

Therapeutic Needling

Beyond Dry Needling & Trigger Point Injections

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Mass General Brigham



Case

42 yom with 3-4 year history
insidious onset RIGHT anterior
knee pain

Ortho: Patellar tendinopathy on
MRI, referred for consideration of
PRP (not pursued)

Not responsive to PT, eccentrics,
NTG patches and prolonged rest

+ Neovascularization on POCUS



80% better after two
rounds of Therapeutic
Needling of quad
Myofascial Trigger Points

Felt great after 3rd
treatment

Did not return

My Experience & Observations

I have used Therapeutic Needling to treat *thousands* of patients who presented with various traditional orthopedic diagnoses

Many get better without any other intervention – or even PT

Often in cases where standard treatments have failed

Objectives

1. To propose an explanation for the phenomenon we just observed in the video – and many cases like it.
2. See above
3. Ditto

30,000 Feet View: Why Do Myofascial TrPs Develop?

Prevailing Theory: TrPs are tight, hyperirritable muscle “knots” that develop as a compensatory response to instability associated with an underlying nerve, joint, tendon, and/or other problem...

Cervical spondylosis → Cervical muscles tighten to protect/stabilize → TrPs develop

“Trigger Points are the result of the problem, not the cause of the problem.”

“Victim, not the culprit”

“Passenger, not the driver”

Does Prevailing Theory Compellingly Explain Knee Case?

The patient's right knee pain was...

- A. "Caused" by Patellar Tendinosis, which led to the development of the quad TrP
- B. "Caused" by quad TrPs, which led to the development of the Patellar Tendinosis
- C. Both
- D. Neither (something else)
- E. I don't now
- F. It's impossible to know

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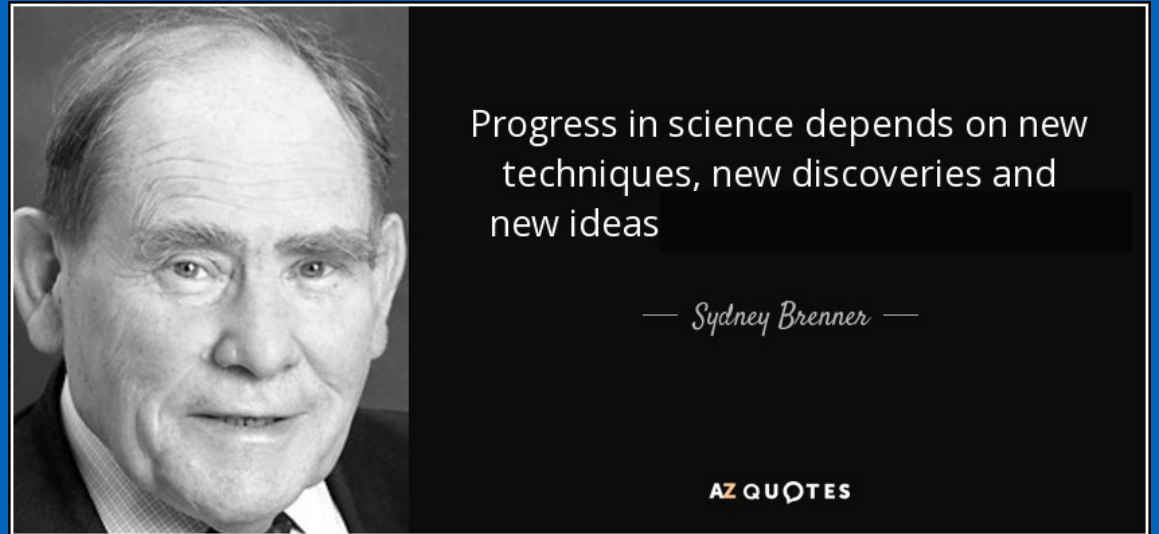


"Cause and effect is fine, but I'm more of a just because guy."

Scientific Progress

Sydney Brenner

2002 Nobel Laureate
discovered fundamental
steps by which cells use
DNA base pairs to code for
and synthesize proteins

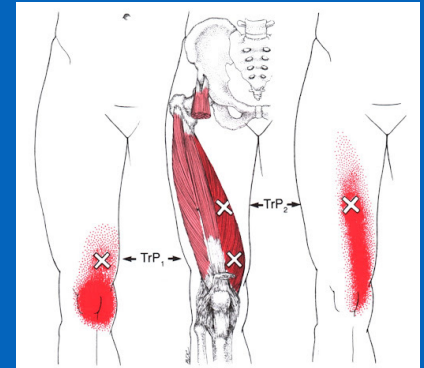


Techniques → Discoveries → Ideas

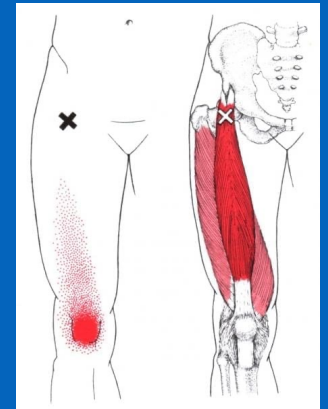
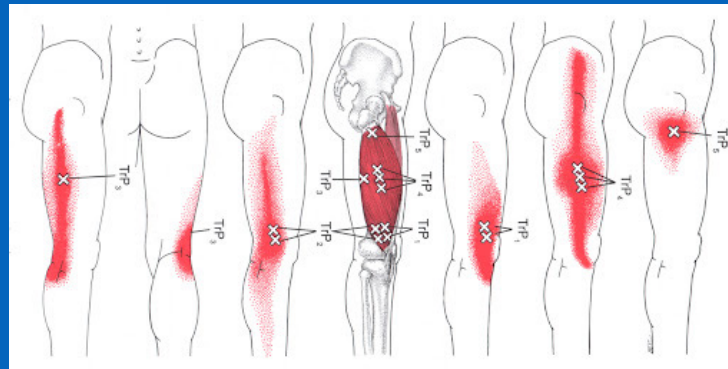
Technique → Discovery → Idea (Theory)

1. Assessment “Technique”

- Learn referral patterns: Travel and Simons
- History: consider TrPs as the cause, listen for clues / buzzwords
- Exam: palpation
 - Maneuvers → *Myofascial Distraction Test*



2. Needling Technique



Assessment Technique: History

“Buzzwords”: Beyond Pain & Tightness

Snippet from Therapeutic Needling handout I give my patients

What are Trigger Points?

Trigger Points (TrPs) are painful, hyperirritable muscle “knots” that can develop anywhere in the body and cause a variety of symptoms, including but not limited to the following:

• Pain • Decreased Range of Motion • Tightness / Stiffness • <i>Fee/s</i> swollen (but isn't) • Weakness	• Numbness • Tingling • Burning • Itching • Popping / Clicking	• Sense of imbalance • Instability • Clumsiness • Heaviness • “Hard to describe”
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- Proprioceptive problems: readily described by patients & can be observed on exam
- Attune your ears, expand your exam, test / retest after needling

Technique → **Discovery** → Idea (Theory)

Observation:

Therapeutic Needling often completely and enduringly eradicates the symptoms of traditional orthopedic presentations / diagnoses.

Even when little or no therapy / rehab is performed

Technique → Discovery → **Idea (Theory)**

The *TrP* is, at times, the *Driver* and *not a Passenger*.

What evidence / data / study would shed light on this dilemma?

Time Machine Thought Experiment

What if we went *back in time shortly before onset of his knee pain?*

How would his tendon appear sonographically?

Would sonographic appearance impact our prophylactic advise?



Ultrasound as a predictor of time-loss injury for the patellar tendon, Achilles tendon and plantar fascia in division I collegiate athletes

Objective / Methods:

- Are preseason sonographic associated with future time-loss injuries in collegiate athletes?
- 695 NCAA D-1 athletes from 3 institutions, 3-year prospective, observational study.
- Preseason US assessment + self reported questionnaire
- Athletes monitored for time-loss injury over the subsequent year

Conclusion:

- **Pre-season sonographic abnormalities of the patellar tendon, Achilles tendon or plantar fascia are associated with a higher risk of developing time-loss injuries in collegiate athletes.**

Implications:

- Interventional trials are needed and should follow this study to help prevent future injury
- **Prior study (Fredberg): universal eccentric strengthening / quad stretching did not prevent injury**

Cushman, DM et al. BJSM, 2025

Prophylactic training in asymptomatic soccer players with ultrasonographic abnormalities in Achilles and patellar tendons: the Danish Super League Study

Baseline US	Baseline Symptoms	Response to Universal Eccentrics / Stretching
Normal	Asymptomatic	• ↓ Development of US abnormalities • No reduction in injury / symptoms
Abnormal	Asymptomatic	• Not protected from injury • Potentially detrimental

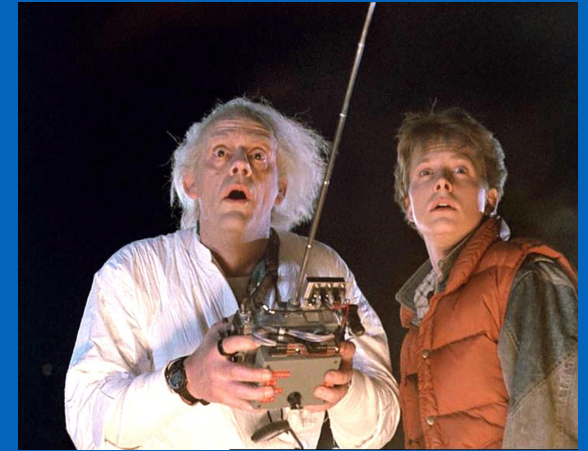
In (asymptomatic) players w/ patellar tendon abnormalities on baseline US, a prophylactic eccentric training program did not protect players from injury/time loss from sport, and was associated w/ a higher incidence of symptomatic tendinopathy compared w/ controls.

Fredberg U et al. AJSM. 2008

Time Machine Thought Experiment

What if we went *back in time shortly before onset of his knee pain?*

- What if he had quad trigger points?
- What would we recommend for him?
- As it turns out, 18 months later he returns to the office...





THERAPEUTIC NEEDLING

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Beyond Dry Needling & Trigger Point Injections

Palpation

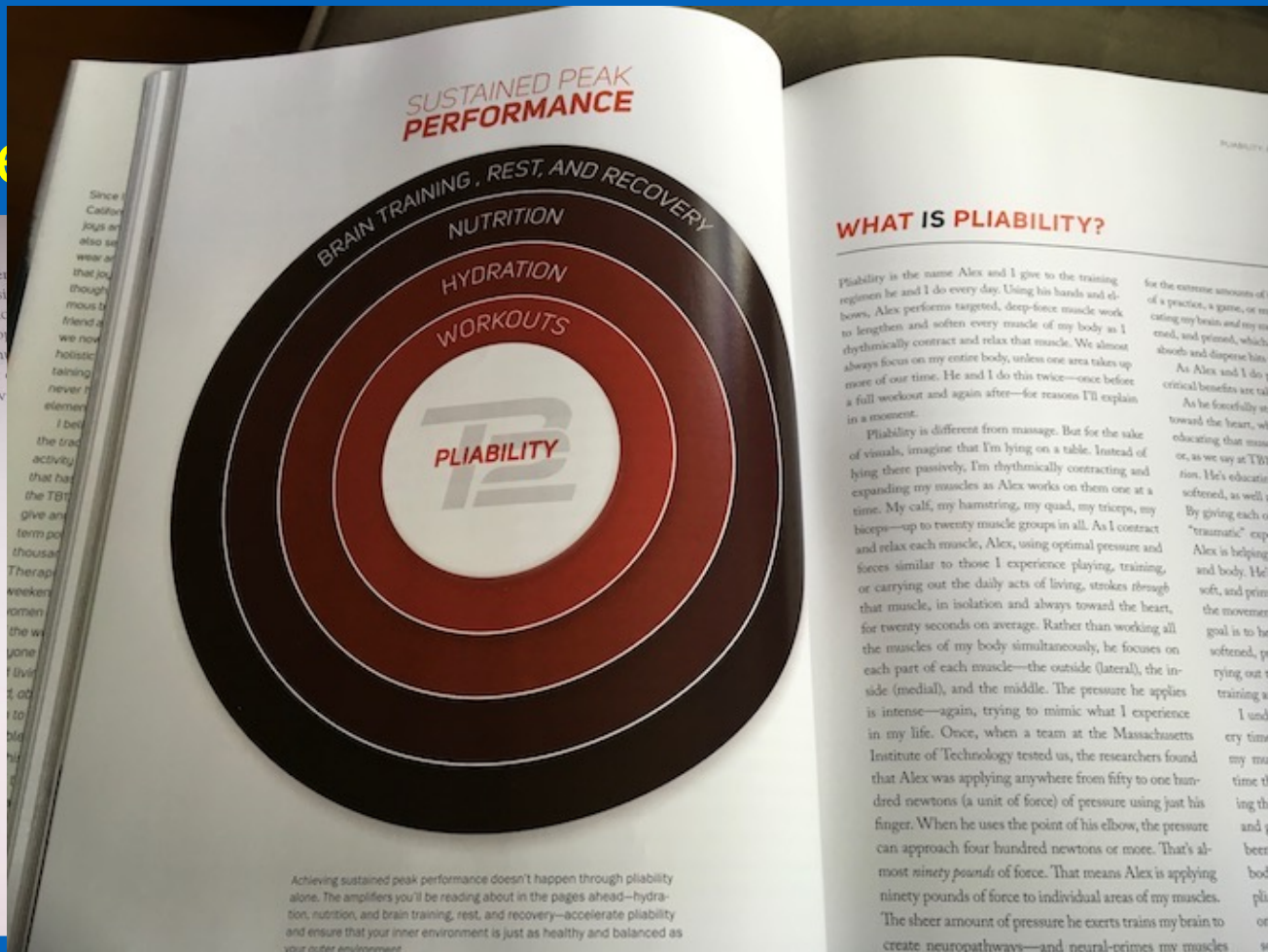
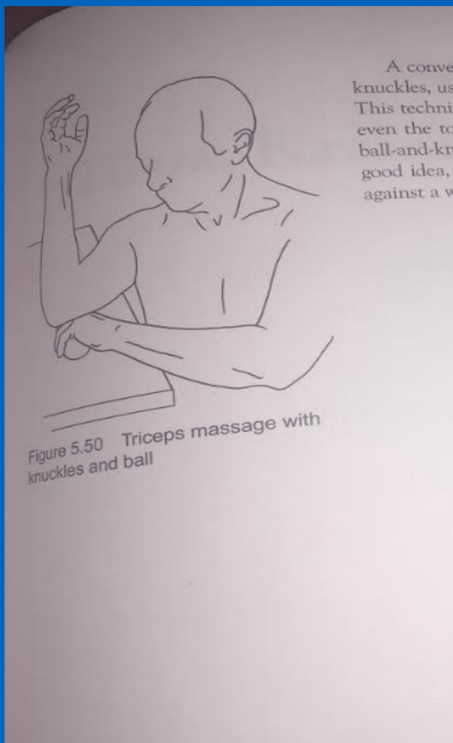
How often do you see patients with knee pain whose symptoms are consistent w/ patellar tendinopathy – *but their US is normal?*

What do we make of vastus lateralis TTP in his asymptomatic left knee?

- Right: 7/10
- Left: 3/10

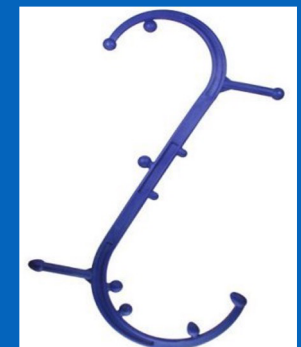
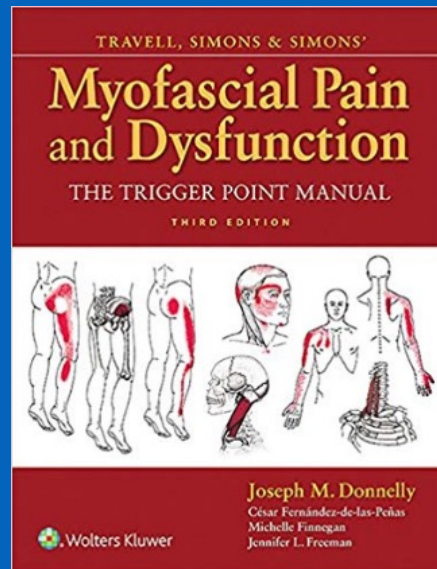
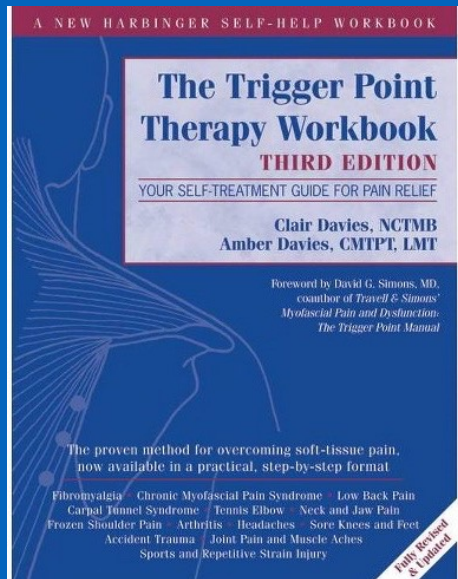


Nomenclature



Clair Davies Trigger Point Workbook vs Tom Brady's book.
Nearly identical images.

Manual Therapy / Self Treatment



Paradigm Shift

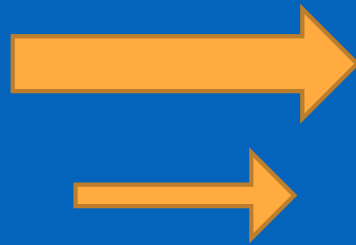
“If you want small changes, work on your behavior; if you want quantum-leap changes, work on your paradigms.”

~Stephen R. Covey

Paradigm Shift in MSK Medicine: My Hypothesis

The arrow of causality is often assumed, or asserted, to be unidirectional

**Traditional
Diagnosis**



**Myofascial
Trigger Point**

Structural Emphasis

Functional Emphasis

For a significant portion of ***chronic*** problems – and in some cases acute problems -- the direction of causality is often reversed ... bidirectional at times

Signs, Symptoms and Root Causes

The symptom, the abnormal structure on the imaging study, even the traditional diagnosis, are often a signpost – not the final destination.

Technique → Discovery → Idea (Theory)

Myofascial Trigger Points create asymmetric loads on bones, joints, tendons, and nerves, which in turn cause biomechanically inefficient movement patterns, which in turn have significant clinical consequences:

Short term (weeks to months)

- Pain, tightness & myriad other sx
- Increased risk of acute strains & other more significant injuries
- Misdiagnosis / misattribution
- Ineffective treatments / interventions...

Long term (months to years)

- Osteoarthritis, tendinopathies, nerve entrapments, inexplicable pain syndromes ...

*The TrP may often be the
Driver masquerading as the
Passenger*

Probability TrP is a Significant Factor: My Experience

High Probability:

- Chronic conditions (OA, tendinopathy, “bursitis”, atypical presentations...)
- Subacute cases (symptom onset hours or days after a provocative activity)
- Vague symptoms
- “I have no idea what this could be”

Moderate Probability: Persistent symptoms after appropriate treatment of acute injury

Lower: Acute onset

Therapeutic Needling: My Definition 2025

“A minimally invasive needling technique that alleviates acute and chronic pain and dysfunction from sports injuries and orthopedic problems by targeting muscle and fascia with a needle – and injectate when possible (typically D5 + lidocaine, *not* steroid) – resulting in improved muscle, joint and nerve function and/or symptom relief.”

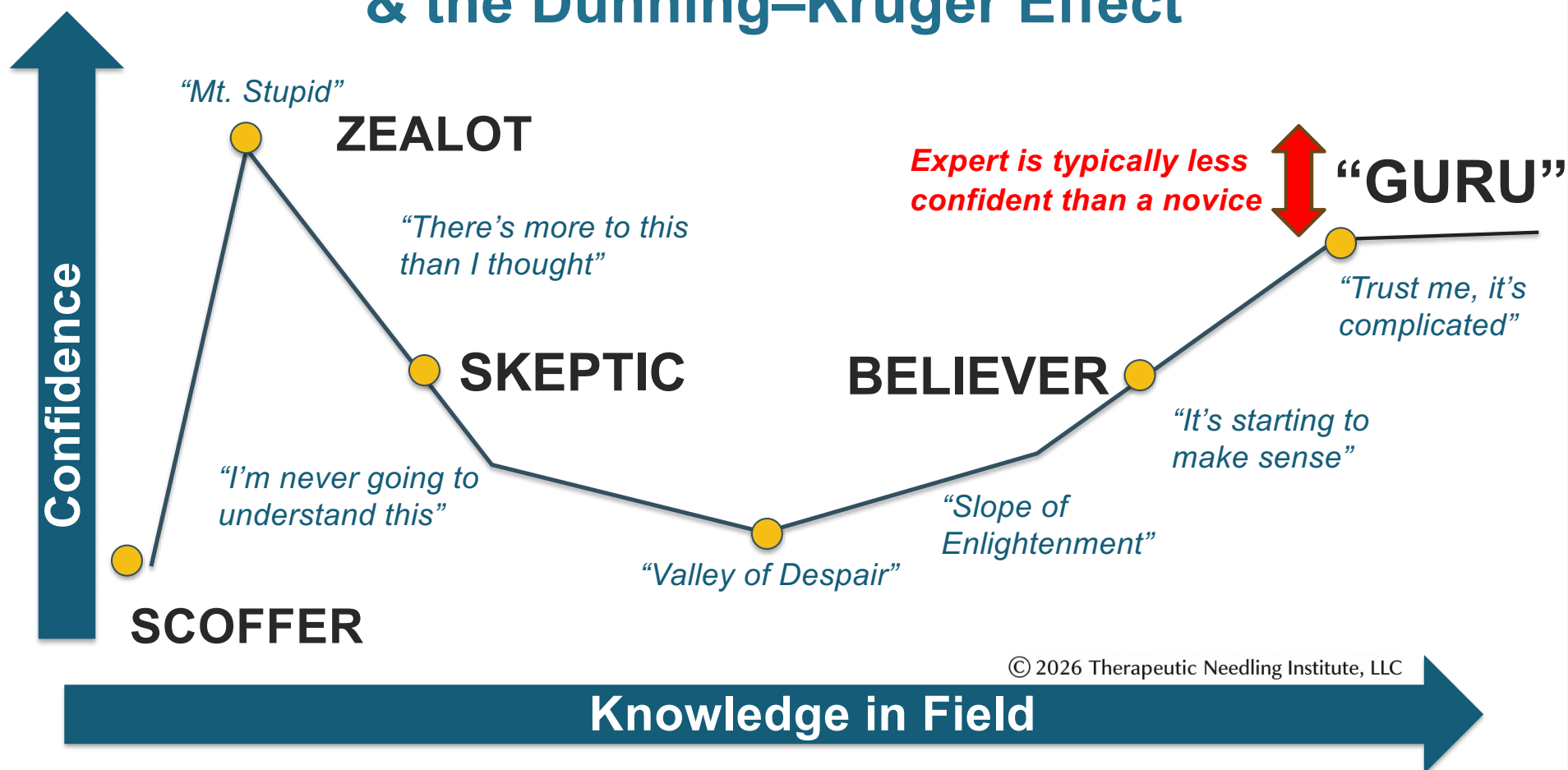
Predicting Success: Integration of Therapeutic Needling into Practice

Dunning-Kruger Effect

Describes a *cognitive bias*

- Individuals with **limited** knowledge / expertise **overestimate** their skill / competence
- Individuals with **great** knowledge / expertise **underestimate** their skill / competence
...and are more aware of their limitations and uncertainty.
- As competence increases, awareness of complexity increases.

Therapeutic Needling Archetypes & the Dunning–Kruger Effect



Therapeutic Needling Archetypes

ZEALOT

- Chases TrPs, repeats indefinitely
- Limited DDx
- Ignores data / unaware of standards
- Pivots: too early or too late
- “Give the people what they want.”
- Sins of omission and commission

High Skill

BELIEVER

- Systematic, iterative approach
- Quasi-algorithmic
- Comfortable in the gray
- Pivots appropriately
- Intervention-agnostic
- “It may help my patient & help me figure it out the root cause.”
- Overthinks / overexplains

Patient
Centric

Low
Curiosity

SCOFFER

- “Denier”
- Indifferent, unaware of literature
- Dismissive, ignore the literature
- Threatened
- “It’s a placebo”
- Sin of omission

Clinician
Centric

“GURU”

Integrates & Refines

SKEPTIC

- Uncertain approach, hit or miss
- Algorithmic; Science > Art
- Seeks black or white, avoids gray
- Lack of success → Abandonment
- “I can’t figure this out”
- High growth potential when instructed

High
Curiosity

Low Skill

Conclusions

1. Myofascial trigger points should be considered in the differential diagnosis of musculoskeletal presentations and may represent the underlying driver of symptoms.
2. Assessment & Therapeutic Needling technique are important, acquired skills
3. Therapeutic Needling is a low-risk/cost intervention w/ potential high clinical impact.
4. The Dunning–Kruger Effect and Archetypes Model provide a framework for recognizing and avoiding cognitive bias when considering Therapeutic Needling.

Exam Technique: “Myofascial Distraction Test” (MDT)

1. Clinician identifies provocative movement (passive or active) that elicits index symptom(s)
2. While performing provocative movement, clinician concurrently applies deep pressure on suspected culprit TrP and assesses patient's response
 - **Positive Test:** sign / symptom is extinguished. Suggests the culprit TrP has been identified and Therapeutic Needling will likely result in significant, often immediate, improvement of index sign/sx
 - **Negative Test:** No significant change in index sign/sx; does not necessarily rule out myofascial TrP
 - Specificity > sensitivity

The Myofascial Distraction Test (MDT) is a new diagnostic maneuver described by Dr. Mahooti. He is not aware of any descriptions of this diagnostic examination technique in the literature. If you know of a similarly described maneuver, please share the article / source with Dr. Mahooti: therapeuticneedling@mskexperts.com

Coding

- ICD10: M79 code required to get paid, link it to CPT
- CPT 20552: 1 or 2 muscles (groups?)
- CPT 20553: > 2 muscles (groups?)
- E&M code with modifier 25

Example:

- Right elbow pain
- Right lateral epicondylitis
- Right forearm pain: M79.631
- *Can get messy: area needled is not site of pain...*

M79.601 Pain in right arm

M79.602 Pain in left arm

M79.603 Pain in arm, unspecified

M79.604 Pain in right leg

M79.605 Pain in left leg

M79.606 Pain in leg, unspecified

M79.609 Pain in unspecified limb

M79.621 Pain in right upper arm

M79.622 Pain in left upper arm

M79.629 Pain in unspecified upper arm

M79.631 Pain in right forearm

M79.632 Pain in left forearm

M79.639 Pain in unspecified forearm

M79.641 Pain in right hand

M79.642 Pain in left hand

M79.643 Pain in unspecified hand

M79.644 Pain in right finger(s)

M79.645 Pain in left finger(s)

M79.646 Pain in unspecified finger(s)

M79.651 Pain in right thigh

M79.652 Pain in left thigh

M79.659 Pain in unspecified thigh

M79.661 Pain in right lower leg

M79.662 Pain in left lower leg

M79.669 Pain in unspecified lower leg

M79.671 Pain in right foot

M79.672 Pain in left foot

M79.673 Pain in unspecified foot

M79.674 Pain in right toe(s)

M79.675 Pain in left toe(s)

M79.676 Pain in unspecified toe(s)