
-  ***Biochemical disorders***

Postneedling Procedures

- Cold or heat?
- Elongating the muscle
- Physiotherapeutic modalities
- Kinesiotaping
- IASTM

The Right Muscle for DN in Headaches

Region of Pain	Involved Muscles
Temporal	Trapezius SCM Temporalis Splenius cervicis
Occipital	Trapezius Temporalis Semispinalis capitis Semispinalis cervicis Suboccipitals Splenius capitis SCM
Frontal	Frontalis SCM Semispinalis capitis Orbicularis oculi
Vertex	Splenius capitis SCM Suboccipitals
Around Ear	Pterygoid Masseter SCM

Thank you