

## WHAT'S ALL THE HYPE ABOUT DRY NEEDLING IN PHYSICAL THERAPY?

Joel DeMaris, PT, DPT  
 Kevin Gennrich, DPT, OCS, FDN  
 Bill Koch, PT, DPT, OCS, FAAOMPT  
 Kathleen Picard, PT  
 Toan Q. Tran, PT, DPT  
 Becky Vogsland, DPT, OCS  
 Derek Vraa, PT, DPT, OCS, CSCS, FAAOMPT

## Topics Covered

- Dry needling defined – Bill Koch
- Political/legal issues and coding – Kathleen Picard
- Dry needling use in clinical practice – Becky Vogsland
- Implementation in practice (private practice vs large system) – Joel DeMaris, Derek Vraa, Kevin Gennrich, Becky Vogsland, Bill Koch
- Discussing with physicians/patients/other professionals- Joel DeMaris, Derek Vraa, Kevin Gennrich
- Case Examples – Toan Tran, Joel DeMaris, Derek Vraa, Kevin Gennrich
- Technique Demonstration - Toan Tran

## DRY NEEDLING IN PHYSICAL THERAPIST PRACTICE: DEFINED

Bill Koch, PT, DPT, OCS, FAAOMPT

## APTA Definition - 2013

- *Dry needling is a skilled intervention that uses a thin filiform needle to penetrate the skin and stimulate underlying myofascial trigger points, muscular, and connective tissues for the management of neuromusculoskeletal pain and movement impairments. Dry needling (DN) is a technique used to treat dysfunctions in skeletal muscle, fascia, and connective tissue, and, diminish persistent peripheral nociceptive input, and reduce or restore impairments of body structure and function leading to improved activity and participation.*
- Guide to Physical Therapist Practice 3<sup>rd</sup> Edition - 2015
  - Dry Needling listed as a form of *Manual Therapy*

## FSBPT Definition - 2012

"[Dry Needling] is a technique using the insertion of a solid filament needle, without medication, into or through the skin to treat various impairments including, but not limited to: scarring, myofascial pain, motor recruitment and muscle firing problems. Goals for treatment vary from pain relief, increased extensibility of scar tissue to the improvement of neuromuscular firing patterns."



## AAOMPT Statement - 2009

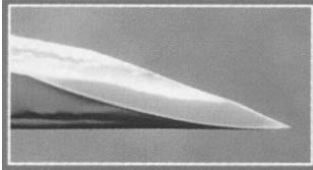
"Dry needling is a neurophysiological evidence-based treatment technique that requires effective manual assessment of the neuromuscular system. Physical therapists are well trained to utilize dry needling in conjunction with manual physical therapy interventions. Research supports that dry needling improves pain control, reduces muscle tension, normalizes biochemical and electrical dysfunction of motor endplates, and facilitates an accelerated return to active rehabilitation"



## Thin mono-filament needle

### Needles

- Sterile, thin, solid mono-filament needle
- Conical tip
- Pushes through tissue = less trauma



## Why "Dry" Needling?

- Needles are "Dry"
  - Solid filament – no medication administration possible
- "Wet" needling
  - Needle has a lumen that is utilized to infiltrate the TrPt with medication
    - Lidocaine
    - Bupivacaine +/- dexamethasone
    - Ropivacaine +/- dexamethasone

## Not an isolated treatment

- APTA (2013) - *reduce or restore impairments of body structure and function leading to improved activity and participation*
- FSBPT (2012) - *Goals for treatment vary from pain relief, increased extensibility of scar tissue to the improvement of neuromuscular firing patterns*
- AAOMPT (2009) - *Physical therapists ... utilize dry needling in conjunction with manual physical therapy interventions. Research supports that dry needling ... facilitates an accelerated return to active rehabilitation*

## It's different than acupuncture

dry needling : acupuncture

as

thrust manipulation : chiropractic adjustments

- Similar tool
- Vastly different theoretical constructs
  - Myofascial TrPts/Connective tissue vs Pain Meridians
- Neurophysiologic and/or mechanical vs Subluxation correction

## DRY NEEDLING IN PHYSICAL THERAPIST PRACTICE: CLINICAL APPLICATIONS

Becky Vogsland, DPT, OCS

## Why Needle?

- Mechanical
  - Disrupt contraction "knots", stretch sarcomere assemblies, affect the motor endplate. Restore movement patterns.
- Vascular
  - Microvascular changes are seen with needle insertion and with treatment of trigger points.
- Neurophysiologic
  - Descending inhibitory system activation.
- Central effects
  - Persistent nociceptive input from trigger points contribute to central and peripheral sensitization.

## Why Needle?

- Speed and comfort of treatment
  - Needle effect (Lewit, 1979)
- Save therapist's hands
- Patient beliefs
  - Placebo
  - Ritual
  - Healthcare consumers
- Use as part of a comprehensive rehabilitation episode
  - Education
  - Manual therapy
  - Therapeutic exercise
  - Neuromuscular re-education

## Who to Needle?

- Neuromusculoskeletal pain and movement dysfunction
  - RCTs
    - Back (Ceccherelli et al, 2002)
    - Knee (Mayoral, 2010)
    - Myofascial pain syndrome (Tekin et al, 2012)
    - Plantar heel pain (Cotchett et al, 2014)
  - Other studies
    - Hemiparetic shoulder pain (DiLorenzo et al, 2004)
    - Shoulder in college volleyball players (Osborne, 2010)
    - Headache (Giambardino et al, 2012)
- Many studies support the existence and impact of trigger points on pain and function
- Literature supports the treatment of trigger points to decrease pain and improve function

## What's the Evidence for Efficacy?

Type of Study	Year	Conclusion
Systematic review	2001	<i>The effect beyond placebo is neither supported nor refuted.</i>
Review (Cochrane)	2005	<i>Acupuncture and DN might be helpful adjuncts to other therapies in CLBP.</i>
Systematic review and meta-analysis of RCTs	2009	<i>Not statistically different from placebo but trends toward a treatment effect.</i>
Systematic review	2010	<i>Limited evidence for efficacy of DN or injections for heel pain.</i>
Systematic Review and Meta analysis	2013	<i>Recommend DN compared to sham &amp; placebo immediately and at 4wks for upper quarter MFP.</i>
Systematic review and meta analysis	2014	<i>No statistical significance in the meta analysis however trends toward efficacy of wet and dry needling.</i>
Systematic review and meta analysis	2015	<i>Recommended in the short &amp; medium term. Wet needling and other therapies more effective in medium term.</i>

## Who not to needle

### Absolute Contraindications

- Needle phobia or does not consent to treatment
- Unable to give consent
- Acute medical condition or emergency
- Over an area/limb with lymphedema
- Local skin lesions

### Relative Contraindications/Precautions

- Abnormal bleeding conditions
- Immunocompromised
- Vascular disease
- Pregnancy
- Epilepsy
- Allergies
- Frail patients
- Children
- Medications
- Diabetes
- Implants
- Post-op joints

## Safety

- Adverse Events in Dry Needling (Brady et al, 2014)
  - 39 PTs, 7629 treatments of DN
    - 1463 "Mild" → short term, non-serious, no change in function
      - 19.18%
    - 0 "Significant" → medium to long term effects that are serious, distressing and may require further treatment.
      - Estimated upper risk rate of  $\leq$  0.04%
- Adverse Events in Acupuncture (Xu et al, 2013)
  - Between 2000-2011 there were 294 cases (required further treatment)
    - Infection 239
    - Internal organ or tissue injury 38
    - Other complications 7

## Risks associated with Acupuncture

(Dommerholt, 2013)

Very Common	Common	Uncommon	Rare	Very Rare
$\geq 10\%$	$\geq 1-10\%$	$\geq 0.1-1\%$	$\geq 0.01-0.1\%$	$< 0.01\%$
	Bleeding Hematoma Needling site pain	Inflammation Swelling Strong pain Nerve irritation Nerve injury Headache Fatigue Vertigo Nausea	Local infection Redness Itching Sweating BP changes LOC Tachycardia Breathing difficulties Vomiting	Pneumothorax Broken needle Forgotten needle Systemic infection Affected speech Disorientation

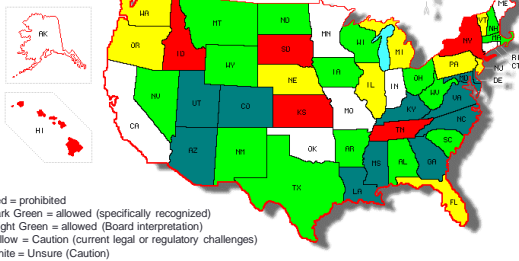
## Risk in Perspective

INTERVENTION/EVENT	RISK per 1,000,000
Cauda equina with lumbar manipulation	0.7
Cervical Artery Dissection with cervical manipulation	90
<b>Significant adverse event with DN</b>	<b>400</b>
Drowning	890
<b>Death assoc with discectomy/laminectomy +/- fusion</b>	<b>2,000 – 3,000</b>
Death in car accident	3,300
<b>GI bleed from NSAID use</b>	<b>10,000 – 30,000</b>

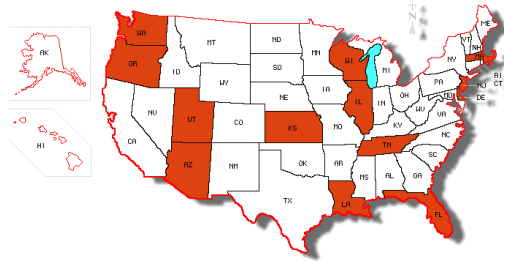
**DRY NEEDLING:  
IS IT OR ISN'T IT**  
WITHIN THE PT SCOPE OF PRACTICE?

Kathleen Piccard, PT

## Dry Needling



## Dry Needling 2014 - 2015 Hot Spots



## So How Can We Provide Dry Needling in Minnesota?



## Dry Needling 2014 APTA activity

**GUIDELINES: PHYSICAL THERAPIST SCOPE OF PRACTICE  
BOD G02-14-18**

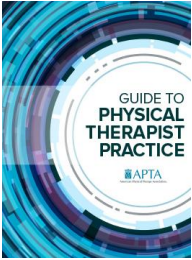
Physical therapy, which is limited to the care and services provided by or under the direction and supervision of a physical therapist, includes...

2) alleviating impairment and functional limitation by designing, implementing, and modifying therapeutic interventions that include, but are not limited to:

- dry needling

## Dry Needling

2014 APTA activity



Included in the revised Guide to Physical Therapist Practice 3.0 (released Aug. 2014).

<http://guidetoptpractice.apta.org/>

Chapter 38 – Manual Therapy Techniques.

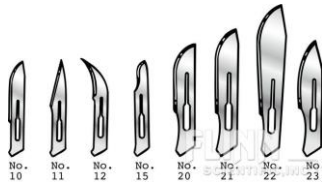
## Dry Needling

### Guide to Physical Therapist Practice 3.0

Manual therapy techniques may include the following:

- Manual lymphatic drainage
- Manual traction
- Massage
  - Connective tissue massage
  - Therapeutic massage
- Mobilization/manipulation
  - **Dry needling**
  - Soft tissue
  - Spinal and peripheral joints
- Neural tissue mobilization
- Passive range of motion

## Can We Pierce the Skin?



How are we prepared to provide mobilization/manipulation?



## Payment Policy for Dry Needling

- Coding: there is NO CPT code that describes dry needling
- Manual therapy 97140 does NOT describe dry needling (and should not be used)
- Unlisted procedure 97139
- Unlisted PM&R service/procedure 97799
- Cash-based service

## IMPLEMENTING DRY NEEDLING IN CLINICAL PRACTICE

Pearls and pitfalls of a large healthcare system

Bill Koch, PT, DPT, OCS, FAAOMPT  
Becky Voglsland, DPT, OCS

## Implementation: OP Hospital System

- Park Nicollet Health Services (HealthPartners)
- Nov/Dec 2012 – Discussed hosting DN courses
  - Agreed to be host site
  - This did not infer approval to use
- Oct 2013 – First DN course
  - Only 1 PNHS clinician attended
  - Courses continued Feb 2014, October 2014 and Feb 2015



## Implementation: OP Hospital System

- Spring/Summer 2015 – Advanced Training Program
  - Sister program from Intermountain Healthcare – Salt Lake City, UT
  - Focus on Quality Improvement
- 6 full clinic days over 4 months
- ID barriers to implementation
  - Physician's beliefs and biases
  - PT's beliefs and biases
  - Consent/Safety concerns
  - Billing/coding
- Surveys!



## Physician Survey

- 26 physicians responded
  - 6 - Primary Care
  - 15 - Ortho
  - 5 - PM&R

### 2. Were you aware of Dry Needling by Physical Therapists before this survey?

	Response Percent	Response Count
Yes	34.6%	9
No	65.4%	17

## Physician Survey

### 3. Would you be concerned about your patients receiving Dry Needling as a part of their physical therapy treatment at Park Nicollet?

	Response Percent	Response Count
Yes	23.1%	6
No	76.9%	20

- 23% reported concerns:
  - Informed consent
  - Safety (risk to lungs, infection etc)
  - Handling of adverse events
  - Duplicates existing services (TrPt injections)
  - Not familiar with evidence supporting this

## PT's Survey

	Response Percent	Response Count
Very Interested	29.5%	26
Somewhat Interested	28.4%	25
Not Interested	42.0%	37

- Not Interested:
  - Time commitment of training
  - Cost of training
  - Invasiveness of technique
  - Not appropriate for current pt population
  - Passing "fad"
  - Limited evidence

## Consent/Safety Issues

- Consent Form
  - Modified existing consent form for TrPt injections
- Infection Control – Easiest issue to resolve!
  - Standard Precautions
  - Alcohol wipe to skin
- Safety/Competency – Work Standards
  - Contraindications list
  - Visit procedures
  - Competency Program

## Billing and Coding

- Concern over "bundled billing" with Man Ther
  - APTA official statement re: no DN bundled with MT
- Also discussed "value added" service vs. cash payment
- Settled on Unlisted Therapeutic Procedure (97139)
  - "untimed" code
  - Billed to payer with ABN signed by pt
  - Flat fee = \$25 assigned to the code
  - re-examine as the payment environment changes

## Where do we stand now?

- 1 ½ PTs trained
- Hosting additional courses in May and July
- No concerns or resistance raised by physicians thus far
  - DDS and PM&R have referred directly
- Some hesitation from patients related to the charges

## Health System: VA

- Considerations
  - Federal employees
  - State practice act/licensure
- No 2 VA facilities are the same
  - Different process, procedures, political climates
- VA National Level
  - Dry Needling Toolkit
  - Pain management toolkit

## Health System: VA

- Process for practice
  - Scope of practice document
  - SOP
  - Competency
- Process for patient encounter
  - Informed consent

# IMPLEMENTING DRY NEEDLING IN CLINICAL PRACTICE

Considerations for Private Practice

Joel DeMaris, DPT  
Kevin Gennrich, DPT, OCS, FDN  
Derek Vraa, PT, DPT, OCS, CSCS, FAAOMPT

## Private Practice: The Business Perspective

- Defining Policy and Procedure Including:
  - OSHA guidelines for blood borne pathogens
    - Gloves
  - How to appropriately dispose of blood soiled objects (cotton balls and gloves)
  - How to dispose of needles
  - Action plan in case of therapist needle stick

## Private Practice: The Patient Perspective

- Patient education:
  - Informed consent forms
  - Brochures/pamphlets
  - Explanation of literature to support clinical decision making
  - Discussion of the difference between TrP Dry Needling versus Acupuncture



## DRY NEEDLING IN PHYSICAL THERAPIST PRACTICE: DISCUSSION WITH REFERRAL SOURCES, OTHER PROFESSIONALS AND PATIENTS

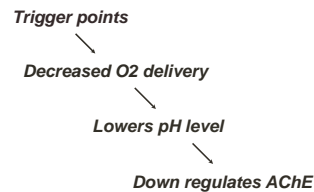
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## Referral Sources: Identify what they already know



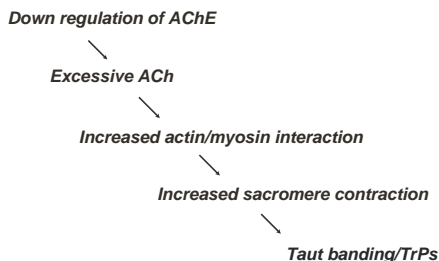
- Have they heard about the technique?
- Make them aware of the national debate: as stated earlier
- Educate them on the physiological changes associated with TrPs
- Discuss studies regarding effectiveness
- Address safety concerns

## Referral Sources: Fill in the Gaps of Information



Dommerhold, J. and McEvoy, J., *Myofascial Trigger Point Release Approach*, Orthopaedic Manual Therapy, from Art to Evidence, C. Wise, Editor., F.A. Davis: Philadelphia, in press.

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## Discussion with other Clinicians

- Physical Therapists, Chiropractors, Acupuncturists
  - Education on the benefits of expanding the depth, not broadening the scope of the field
  - APTA and FSBPT supports the use of dry needling in PT practice
  - Multiple tools cross many fields, i.e. Kinesiotape, Graston, Astym



49

## Discussion with Patients

- Education on the benefits of treating trigger points
- Use of Patient Perspectives in JOSPT
- Implication of effects of trigger points on muscle function and functional recruitment
- The relationship between muscle dysfunction and pain
  - Muscle pain referrals:
    - Can follow joint injury or dysfunction pattern
    - Can follow nerve injury or dysfunction pattern

Primary goal is to educate, educate, educate

## Questions?



## References

- Bisset L, Coombes B, Vicenzino B. Tennis elbow. *Clin Evid*. 2011;2011:1117.
- Bisset L, Paungmali A, Vicenzino B, Beller E, Herbert R. A systematic review and meta-analysis of clinical trials on physical interventions for lateral epicondylalgia. *Br J Sports Med*. 2005;39(7):411-422.
- Brady S1, McEvoy J2, Dommerholt J3, Doody C1. Adverse events following trigger point dry needling: a prospective survey of chartered physiotherapists. *J Man Manip Ther*. 2014 Aug;22(3):134-40.
- Ceccherelli F, Rigoni MT, Gagliardi G, Ruzzante L. Comparison between superficial and deep acupuncture in the treatment of lumbar myofascial pain: a double-blind randomized controlled study. *Clin J Pain*. 2002;18:149-153.
- Cleland JA, Whitman JM, Fritz JM. Effectiveness of manual physical therapy to the cervical spine in the management of lateral Epicondylalgia: a retrospective analysis. *J Orthop Sports Phys Ther*. 2004 Nov;34(11):713-22. discussion 722-4.
- Cotchett MP, Munteanu SE, Landorf KB. Effectiveness of trigger point dry needling for plantar heel pain: a randomized controlled trial. *Phys Ther*. 2014 Aug;34(8):1063-94.
- Cummings TM1, White AR. Needling therapies in the management of myofascial trigger point pain: a systematic review. *Arch Phys Med Rehabil*. 2001 Jul;82(7):986-92.
- Dilorenzo L, Traballoni M, Morelli D, et al. Hemiparetic shoulder pain syndrome treated with deep dry needling during early rehabilitation: a prospective, open-label, randomized investigation. *J Musculoskeletal Pain*. 2004;12(2):25-34 222
- Furlan A, Tulder M, Cherkin D, et al. Acupuncture and dry-needling for low back pain. *Cochrane Database Syst Rev*. 2005(1):CD001351
- Giamberardino MA, Tafuri E, Savini A, et al. Contribution of myofascial trigger points to migraine symptoms. *J Pain*. 2007;8(11):869-878
- González-Iglesias J, Cleland JA, del Rosario Gutierrez-Vega M, Fernández-de-las-Peñas C. Multimodal management of lateral epicondylalgia in rock climbers: a prospective case series. *J Manipulative Physiol Ther*. 2011 Nov;34(9):635-42.

## References

- Heiser R, O'Brien VH, Schwartz DA. The use of joint mobilization to improve clinical outcomes in hand therapy: a systematic review of the literature. *J Hand Ther*. 2013 Oct-Dec;26(4):237-313
- Herz CR, Meserve BB. A Systematic Review of the Effectiveness of Manipulative Therapy in Treating Lateral Epicondylalgia. *J Man Manip Ther*. 2008;16(4):225-237
- Hoopvel P, Randsborg MS, Degenman R, Koes BW, Huisstede BM. Does effectiveness of exercise therapy and mobilisation techniques offer guidance for the treatment of lateral and medial epicondylitis? A systematic review. *Br J Sports Med*. 2013 Nov;47(17):1112-9.
- Kietrys DM1, Palombaro KM, Azzareto E, Hubler R, Schaller B, Schussler JM, Tucker M. Effectiveness of dry needling for upper-quarter myofascial pain: a systematic review and meta-analysis. *J Orthop Sports Phys Ther*. 2013 Sep;43(9):620-34.
- Lesik K. The Needle Effect in the Relief of Myofascial Pain. *Pain*. 1978;6:83-90
- Liu L1, Huang QM2, Liu OG1, Ye G3, Bo C21, Chen MJ1, Li P4. Effectiveness of Dry Needling for Myofascial Trigger Points Associated With Neck and Shoulder Pain: A Systematic Review and Meta-Analysis. *Arch Phys Med Rehabil*. 2015 Jan 7.
- Mayoral O, Sakai I, Marin MT, Martín S, Santiago J, Cosareto J, Rodríguez C. Efficacy of myofascial trigger point dry needling in the prevention of pain after total knee arthroplasty: a randomized, double-blinded, placebo-controlled trial. *Evid Based Complement Alternat Med*. 2013;2013:694941
- Olsson M, Hölmadal O, Lindbaek M, Brage S, Solvang H. Treating lateral epicondylitis with corticosteroid injections or non-electrotherapeutic physiotherapy: a systematic review. *BMJ Open*. 2013;3(10):e003564.
- Ong JT, Claydon LS2. The effect of dry needling for myofascial trigger points in the neck and shoulders: a systematic review and meta-analysis. *J Bodyw Mov Ther*. 2014 Jul;18(3):390-8.
- Savighi ET, Strauch RJ. Does Nonsurgical Treatment Improve Longitudinal Outcomes of Lateral Epicondylitis Over No Treatment? A Meta-analysis. *Clin Orthop Relat Res*. 2014 Oct;28
- Tekin L, Akarsu S, Dumus O, Cakar E, Dincer U, Kiralp MZ. The effect of dry needling in the treatment of myofascial pain syndrome: a randomized double-blind placebo-controlled trial. *Clin Rheumatol*. 2012.
- Tough EA1, White AR, Cummings TM, Richards SH, Campbell JL. Acupuncture and dry needling in the management of myofascial trigger point pain: a systematic review and meta-analysis of randomised controlled trials. *Eur J Pain*. 2009 Jan;13(1):3-12.
- Vicenzino B, Smith D, Cleland JA, Bisset L. Development of a clinical prediction rule to identify initial responders to mobilisation with movement and exercise for lateral epicondylalgia. *Man Ther*. 2009;14(5):550-4
- Xu S1, Wang L, Cooper E, Zhang M, Manheimer E, Berman B, Shen X, Luo L. Adverse events of acupuncture: a systematic review of case reports. *Evid Based Complement Alternat Med*. 2013;2013:581203.