Objectives

- What is dry needling?
- Historical Significance DN to Functional DN
- Why FDN?
- Research
- Demonstrate the technique (Cause I was told I had to)

Background and Disclosure

- Owner and developer of KinetaCore (functional dry needling education)
- Co-Owner of Professional Rehabilitation Consulting LLC
- Co-Owner of FIT (Functional Integrative Technology)
- Co-Owner of US Dry Needling and Physio Products
- Developer of Functional Dry Needling courses
  - FDN 1, FDN 2, FT1, FT2 and Future Advanced FDN
- Education
  - Doctor of PT, Regis University
  - Manual Therapy (eclectic background)
  - SFMA and FMS
  - Intramuscular Stimulation
  - Trigger Point Dry Needling
  - Neuro-functional Needling
  - Various other intervention and assessment paradigms

The Question

Why do we chase pain rather than “heading it off and the “functional” pass?”
FAI: An example of Myopic thinking

Case Example
- History of posterior hip pain
- Military PT involved in high level cycling and running (last year ran 2000 miles and cycled 5000 miles)
- Imaging identified acetabular osteophytes and CAM lesion
- C/O limited hip flexion with a feeling of a bony block at 90-100 degrees of flexion

Many Causes of Pain
- Must move away from the pain and discover the cause.
- Clinical Approach focused on the “Why” rather than the “What”

Posture?
RESULTS: Significant pain relief and range of motion improvement were observed after treatment in both groups, with a slight reduction at follow-up time. Quality of life also improved after treatment, except for the global posture reeducation group in one domain; at follow-up, there was improvement in all domains, except that both groups reported increased pain. There were no significant differences between groups.

Effect of global posture reeducation and of static stretching on pain, range of motion, and quality of life in women with chronic neck pain: a randomized clinical trial. CLINICS 2008;63(6):763-70

Injury largest predictor of future injury?

Clinical Journal of Sport Medicine:
April 2008 - Volume 10 - Issue 2 - pp 86-97
Clinical Investigations

The Relationship Between Lower Extremity Injury, Low Back Pain, and Hip Muscle Strength in Male and Female Collegiate Athletes

Neidle, Scott F. DO*; Malanga, Gerard A. MD**; DePrisco, Melissa MS*; Sibley, Todd F. MD*; Feinberg, Joseph H. MD***

Neuromuscular control of walking with chronic low-back pain

L. Vogt*, K. Pfüssler*, W. Rausch*

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2014 Functional Movement Summit 7/25/2014
Repetitive Strain Injuries

Repetitive strain injuries (RSIs) present an increasingly common challenge to clinicians. They consist of a variety of musculoskeletal disorders, generally related to tendons, muscles, or joints, as well as some common peripheral nerve-entrapment and vascular syndromes. These disorders generally affect the back, neck, and upper limbs, although lower limbs may also be involved. Although RSIs may occur as a result of sports and recreational activities, occupational RSIs, affecting the patient’s livelihood, are particularly important. These injuries result from repetitive and forceful motions, awkward postures, and other work-related conditions and ergonomic hazards. Occupationally induced RSIs are generally costly, creating a strong incentive for physicians to become familiar with the symptoms, signs, and risk factors so that they can be diagnosed early and appropriate interventions facilitated.

Phantom Limb?

Imaginative resonance training (IRT) achieves elimination of amputees' phantom pain (PLP) coupled with a spontaneous in-depth proprioception of a restored limb as a marker for permanence and supported by pre-post functional magnetic resonance imaging (fMRI).

References:
- Meyer P, Matusch C, Kusche KE, Maurer K.
- Tsao H, Danneels LA, Hodges PW.
- ISNLS prize winner: Smudging the motor brain in young adults with recurrent low back pain.
Stress?

Stupidity

Sympathetic and Emotional


Maybe we are looking at this from the wrong end.
Pain: It is rare we treat something other than pain

“an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described by the patient in terms of such damage”

International Association for the Study of Pain.

Facet Joint Pain

Lumbar Facet or Disc

Occasional Referral L1 - L5 (10 - 15%)
Lumbar Spine Region L1 to L4-5
Gluteal Region L2-51 (28%)

Referred Pain
Joint BY Joint!
Joint Pain = What?
• Limited mobility, strength, control/coordination….
• What innervates peripheral joints?
• Cutaneous nerves overlying the joint
• Muscles overlying and impacting that particular joint
• What’s the point?

Soft Tissue?
• Soft tissue is overlooked and considered less important than joint pathology
• That is an incorrect focus for evaluation and treatment.
• What does an orthopedic test tell us?

Do We?
• Consider the:
  – Myotome
  – Dermatome
  – Sclerotome?
What is Dry Needling?

- **Dry Needling**: a skilled intervention performed by a physical therapist (PT) 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.
- Called *dry* needling because it does not involve injecting a “wet” substance.
  - Affect is from the interaction of the needle and tissue.
- Goal is to illicit a local twitch response in the involved muscle.

Current Research

www.kinetacore.com

The Evidence

Building The Evidence

Diagnostic Imaging
- MRE

Other Diagnostics
- EMG

Palpation
- Interrater Reliability
- Pain Pressure Thresholds (PPT)

Diagnostic Ultrasound Imaging
- Tissue Sampling
Evidence for Energy Crisis Theory


Shah JP, et al. Biochemicals associated with pain and inflammation are elevated in sites near to and remote from active myofascial trigger points. Archive Phys Med Rehabil 2008

Types of DN

- TPN: Trigger Point Dry Needling
- IMS: Intramuscular Stimulation
- Neurofunctional Dry Needling
- Functional Dry Needling
- Acupuncture/TCM
  - Energetic system not based on anatomy, physiology or movement

Trigger Point Dry Needling

- Deactivate a Trigger Point causing pain
- The classical and most commonly used description of trigger points is that defined by Travell and Simons (1992)
  - The presence of exquisite tenderness at a nodule in a palpable taut band (of muscle)
  - Trigger points produce referred pain, either spontaneously or by digital compression
- Clinical definition
  - Localized areas of deep tenderness within a taut band of muscle, major clinical feature includes:
    - exhibit a local twitch response (muscle fasciculation) or jump sign (whole body movement) in response to digital pressure or dry needling
    - Pt may exhibit autonomic phenomena
- Developed by Janet Travell MD, and Dave Simons MD (and others)
- Purpose is to recognize muscles cause pain and can be treated through deactivation of Trigger Points
- Used by PT’s, MD’s, DC’s, DO’s, and TCM providers

Intramuscular Stimulation

- Reduce stress on the peripheral nervous system caused by degenerative changes at the segment and entrapment of the nerves at the segment and in the periphery
- Intension is to elicit a noxious input to desensitize supersensitive structures, not just muscle tissue.
  - Based on Cannon and Rosenbauer's work (1949)
- Developed by C. Chan Gunn MD while working as a Work Comp doctor in Western Canada
- Used by PTs, Acupuncturists, MDs and Chiros
- Mainly for pain management
Neurofunctional Needling

- Transition of theoretical concepts of energetics-based acupuncture to recognizing that the nerves are likely the system that is being treated by stimulation of acupuncture points
- Being developed by numerous practitioners and professions, namely Alejandro Eliorriaga MD of Toronto Canada
- Focus is to stimulate the nervous system to reduce neurological dysfunction and pain caused by that dysfunction

Functional Dry Needling

- Transition of needling for pain relief, trigger point deactivation, and muscular tension/release to functional restoration and a diagnostic tool
- Developed by Edo Zylstra and KinetaCore Staff with input from and interaction with numerous others (Large input from FMS group)
- Based on a functional assessment to guide treatment
  - Needling is the end result of the assessment
  - Sniper vs Carpet Bomber
- RE-SET (then Re-inforce & Re-load)
- Diagnose?
- No longer focusing on pain but the CAUSE of that PAIN
Case Example

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Treatment

- Course participant
- Hip and Lumbar spine FDN had minimal effect

Right hip demonstrated positive scouts, Thomas Test, FABERE's, FADIR's and ROM passively of 15-0-100 degrees with solid end feel and apprehension with end range hip flexion, FADIR's and FABERE's tests. Active ROM 5-0-100 degrees.

Squat corrected significantly after treatment of: ?

Why Did Rectus Femoris change the Squat?

- Must have a solid understanding of anatomy and its function
- For Example
  - Lumbar multifidus
  - Rectus Femoris
  - Short head of the Biceps
  - Popliteus
  - Tibialis Posterior and Anterior
  - Flexor Hallucis Longus

Flexor Hallucis? Really?

Just in case you think we can't make long-term changes
Reliance on Symptoms

- What are symptoms?
- Patient/Athlete sees the symptom as Pain and something limiting their ability to play at a high level.
- We see clinical symptoms.
  - ROM
  - Strength
  - Facilitation
  - Control
  - Gait
  - FMS
  - SFMA
- This should guide us to the cause for the Patient/Athlete’s symptoms

Our Goal with FDN

- Have a clear idea for why the athlete/patient has pain/movement dysfunction
- Utilize objective data to determine outcome.
- Utilize needling to both treat pain and dysfunctional tissue limiting proper movement and control AND as a diagnostic tool.
  - Reproduce discomfort
  - Correct movement pattern
  - Improve recruitment
Future?
Get Away from Surgery and the Idea that Pain is bad.
Research

Questions?
Demonstration