

Dry Needling: Interventions and Clinical Application



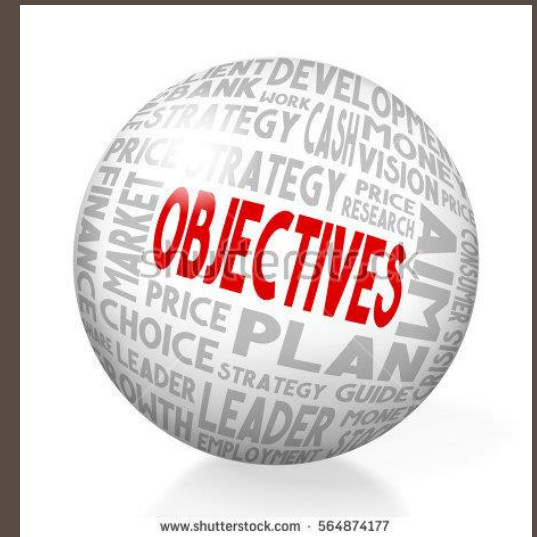
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Lafayette Area Sports Symposium February 7,
2018

Objectives:

- Define Dry Needling (DN)
- Utilization of Intervention in Clinical Practice
- Proper and Safe Application of DN
- Indications and Contraindications
- Medical Oversight



What is Dry Needling (DN)?

- DN is a skilled intervention that uses a fine, solid filiform needle
 - Penetration of skin with therapeutic intent
 - Without the use of injectate
- Neuromusculoskeletal effects
- Targets deeper tissues



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MB

Msk
L50



35%

MI

1.0

TIS

0.1

A □ □ □

B ▽



2.7



Dry Needling vs Acupuncture

- Acupuncture
 - Eastern medicine
 - Energy meridians
- Dry Needling
 - Western medicine
 - Muscle fiber orientation/origin/insertion
- Overlap in modern biomedical understanding



DN versus Acupuncture

- While terminology, theoretical constructs, and philosophies are different, the actual procedure of technical delivery and analgesic inducing mechanisms underpinning such are very similar (Butts 2016, Dunning 2014, Zhou 2015)
- Dorsher et al. reported the distribution of trigger points has a 93% overlap with acupuncture points in the treatment of pain disorders
- High quality RCT in acupuncture research
 - Vast majority use western medical diagnoses
- Acupuncture literature recently conducted by physiotherapists, physicians and PhD's, not traditionalist Chinese acupuncturists



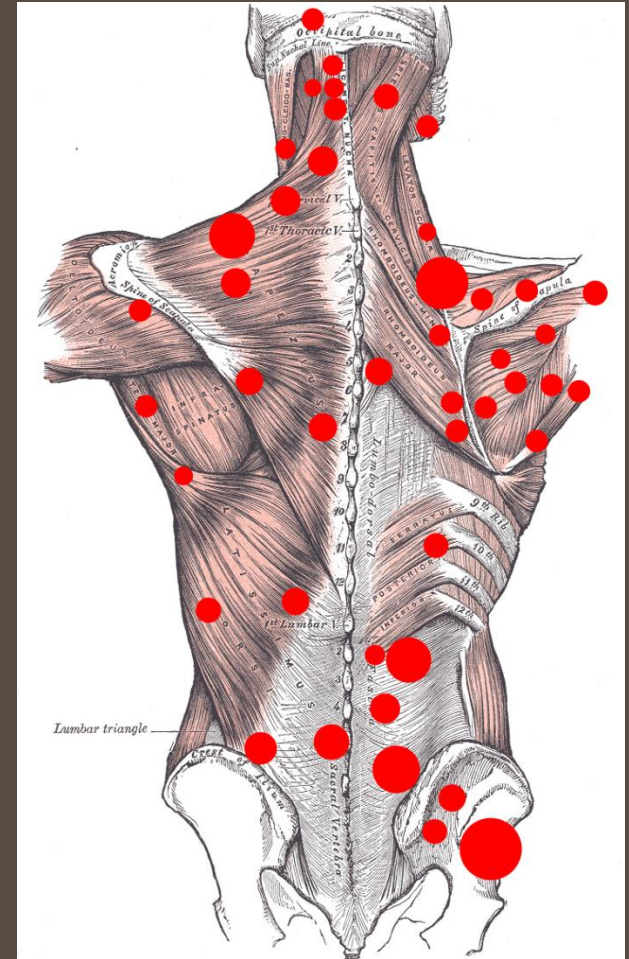
Use of DN in Clinical Practice

- Traditionally DN has focused on targeting “trigger points” and/or has been referred to as trigger point dry needling
- A Myofascial Trigger Point (MTrP) is defined as a ‘hyperirritable point located in taught bands of skeletal muscle’
- Trigger points are palpated and the needle is inserted into the trigger point numerous times to eliminate the twitches within the muscle

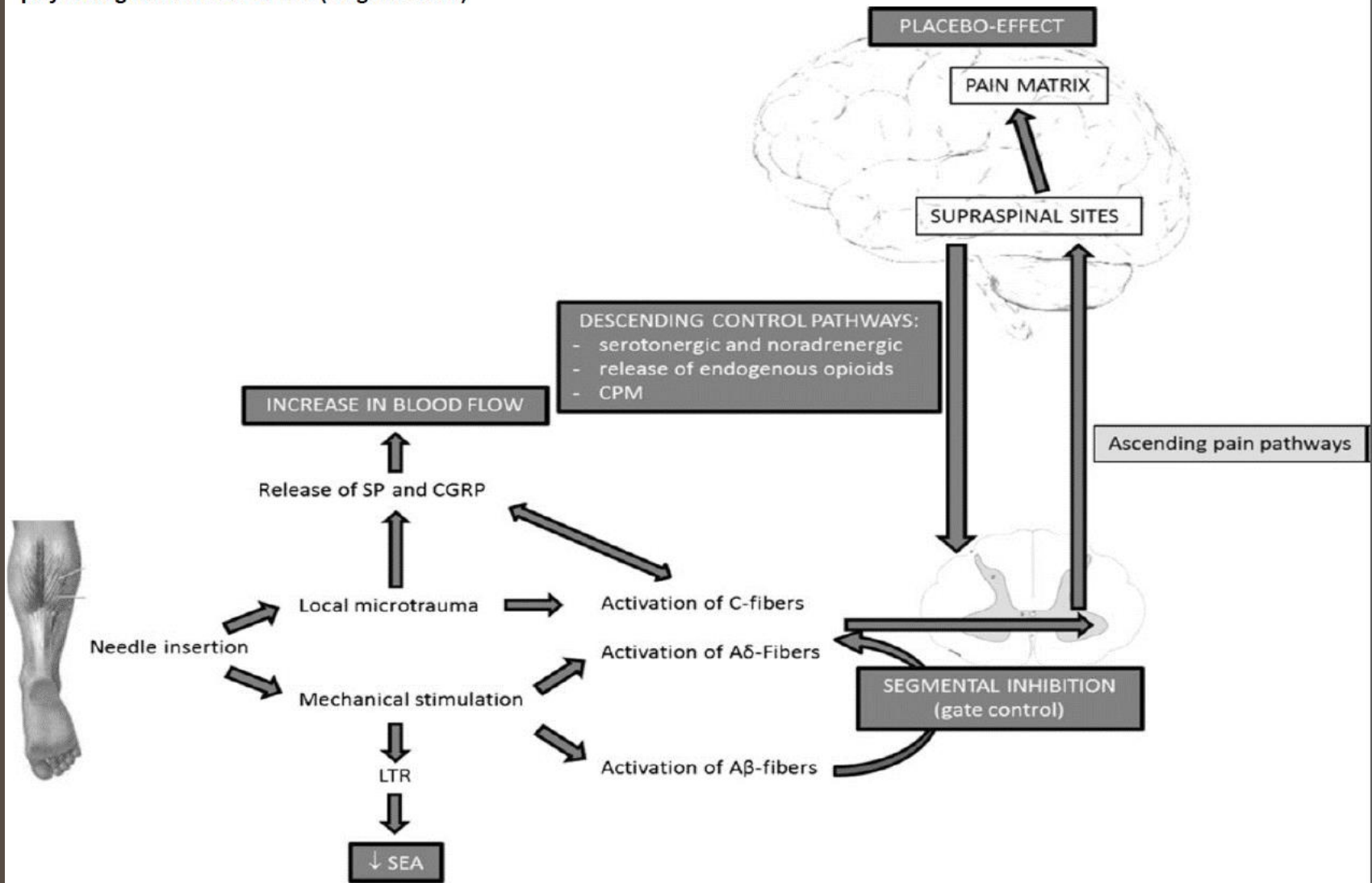


Use of DN in Clinical Practice

- However, the idea that we can target **only** MTrPs with this modality has been called into question
- There is a theoretical and evidence base for the use of DN in the treatment of many neuromusculoskeletal conditions **WITHOUT** specifically targeting MTrPs
 - Tendinopathies
 - Pain
 - Muscular restriction



Schematic diagram of the potential physiological effects of DN (Cagnie 2013)



Application of DN

- Safety
- Adverse Reactions
- Procedure



What is felt by the patient

- Small pin prick initially when the needle is inserted
- Local twitch response - muscle twitches when an active trigger point is treated
- Deep ache - associated with trigger point
- Possible burning sensation if nerve is contacted
- Possible soreness for 24-48 hours following treatment
- Improved ROM, mobility, flexibility and decreased pain if trigger point is treated



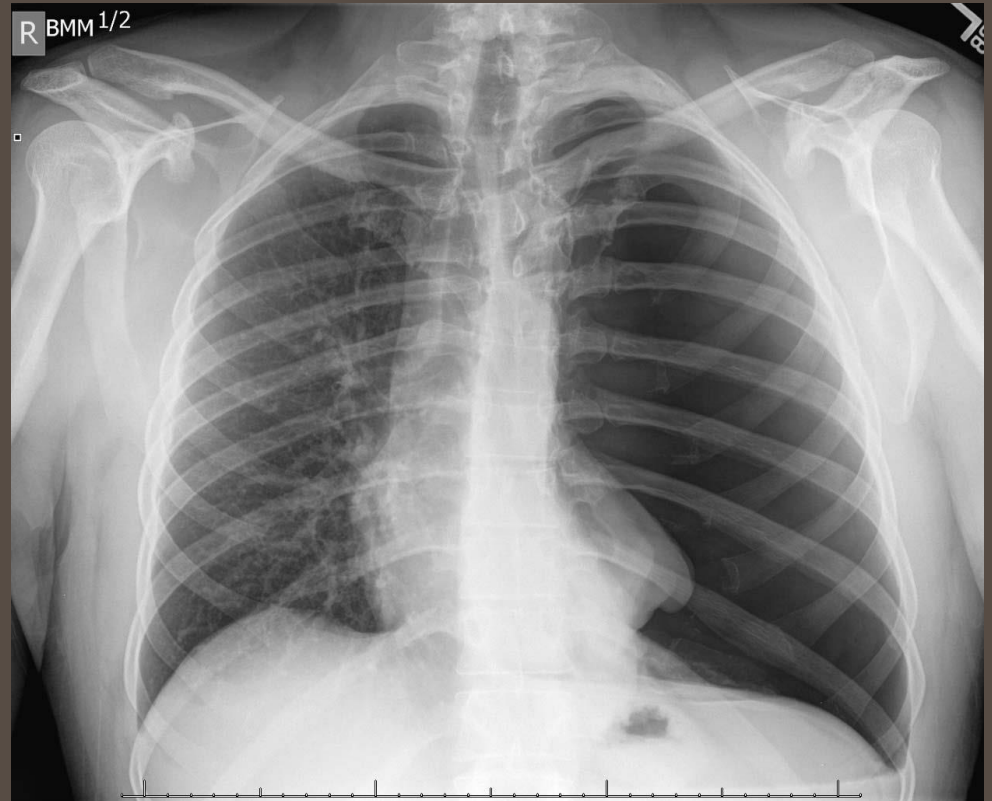
Safety

- Per CDC for injections, don't have to prep skin
 - Clean vs Sterile
- Acupuncture
 - 1 case of infection in 68.5 million cases
- Hand hygiene
- Clinician preparation
 - Universal precautions



Potential Adverse Events

- Pneumothorax
- Organ puncture
- Nerve Injury
- Infection



Most Common Adverse Events

Brady 2014

Table 3 Types of Adverse Events (AEs) reported in 7629 treatments

<i>Event</i>	<i>Cases reported</i>	<i>Number per 100 treatments</i>
Bleeding	576	7.55
Bruising	355	4.65
Pain during treatment	230	3.01
Pain after treatment	167	2.19
Aggravation	67	0.88
Drowsiness	20	0.26
Feeling faint	17	0.22
Headache	11	0.14
Nausea	10	0.13
Fatigue	3	0.04
Emotional	3	0.04
Shaky	1	0.01
Itching	1	0.01
Claustrophobia	1	0.01
Numbness	1	0.01



Most Common Adverse Events



Bleeding

Bruising



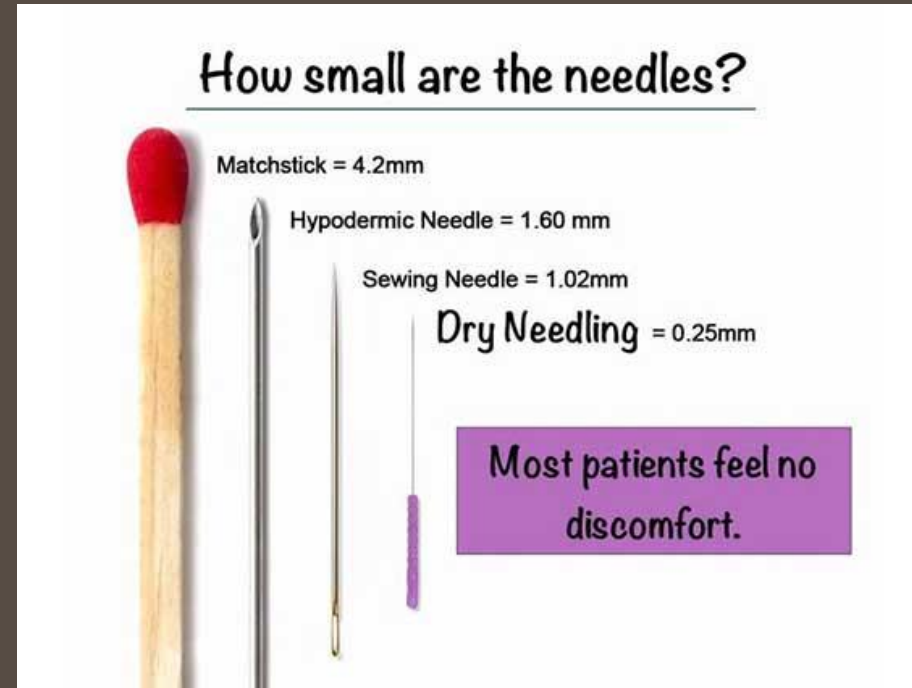
Application of DN

- Dosing
- Depth
- Width



Application of DN

- Large variability of dosing and intensity of DN in the literature
- Needles left in situ anywhere from 5-40 minutes
- Some low level evidence to conclude that specific to low back pain there is a greater effect when needles are left in for 10' vs. removed immediately



Application of DN

- One variable that we can adjust is the intensity of each session
- This can be done in a number of ways
 - # of needles per anatomical region
 - Depth of needles
 - Gauge (width) of needles
 - Additional techniques (pistoning, winding)



Application of DN

- Optimal dosage, frequency, depth and intensity of DN have yet to be determined
- Lack of high quality RCTs to establish a specific regimen for any of these factors
- Should follow reasonable guidelines as with any manual therapy that is likely to cause short-term soreness and/or moderate to severe



Indications	Precautions	Contraindications
<ul style="list-style-type: none"> - Acute and chronic conditions - Altered muscle tone - Fascial restriction - Tendinous and ligamentous pathology - Contusion - Neuromusculoskeletal pain 	<ul style="list-style-type: none"> - Apprehension regarding needles - Malignancy (away from site) - Infection (away from site) - Post-operative 	<ul style="list-style-type: none"> - Altered sensation - Pregnancy - Malignancy (local) - Blood clotting disorders - Blood disease - Integument compromise - Infection (local) - Needle phobia - Known bloodborne pathogen - Metal allergy - LB (Spina bifida, scoliosis)



Indications for DN

- Common patient presentation?



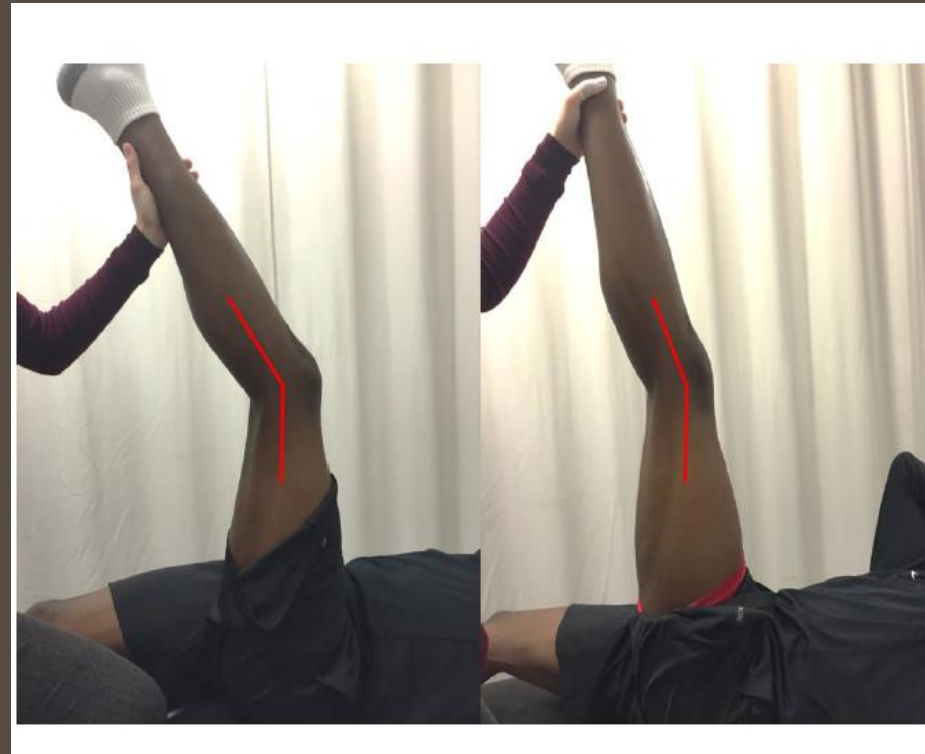
When to recommend

- Chronic pain patient and have tried other options
- Patient is eager to return at a faster rate
- Pain that appears to be referred pain



Outcome Measures

- Clinician-Rated Outcomes
 - ROM
 - Functional Testing
- Patient-Rated Outcomes
 - Immediate change vs long-term progress
- Test-Retest



Medical Oversight

- Federal regulations do not prohibit the performance of dry needling by physical therapists or athletic trainers; however **state regulation** varies
- Credentialing and privileging in relation to the implementation of DN
 - Policy and procedure development



Clinical Take-Home Points

- Should be used in conjunction with rehab and other treatments
- Relatively inexpensive comparatively
- Can target deeper tissues
- Consider its use for neuromusculoskeletal pain and conditions
- Within scope of practice if properly trained in intervention



**Take
home message*



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