Let’s Get to the Point: Utilization of Therapeutic Dry Needling for Myofascial Trigger Points

Jill Thein-Nissenbaum, PT, DSc, SCS, ATC
Associate Professor, UW-Madison
Department of Family Medicine
Staff PT, Badger Sportsmedicine
Thein@pt.wisc.edu

Alyson (AL) Kelsey, MEd, LAT, ATC
UW Health Athletic Trainer
akelsey@uwhealth.org

Neither Jill Thein-Nissenbaum nor Alyson Kelsey have any conflicts of interest with topics in this presentation.

Thank you to WATA!
Learning Outcomes/Goals

1.) Review and discuss the latest evidence regarding the efficacy of dry needling for myofascial trigger points / specific musculoskeletal diagnoses and conditions.

2.) Identify the indications, both absolute and relative, of dry needling; identify the contraindications of dry needling.

3.) Provide rationale for the utilization of dry needling in a multifaceted intervention program.

4.) Explain how to implement dry needling into an existing rehabilitation program for a patient with a musculoskeletal-based pathology.

Objective #1

1.) Review and discuss the latest evidence regarding the efficacy of dry needling for musculoskeletal pathology (UE, LE and trunk).

Does current evidence support the use of dry needling to diminish pain and/or improve function in the management of MTrPs in the athletic population?
Background & general information on DN

- Dry needling is not "owned" by any healthcare professional
  - US PTs since 1984
  - Other professions earlier
  - Athletic Trainers have been using for the last 10+ years

- Trigger point dry needling (TDN) is commonly used to treat musculoskeletal pain related to myofascial trigger points (MTrPs)

- Uses a solid filament needle since it does not inject anything

Myofascial trigger points (MTrPs)

- Hyperirritable spots in taut bands of skeletal muscle

- Painful on compression, gives rise to referred pain

- Always tender

- Weaken the muscle

- Mediate a local twitch response when stimulated

Travell, Postgrad Med, 1952
Myofascial trigger points (MTrPs)

- Often produces specific referred autonomic phenomena (localized sweating, vasoconstriction or vasodilation)
- Commonly found in postural muscles (SCM and scalenes, UT, LS, QL, piriformis and glut med)
- They are NOT spasms, no ongoing inflammatory response

Travell, Postgrad Med, 1952
Trigger points and tender points are very different. However, a patient with tender points COULD also have trigger points and vice versa. But, treatment is we are not rxing the tender points.

Theories as to why it works

- 1.) Peripheral and central pain modulation (Gate pain)
- 2.) “Defuses” central sensitization
- 3.) Placebo

1.) Gate Control Theory of Pain

- Gating in the spinal dorsal horn modulates transmission of nerve impulses; closing the gate disallows pain (travelling on the small-diameter fibers) through and the sensation travelling on the larger-diameter fibers is allowed through to the brain.

- Dry needling "closes" the pain pathway and sends a different sensation to the brain.

2.) Central Sensitization

- "An amplification of neural signaling within the central nervous system (CNS) that elicits pain hypersensitivity"
  - The CNS is "dialed up"

- Central sensitization is due to a persistent state of high reactivity of nociceptive afferent neurons in the CNS

- Dry Needling disrupts this
Fig. 1. Normal sensation. The sensory system is organized such that the highly specialized primary sensory neurons that encode low-intensity stimuli only activate their central pathways that lead to conscious sensations, while high-intensity stimuli that activate nociceptors only activate the central pathways that lead to pain and the somatosensory cortex. This is mediated by the strong synaptic input between the particular sensory inputs and pathways and inhibitory neurons that silence activity in these dedicated circuits.

Fig. 2. Central sensitization. With the induction of central sensitization in sensory pathways with increases in synaptic efficacy and reductions in inhibition, a central amplification occurs resulting in the pain response to noxious stimuli to amplification. Duration and spatial extent, while the amplification of normally innocuous synapses occurs collateral inputs such that inputs to low-threshold sensory inputs can now activate the pain circuits. The two parallel sensory pathways converge.

Musculoskeletal pain
Disproportionate pain experience?

YES
NO

Diffuse pain distribution?

YES

no Central Sensitization

NO

Central Sensitization

Central Sensitization Inventory ≥ 40 ?

YES

Central Sensitization

NO

no Central Sensitization

Woolf, Pain, 2011

Nijs, Pain Physician, 2014
3.) Placebo

Objective #1

1.) Review and discuss the latest evidence regarding the efficacy of dry needling for musculoskeletal pathology (UE, LE and trunk).

Does current evidence support the use of dry needling to diminish pain and/or improve function in the management of MTrPs in the athletic population?
Research related to DN and Athletes

- PubMed: Dry Needling AND athlete/S (title/abstract)
- ~14 papers (2016 to 2021)
- Many case reports/case series
- We will certainly use these, but also extrapolate from general population

Axial skeleton
Chronic Neck Pain: DN vs. DN + Exercise (RCT)

- RCT with guideline-based physical therapy treatment program (GBPTP) consisting of exercise and manual therapy on pain and disability vs. DN + GBPTP

- Outcomes: pain via NPRS and NDI

- 116 participants

- When combined with GBPTP for neck pain, dry needling resulted in small improvements in pain only at 1 month; no effect on disability

THM: With a well-designed exercise and MT program, DN did not make a big difference

Stieven, J Orthop Sports Phys Ther, 2020

Chronic Neck Pain: DN vs. manual therapy (RCT)

- DN vs TrP manual therapy (MT) on pain, function, pressure pain sensitivity, and cervical ROM in subjects with chronic mechanical neck pain (N= 47 in each group)

- Treatment was 2 sessions, one week apart, of either DN or MT to the UT

- Results:
  - Pain: both decreased, same between groups
  - PPT: both increased, but DN group statistically more

THM: In this study, DN decreased pressure sensitivity more than MT

**Acute Neck Pain: DN vs. no RX (RCT)**

- DN vs no rx on pain, pressure pain sensitivity, and cervical ROM in subjects with acute mechanical neck pain (N= 8 in each group)

- 1 DN session (UT).

- DN: greater decreases in neck pain, greater increases in pressure pain threshold, and higher increases in ROM vs. control

  THM: In acute neck pain, DN is better than nothing....


**Upper Trapezius and Neck Pain: DN vs Ischemic Compression (RCT)**

- Review of 15 RCTs; ischemic compression vs. DN

- Moderate evidence for ischemic compression and strong evidence for DN to have a positive effect on pain intensity; both had moderate effect on ROM

- Ischemic compression and dry needling can both be recommended in the treatment of UT trigger points

  THM: Compression helps, DN might be more effective; consider the depth of the TrPs

Upper Trapezius and Neck Pain: DN vs. KT (RCT)

- Kinesiotape vs DN to the upper trapezius
- Significant improvement in pain intensity at rest and cervical motion, in the pain pressure threshold for both groups; no difference between groups.

THM: Both change the activation of the TrP or how the muscle is being used?

Dogan, J Back Musculoskelet Rehabil, 2019

DN for neck pain: Meta-analysis

- Dry needling reduced pain immediately after and at short-term when compared with sham/placebo/waiting list at short-term.
- Low to moderate evidence, dry needling can be effective for improving pain intensity and pain-related disability in individuals with neck pain symptoms associated with TrPs at the short-term.

THM: Better than nothing.....

Navarro-Santana, J Clin Med, 2020
Shoulder Pain: RCT

- RCT (N = 121): (1) personalized EBP RX (2) trigger point dry needling + personalized EBP RX
- Pain, ROM, outcome tool, # active MTrPs
- No significant differences in outcome between the 2 treatment groups. Both groups showed improvement over time

THM: If the exercise program is well-designed, DN adds no effectiveness.

Perez-Palomares, JOSPT, 2017

Shoulder Pain: DN UT vs. DN Infra (RCT)

- 40 overhead athletes with unilateral shoulder impingement syndrome; UT DN and ISP DN for 3 sessions
- Pain intensity (visual analog scale), pain pressure threshold, and DASH before and after the interventions
- Pain and disability decreased significantly in both groups; no difference between groups

THM: DN to either muscle was effective. Consider your comfort level / patient’s comfort

Kamali, J Sport Rehabil, 2018
Lateral Epicondyalgia: Systematic Review and Meta-Analysis

- Seven studies (n=320) DN reduced pain intensity and related-disability and increased pain pressure threshold with large effect sizes compared to a comparative group. Small effect on grip strength.

- The most significant effect was at short-term.

Navarro-Santana, Clin Rehabil, 2020

THM: DN is effective in treating lateral epicondyalgia in the short term—maybe helps “jump start” rehab?

LBP: Systematic Review and Meta-Analysis

- 11 RCTs involving 802 patients

- Compared with other treatments, DN was more effective in alleviating the intensity of LBP and functional disability; however, the significant effects of dry needling plus other treatments on pain intensity could be superior to dry needling alone for LBP

Liu, Arch Phys Med Rehabil, 2018

THM: DN for LBP is good; better when combined with exercise.
CR: Hamstrings

- 18-year-old collegiate pole-vaulter with acute hamstring injury and H/O strains; Rxed 3x/wk for 3 weeks with eccentric training; 3 sessions of DN.
- Day 12: eccentric strength on the involved extremity was greater than uninvolved; clinically meaningful improvement in outcome scores
- Day 20: RTS without pain or lingering strength deficits

THM: Good RTS with no recurrence


PFP: DN to the Gluteus Medius & Quadratus Lumborum (RCT)

- 40 female athletes with PFP; Ex group or Ex+DN
- Exercise therapy for 4 weeks; Ex+DN group received exercise therapy in combination with dry needling directed at GM and QL trigger points for 4 weeks.
- Both groups improved over time; between-groups comparisons showed significantly greater improvements in pain, function, and PPT in the Ex+DN group.

THM: DN to GM and QL helps PFP in females

Zarei, Arch Phys Med Rehabil, 2020
**PFP**

**RCT: DN and Sham DN**
- Needled 1x/week for 6 weeks
- Both groups stretched QD
- Needling group did better at 3 wk, and 3 month FU

**THM: DN good for PFP vs sham**

Ma, J Pain Res, 2020

**RCT: DN and Ischaemic Compression**
- 3 sessions of rx over 1 week
- Follow up at 1 week, 1 month and 3 months.
- No differences in the between-group comparisons of any variables

**THM: DN same as IC for PFP**

Behrangrad, Acupunct Med, 2020

---

**Patellar Tendinopathy: Meta-analysis**

- Studies using platelet-rich plasma (PRP) and DN when combined with exercise, proved to be effective for patellar tendinopathy.
- PRP might be better short term
- DN better long term

**THM: DN is an option for patients with patellar tendinopathy**

Lopez-Royo, Evid Based Complement Alternat Med, 2020
Knee Pain Syndromes: SR and MA

- Ten studies (six PFP, 2 OA, 2 post-op)
- Moderate effect sizes of dry needling for reducing pain and improving related disability in short term. No significant effects were observed at mid- or long-term follow-ups.

**THM: DN helpful for knee pain short-term**

Rahou-El-Bachiri, J Clin Med, 2020

Achilles tendinopathy

- 12-week rehabilitation program +
  - intramuscular stimulation
  - sham intramuscular stimulation
  - rehab alone
- All groups improved over time, none were superior

**THM: DN is not better than other interventions**

Solomons, Plos One, 2020
Plantar Fascitis: RCT

- 3 weeks of stretching and oral medication; if not improved, were randomized into DN or corticosteroid injection.
- DN- effective at week 3 and 6 months
- CS- effective at week 3

THM: DN effective 3 and 6 months for PF

Uygar, J Foot Ankle Surg, 2019

Meta-Analyses

- 15 articles
- Main outcomes: pain, ROM, disability, depression and QoL
- Dry needling is effective in the short term for pain relief, ROM, QoL v. no intervention/sham/placebo
- There is insufficient evidence on its effect on disability, analgesic medication intake and sleep quality

THM: DN has a short-term effect on pain and QoL

Espego-Antunez, Complement Ther Med, 2017
Systematic Reviews and Meta-Analysis

- 13 articles
  - 0-12 weeks: dry needling may decrease pain vs. control/sham
  - 6-12 months: dry needling was favored for decreasing pain, but the treatment effect was not statistically significant

THM: DN is more effective than no treatment, sham dry needling, and other treatments in the immediate to 12-week follow-up period

Gattie, JOSPT, 2017

By now......
Transition for research to clinical application...

- MTrP
- N-TrP
- Reasons to treat
- Clinical protocols
- Dry Needling IS and IS NOT
- Clinical application videos
- “Vingettes”

Dry Needling IS:

- An invasive technique used to treat myofascial pain by causing the TrP to release/deactivate

- Useful; it improves pain control, reduces muscle tension, normalizes biochemical and electrical dysfunction of motor endplates, and facilitates an accelerated return to active rehabilitation

- An adjunctive treatment
Dry Needling is NOT:

- **Acupuncture**: Acupuncture utilizes the philosophy that energy, qi, circulates through the body along meridians. Acupuncturists insert needles into specific points, several hundred in number, to restore the balance and flow of qi.

- Taught as an entry-level skill (in most professional programs)

- Legal/used by all PTs (may be state or facility specific)

- Legal/used by all athletic trainers (may be state or facility specific)
Myofascial trigger points (MTrPs)

- Often produces specific referred autonomic phenomena (localized sweating, vasoconstriction or vasodilation)
- Commonly found in postural muscles (SCM and scalenes, UT, LS, QL, piriformis and glut med)
- They are NOT spasms, no ongoing inflammatory response

Travell, Postgrad Med, 1952
Trigger points and tender points are very different. However, a patient with tender points COULD also have trigger points and vice versa. But, treatment is we are not rxing the tender points.

Neuro-Trigger Points (N-TrP)

- **Homeostatic N-Tr Points**
  - 48 total (24 each side) everyone has them
- **Paravertebral N-Tr Points**
  - Corresponds to the segmental innervation of dysfunctional area
- **Symptomatic N-Tr Points**
  - Patient tells you “it hurts right here” or “the tightness is right here”
**Integrative Dry Needling**

- “Creating a tissue lesion” and tissue remodeling
  - Decreased tissue tension and normalize local inflammation
- Soft tissue dysfunction
  - Inflammation, sensitized nerve tissue, scar tissue, tissue adhesion, increase circulation
- Tissue homeostasis
  - Self-healing and self-repair mechanisms are activated
  - Normalize physiological processes

**Patient selection:**
**Contraindications and Precautions**

- Needle phobia
- An unwilling patient
- A patient who is unable / unwilling to consent
- A patient with a history of abnormal reaction to needling or injection
- In a medical emergency
- Anticoagulant therapy, or who has thrombocytopenia
- Local skin lesions
- Local or systemic infection

- Immunosuppression
- 1st trimester pregnancy
- **Before 6 weeks post-op**
Safety

- Patient selection: DN must be INDICATED (i.e., a MTrP, N-TrP), and part of a multi-faceted PoC
- Bracketing technique: a bony backdrop is positioned to stop the needle progression whenever possible OR "thread" the needle through the muscle
- If we are uncomfortable, we do not do it!

Reasons to treat

- Somatic or visceral referral pattern
- Pathophysiological imbalance
- Soft tissue dysfunction
- Soft tissue injuries
- Prevention?
- Tissue optimization
- Post surgical rehab
- Tissue “warm up”
Personally, our opinion:

- **“Easy” Muscles:**
  - Supraspinatus
  - Infraspinatus
  - Temporalis
  - SCM
  - Lumbar extensors and multifidi

- **“Challenging” Muscles:**
  - Quadratus Lumborum
  - Serratus Anterior
  - Psoas

All have a boney background or can easily be “threaded”

No boney background and cannot pull away to “thread”

---

Table 1. Dry needling screening tool for clinicians.

<table>
<thead>
<tr>
<th>Conditions requiring pre-intervention care</th>
<th>Precautions and potential adverse responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothalamic: Fear</td>
<td>Symptom exacerbation</td>
</tr>
<tr>
<td>Anxiety</td>
<td>New onset headache, nausea</td>
</tr>
<tr>
<td>Stress</td>
<td>Cerebral vasospasm</td>
</tr>
<tr>
<td>Intracranial pressure</td>
<td>Cerebral pressure</td>
</tr>
<tr>
<td>Radiation</td>
<td>Intention</td>
</tr>
<tr>
<td>Hypothyroid</td>
<td>Bracing</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>Immuno-suppression</td>
</tr>
<tr>
<td>Thyroid disorders</td>
<td>Intention</td>
</tr>
<tr>
<td>Musculoskeletal: Thromboembolism</td>
<td>Intention</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>Bracing</td>
</tr>
<tr>
<td>Muscle atrophy</td>
<td>Intention</td>
</tr>
<tr>
<td>Liver function</td>
<td>Intention</td>
</tr>
<tr>
<td>Renal function</td>
<td>Intention</td>
</tr>
<tr>
<td>Cardiac/Respiratory: Other inflammatory, clotting disorders</td>
<td>Intention</td>
</tr>
<tr>
<td>Gastrointestinal: Urolithiasis</td>
<td>Intention</td>
</tr>
<tr>
<td>Urinary tract obstruction</td>
<td>Intention</td>
</tr>
<tr>
<td>Inflammatory autoimmune disorders</td>
<td>Intention</td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>Symptom exacerbation during active phase</td>
</tr>
<tr>
<td>Systemic lupus erythematosus</td>
<td>Symptom exacerbation during active phase</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>Symptom exacerbation during active phase</td>
</tr>
<tr>
<td>Polymyalgia rheumatica</td>
<td>Symptom exacerbation during active phase</td>
</tr>
<tr>
<td>Ataxia</td>
<td>Intention</td>
</tr>
<tr>
<td>Cataracts</td>
<td>Intention</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Intention</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>Intention</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Delayed healing</td>
</tr>
<tr>
<td>Primary adrenal insufficiency</td>
<td>Intention</td>
</tr>
<tr>
<td>Cushing’s syndrome</td>
<td>Intention</td>
</tr>
<tr>
<td>Upper extremity Sp.</td>
<td>Intention</td>
</tr>
<tr>
<td>Lower extremity Sp.</td>
<td>Intention</td>
</tr>
<tr>
<td>Temporal lobe epilepsy</td>
<td>Intention</td>
</tr>
</tbody>
</table>

Kearns, J Man Manip Ther, 2019
# Our Typical Routine

- Brief interview (location of S/S, management thus far)
- Palpation
  - Decide approach with needles
- Get out our book, needles & educate
  - Explain plan to patient
- Review patient consent form
- Prepare patient (alcohol)
- Prepare me (gloved, equipment ready)

### Muscle considerations

<table>
<thead>
<tr>
<th>Muscle</th>
<th>Potential adverse events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral pterygoid</td>
<td>Neuromuscular puncture</td>
</tr>
<tr>
<td>Obliquus capitis inferior</td>
<td>Spinal canal, epidural/subarachnoid, spinal cord, or foramen magnum puncture</td>
</tr>
<tr>
<td>Cervical multifida</td>
<td>Cervical epidural hematoma</td>
</tr>
<tr>
<td>Scalene</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Supraspinatus</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Upper trapezius</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Thoracic longissimus</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Thoracic iliocostalis</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Rhomboid</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Pectoralis major and minor</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Serratus anterior</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>External oblique</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Rectus abdominis</td>
<td>Abdominal visceral puncture</td>
</tr>
<tr>
<td>Quadratus lumborum</td>
<td>Kidney or abdominal visceral puncture</td>
</tr>
<tr>
<td>Psoas</td>
<td>Neurovascular puncture or compartment syndrome</td>
</tr>
<tr>
<td>Tibialis posterior</td>
<td></td>
</tr>
</tbody>
</table>

Gl: Gastrointestinal.
Do you need a “twitch” for success?

- Several studies show that eliciting a LTR does not correlate with changes in pain and disability; multiple systematic reviews have failed to conclude whether the LTR is relevant to the outcome of TrPDN.

- Post needling soreness is consistently reported in studies using “pistoning”.

- Needle winding without LTRs to MTrPs and connective tissue is well supported in the literature, as it is linked to anti-nociception and factors related to tissue repair and remodeling.

To twitch or not to twitch......RCT

- Using the upper trap, 3 sessions of DN. One group used 2 minutes of pistoning looking for a twitch response f/b 5 minutes in place; Second group had needle inserted and held in place for 5 minutes.

- DN without eliciting LTR seemed to produce more improvement in the pain intensity, pain pressure threshold and ROM after 4-weeks.

- Less/no muscle soreness?????

Hakim, J Back Musculoskelet Rehabil. 2019
Post Treatment

- Encourage activity (use the muscle)
- Hydrate!
- “Do whatever you would normally do” (heat or ice is fine)
- Monitor when you start to feel relief; track how long you have relief

Still a lot of ????

<table>
<thead>
<tr>
<th>TBD</th>
<th>What I do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal frequency/# of Rx</td>
<td>1-2x/week; occasionally weekly during season, or every other week</td>
</tr>
<tr>
<td>Length of time a needle remains inserted</td>
<td>If more irritable, I leave the needle in longer and do not “piston” as much; sometimes I spin it instead (myofascial)</td>
</tr>
<tr>
<td>Intensity (# needles to be used)</td>
<td>1-3 per muscle; depends on how many twitches I get with the first needle; “clean up”</td>
</tr>
<tr>
<td>RX the muscle, the fascia, the lymphatic system or all of the above</td>
<td>I am trained in muscle, others trained in a broader approach</td>
</tr>
<tr>
<td>Use of electrical stimulation</td>
<td>I like it</td>
</tr>
</tbody>
</table>
Still a lot of ????

<table>
<thead>
<tr>
<th>TBD</th>
<th>What I do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal frequency/# of Rx</td>
<td>1-2x/week; occasionally weekly during season, or every other week</td>
</tr>
<tr>
<td>Length of time a needle remains inserted</td>
<td>If more irritable, I leave the needle in longer to “stew” specially if their pain is centered around a big homeostatic point</td>
</tr>
<tr>
<td>Intensity (# needles to be used)</td>
<td>1-4 per muscle; depends on how many twitches I get with the first needle; “clean up” If is their first session- prioritize the most important needles, and add on with next sessions</td>
</tr>
<tr>
<td>RX the muscle, the fascia, the lymphatic system or all of the above</td>
<td>I am trained in a broader approach, treating systemically with homeostatic points, still use trigger point too</td>
</tr>
<tr>
<td>Use of electrical stimulation</td>
<td>I like it too, specially with deeper, bigger muscles</td>
</tr>
</tbody>
</table>

Most Importantly

- This is one part of a multi-facted PoC for the patient!
- Still have to answer WHY they are getting MTrPs in the first place and fix that

“You put a band-aid over an open fracture, it looks better, but you still have not fixed the underlying problem. Same is true for dry needling; you may have relieved the MTrPs, but not fixed why the patient HAS them.”
~ JTN
Videos
Enhance the visualization of the learner, and apply clinical applications

Clinical Protocols

- One standard but individualized protocol
- DN normalizes physiological homeostasis to maximize self-healing of all "healable" symptoms

Standard
Homeostatic N-TrP

Individualized
Symptomatic N-TrP and MTrP
Paravertebral N-TrP

Dr Ma's Integrative Dry Needle Pain Management and Sports Rehab Course Book
Electrical Stim and DN
MTrP seen in pictures are very similar, if not exactly where the MTrP are believed to be in the body. Also interesting that the patient could have some SI joint tightness or low back tightness.

Hamstring “Vignette”
(5-7 needles)

- Homeostatic Points
  - Inferior Gluteal
  - Superior Cluneal (let sit and stew)
  - Lateral popliteal (quick, and tell patient they usually will feel this one)
- Paravertebral Point
  - S1
- Symptomatic
  - TTP on hamstring muscles (not acutely)
  - HS with Estim

Typical Clinical Presentation: Subacute stage of hamstring injury; or “soreness” felt in posterior chain

- Tight glutes
- ROM in HS and hips could use improvement
- Low back is hypomobile
- Coupled with MET, posterior chain strengthening, and some type of muscle recovery modality (if applicable)
Electrical Stimulation Indications and Precautions

**Indications**
- Acute and chronic pain conditions
- Patients that don’t tolerate “pistoning”
- Muscular spasm present
- Scars and adhesions

**Precautions**
- Implanted devices
- Areas of sensory denervation
- Areas of compromised circulation
- Cervical and chest regions
Piriformis/Glute “Vignette”
(5-7 needles)

- Homeostatic Point
  - Inferior Glute
  - Superior Cluneal
- Paravertebral
  - L4, L5, S1
- Symptomatic
  - Glute Med (angle of needle)
  - Just off of SI joint (my own point)

**Typical Clinical Presentation:** Low back is hypomobile, low back tightness explained by patient, ROM with IR/ER of hips are not equal/not WNL.

- Tight glutes
- SI joint is hypomobile
- Low back intervertebral spacing is hypomobile
- ER of hip is not WNL
- Coupled with MET, posterior chain and GLUTE strengthening, and some type of muscle recovery modality (if applicable)
Low Back “Vignette”
(5-7 needles)

- Homeostatic Points
  - Inferior Glute
  - Superior Cluneal
  - Posterior Cutaneous of L2 and L5
- Paravertebral Points
  - At vertebral level of pain (varies with patient)
- Symptomatic
  - Usually coincides with paravertebral point
  - My own point “just lateral to PSIS”
    - Why?

Typical Clinical Presentation:
Hypomobility noted on spring test, and palpable MTrP along paraspinals of low back

- Tight glutes
- Low back is hypomobile
- Coupled with MET, posterior chain strengthening, and some type of muscle recovery modality (if applicable)
Upper Trap/Cervical "Vignette"
(6+ needles)

- **Homeostatic Points**
  - Spinal Accessory
  - Dorsal Scapular
  - Suprascapular
  - Greater Occipital
  - Posterior cutaneous of C6
  - Spinous process of C7

- **Paravertebral Points**
  - Thoracic paravertebral (1:1 rule)
  - Patients and the rhomboids….

- **Symptomatic Points**
  - Usually targeted by homeostatic and paravertebral points

**Typical Clinical Presentation:**
Upper trap tightness: neck stiffness with AROM, headaches

- Patient states they “feel it between the shoulder blades”
- MTrP palpable in upper trap
- Coupled with MET, posterior chain strengthening, and some type of muscle recovery modality (if applicable)
Extra Videos

- Calf tightness
- Shin splints

Travell and Simons
THANK YOU!
Questions? Thoughts? Your Experiences? Tips?

Can DN +/- impact performance?
Timing of DN with performance

- RX latent MTrPs in the LE with respect to performance
- 40 male athletes: Rectus femoris DN (group 1); Medial gastrocnemius DN (group 2); Rectus femoris and medial gastrocnemius DN (group 3); no DN (group 4)
- Baseline, immediately after DN, 48, 72 and 96 hours post intervention

Devereux, J Strength Cond Res, 2018

Timing of DN with performance

- Subjects performed squat jumps at 5 incremental loads and were assessed for jump height, power output, optimal force and optimal velocity
- Results: a significant increase in jump height in group 2 (gastrocnemius muscle only) from immediately post to 48 hours post intervention (p = 0.01)

Devereux, J Strength Cond Res, 2018
Hip ROM, quad strength

- 30 professional soccer players

- 4 weekly session of DN + water pressure massage on quad force and hip flexion. (Group receiving placebo laser + water pressure massage and control)

- Data at baseline (M1), treatment end (M2), and 4 wk follow-up (M3)

- DN showed a significant effect on muscular endurance and hip flexion range of motion that persisted 4 wk post rx


DN vs. ESWT on latent TPs

- Latent myofascial trigger points (TrP) can reduce strength and alter activation patterns

- 21 recreational athletes were split into three groups: DN, ESWT or control group

- 3 sessions in one week; FU 4-7 days after last rx; TrP sensitivity was measured using the PPT

- DN is effective for increasing PPT of latent TrPs, but can be associated with post-treatment soreness

- ESWT is as effective, but without the post-treatment soreness

  Walsh, J Bodyw Mov Ther, 2019
Extra Corporeal Shock Wave Therapy

- SW are rapid, short and distinct single fluctuations of acoustic energy from a positive to a negative phase
- In the target tissue, the induced energy converges into the focal area
- The mechanisms that enable tissues to recognize and convert the intensity, frequency, amplitude and duration of an acoustic signal into a biological reaction are still unknown

Romeo, Med Princ Pract, 2014