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

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.

• 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

- 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

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 (Checcherelli 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?

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

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
    - 151 “Moderate” → medium to long term effects that are serious, distressing and may require further treatment.
    - Estimated upper risk rate of <= 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

Risks associated with Acupuncture (Dommerholt, 2013)

<table>
<thead>
<tr>
<th>Risk</th>
<th>Very Common</th>
<th>Common</th>
<th>Uncommon</th>
<th>Rare</th>
<th>Very Rare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding</td>
<td>( \geq 10% )</td>
<td>( \geq 1-10% )</td>
<td>( \geq 0.1-1% )</td>
<td>( \geq 0.01-0.1% )</td>
<td>(&lt; 0.01% )</td>
</tr>
<tr>
<td>Hematoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needling site pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflammation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local infection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP changes LOC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tachycardia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breathing difficulties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumothorax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broken needle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forgotten needle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic infection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affected speech</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizziness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Risk in Perspective

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

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.

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 Vogslund, 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

Physician Survey

- 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

- 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?

- 1½ 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

### 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

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

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

Trigger points
  - Decreased O2 delivery
    - Lowers pH level
      - Down regulates AChE


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

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


References