A dynamic presentation integrating unique hands-on soft matter manipulative techniques resulting in successful therapeutic intervention. A visual and tactile rich educational experience, supported by the call for a paradigm shift from compressional structure with hanging limbs, levers and joints to a new explanation and understanding of the human form.
"Myofascial trigger points are hyperirritable localized spots found in taut bands within the muscle sarcomeres” (Simons, Travell, and Simons 1999).

"Myofibrils consist of three types of myofilaments: myosin the thick protein, actin the thin protein, and titin the sticky protein” Sharkey, J. Concise book of Dry Needling 2016

KEYS TO SYMPTOM MANAGEMENT

The following key aspects should be considered when treating myofascial trigger points:

Differentiate the myofascial trigger points from pain points by using the cardinal signs, which must include palpable nodule and taught band, jump sign, twitch response, painful EROM, referred pain, and autonomic responses.

Treat the myofascial trigger points that are most superior and medial first.

The deltoid seldom develops its own active myofascial trigger points. Instead, most are “baby” or “satellite” myofascial trigger points; therefore treat associated muscles within the functional units of the deltoid first.

The upper trapezius is the “Grand Central Station” of myofascial trigger points and is a major contributor to neck, shoulder, upper back, and head pain.

Active myofascial trigger points, when irritated by a competent therapist, will result in referred pain or changes in sensation that the patient recognizes.

Latent myofascial trigger points generally result in pain or change in sensations that the patient does not recognize. These myofascial trigger points may be contributing to, but are not the true source of a patient’s problem.

Myofascial trigger points can form in any muscle fiber (Sharkey 2008) and not just in the center of a muscle, or where the “X” marks the spot (which is misleading) on so many myofascial trigger point charts. Identify and remove/change the perpetuating factor(s).

Excellent palpation skills are necessary for locating myofascial trigger points. Upper or lower limb tension tests should be administered in order to rule out nerve insults, including compression and/or inflammation.

Any patient suffering from unresolved pain or changes in sensations should have the possibility of myofascial trigger point involvement ruled out as a primary or secondary cause or contributor.
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NEURODYNAMIC TESTS

DIFFERENTIAL DIAGNOSIS

Physical therapies of all stripes and healthcare providers use neural tension tests (neurodynamic tests) as part of the clinical examination to help differentiate the underlying pathoanatomic structures. The most common neural tension tests include the straight leg raise test (SLR), the seated slump test (SST), and the upper limb neural tension test (ULNTT).

The advancement of neural tension testing, particularly the SST and ULNTT, is credited to Butler, Elvey, Shacklock, and Maitland. Today, neural tension testing has become a ubiquitous part of the orthopaedic Neuromuscular Therapy examination.

Several investigations have shown that a combination of specific body movements can create tension and gliding of neural tissues within the confines of the musculoskeletal system.

If a nerve or nerve root becomes inflamed or damaged by chemical mediators, macroscopic or microscopic trauma, or entrapment, normal functional movements can produce or exacerbate neural mediated signs or symptoms. Chronic repetitive compression or traction can result in both intraneural and extraneural pathology. Nerve injury of this type is often manifested by sensory changes such as paresthesias and neurological signs such as motor weakness; and altered deep tendon reflexes can result from prolonged neural insult. Therefore, neural tension testing that places mechanical tension on the nervous system has the potential to serve as a useful clinical test to help the NMT to differentiate between neural and non-neural anatomic structures such as the Myofascial Trigger Point.
**NEURODYNAMIC VARIATIONS**

*Straight Leg Raise Test (SLRT)* is the classic neurodynamic test. It is easily performed but often misinterpreted and must be administered correctly.

It is important to note that whilst the SLRT is primarily used for the identification of disc pathologies it can also be associated with irritation of the lumbar facet joints as well as the SIJ, associated ligaments and sciatic nerve involvement.

**Indications**
The indicators for this test are low back pain and leg pain of neurological origin as well as tibial and peroneal nerve entrapment syndromes in the lower leg. Similar indications are in place for the upper limb, shoulder neck or head pain, pain in the elbow, hand, wrist or fingers.

**Contraindications**
Severe low back or leg pain where performing the SLRT may aggravate the patients’ presenting complaint.

Patients who are unable to perform hip flexion or knee extension may also contraindicate this assessment. Upper limb patients with Frozen or dislocated shoulder should not perform these stress tests.

**Positive/Negative Responses**
A positive SLRT is reproduction of the patients familiar low back, buttock or leg pain.

Muscle pain/tightness is not a positive test. Use your clinical reasoning skills to differentiate tight versus pathological symptoms!
ALTERNATIVE TO ACTIVE SLRT

**Slump Test** is another classical neurodynamic test. It is typically performed in the seated position but can also be performed with the patient side-lying.

The key with this test is to allow the patient to perform it actively and then passively. This allows the patient to perform only the movements they are comfortable with.

**Indications**
The indicators for this test are cervical, thoracic or lumbar spine complaints/pain of suspected neurological origin. It can also be used to assess entrapment syndromes in the posterior lower extremity as well as where the history indicates that movements tested in the slump test may provide some useful information (i.e. getting in/out of car).

**Contraindications**
Severe cervical, thoracic, low back or leg pain. Patients who are unable to perform some degree of cervical flexion without pain should not do this test.

**Positive/Negative Responses**
A positive slump is reproduction of the patients’ pain.

Once again we stress that low back and hamstring tightness are not positive tests. These are stress tests and by their very nature will cause a feeling of tension and tightness in the tissues.
NEURODYNAMICS

UPPER LIMB NEURAL TENSION TESTS (ULNTT)

The ULNTT places the patient in the supine position on the examination plinth with the left shoulder slightly off the edge of the massage plinth. We will use three versions to isolate the median, ulnar and radial nerves.

For median nerve bias the patient is asked to “let go” so the Neuromuscular Therapist can passively move the left upper extremity and cervical spine.

To begin, standing on the left side of the plinth with your left leg driving the patients upper limb, the left shoulder girdle is passively positioned in scapular depression using your left arm. Passive lateral flexion is used to avoid cervical rotation, which is commonly associated with active lateral flexion.

The Glenohumeral joint is then abducted to 110° in the frontal plane. The Glenohumeral joint is externally rotated to about 90° with the elbow in 90° of flexion. The forearm is supinated, and the wrist, fingers, and thumb are passively extended. The elbow is now extended until the first sign of tension or the subject reports onset of neural-mediated symptoms (widespread aching, burning, or pain consistent with median nerve sensory distribution).

Finally, the cervical spine is passively laterally flexed to the right, away from the tested upper extremity, until a firm end-feel is noted. If symptoms are experienced before the elbow is fully extended, the patient’s cervical spine is laterally flexed back to the neutral starting position to determine structural differentiation.

I recommend that the cervical spine is moved last in all testing sequences.
Although my career has been focused on myofascial trigger points and encouraging health care professionals to integrate them into their clinical thinking and practice, I am constantly reminded of the importance of fitting this specialized knowledge into the big picture.

Understanding muscle structure and function is essential for the most effective identification and treatment of muscle pain and dysfunctions.

John has emphasized this important information in his career.

What we need to investigate next stems from the fact that the trigger point manuals are only half of the myofascial trigger point story. This is of fundamental importance. The manuals are focused on the pain caused by active myofascial trigger points: the effect of active myofascial trigger points on the sensory nervous system. What is now becoming apparent is that myofascial trigger points can produce equally potent effects and disturbances in the motor nervous system, causing weakness due to muscle inhibition in the same or other muscles, loss of coordination, and sometimes reflex spasm in other muscles.

These distant effects are just about as consistent for a particular myofascial trigger point location, and have as much individually variability as referred pain patterns, but are a much different and largely unexplored story.

By definition, clinical myofascial pain comes from active myofascial trigger points. Noteworthy, motor disturbances, which usually have no corresponding pain symptoms, are more likely to arise from pain-asymptomatic latent myofascial trigger points that until recently were generally considered just therapeutic red herrings.

You have my heartfelt best wishes for a successful career in this remarkably challenging field.

David G. Simons, M.D.
(1922–2010)
I have devoted much of my professional career to ensuring that Dr Simons (and Dr Travel’s) legacy lives on. The Concise Book of Neuromuscular Therapy - A trigger point manual (Lotus Publishing/North Atlantic Press) was the first publication in the world to provide myofascial trigger point referral patterns without the use of the “X” to mark the spot. Dr Simon’s gave this new development his approval and blessing. My latest book on the topic of Myofascial Trigger points is now available entitled: The Concise Book of Dry Needling-Practical Applications for Myofascial Trigger Point Therapy.

It is inappropriate to place an X in a specific position to identify the location of the myofascial trigger point. The point of view that the X represents a common location specific to a particular muscle is a flawed argument. In Volume 1 of Simons, Travell, and Simons 1999, p. 331, Barbara Cummings’ images of the masseter muscle include several Xs marking the positions of specific myofascial trigger points. The size of each X is such that if one superimposes all the images, the Xs cover the entire muscle.

In my daily work I speak to therapists who tell me that they could not find a myofascial trigger point in the middle of the most vertical fibers of the upper part of the trapezius muscle, as described on p. 279 of Simons, Travell, and Simons (1999). With appropriate palpation skills and the reassurance that the myofascial trigger point can form anywhere within the muscle, these same therapists further investigate and report they found the culprit distal, lateral, or superior to the location identified by the “X.”

Using an anatomical image with an X to identify the location of the myofascial trigger point is a poor substitute for excellent palpation skills.

Such skills are essential for identifying the myofascial trigger point(s) that could be located anywhere in the hundreds of thousands of myofibrils in any one muscle. Appropriate palpation skills and knowledge of the cardinal signs are used to seek out the accompanying tense bands and nodules associated with myofascial trigger points, which are housed in the microscopic sarcomeres.
CARDINAL SIGNS

1. JUMP SIGN
2. VISUAL / TACTILE EVIDENCE OF LOCAL TWITCH RESPONSE (LTR)
3. PAIN OR ALTERED SENSATION ASSOCIATED WITH THAT TRIGGER POINT WHEN PROVOKED.
4. PAINFUL LIMIT TO RANGE OF MOTION
5. A TAUT BAND
6. A PALPABLE NODULE
7. AUTONOMIC RESPONSES - VISUAL OR TACTILE
8. PAIN RECOGNITION
9. PAIN REFERRAL
10. SPOT TENDERNESS

(Note; Not all Cardinal signs are required to be evident or present. However, there is one essential sign - the twitch response - which must always be identified. If there is no twitch response the likelihood is that you are dealing with a tender point, nerve insult or similar but not a myofascial trigger point)

Each myofascial trigger point has its own recognisable pattern — a portrait of pain or changes in sensations. Simons, Travell, and Simons (1999) highlighted the difference between what are known as active myofascial trigger points and latent myofascial trigger points.

Pain and changes in sensations from active myofascial trigger points are recognised by the patient as “their pain.” Latent myofascial trigger points, on the other hand, cause pain that is not necessarily recognised by the patient, but may be contributing to the patient’s problems.

Latent and active myofascial trigger points provoke motor dysfunction and impaired muscle activation patterns (Lucas et al. 2004, 2009), weakness, and muscle imbalances. It is vital to appreciate that latent myofascial trigger points can develop into active myofascial trigger points.

CLASS DISCUSSION:

What does a muscle fibre need in order to contract? Break into small groups and see if your group can provide a clear understanding of the neurophysiology of contractile tissues (5 minutes).
I want to make the point that Myofascial Trigger points are the great pretender.

Myofascial Trigger Points mimic everything. From headache and toothache to TMJD and even Heart pathology related pain. When the primary health care practitioner (e.g. the doctor) has ruled out underlying pathology and the patient is left with no explanation for their pain it is very worthwhile to consider and investigate the possibility of Myofascial Trigger Points being at the heart of the problem.

During this short presentation we will use our fingers (digits) including our thumbs to deactivate the Myofascial Trigger Points. I would recommend the use of dry needling if it falls within your scope of practice and I will demonstrate the use of dry needling for your consideration.

References:
National Convention 2018