Trigger Points

- Hyperirritable spot, usually within a taut band of skeletal mm
- Sensitive to touch and pressure
- Often exhibits a predictable pain referral pattern
- Causes shortening of the effected muscle

Note:

- Healthy muscle DOES NOT contain trigger points
- TP's can also occur in ligaments, joint capsules, periosteum and fascia
    - Referral patterns are not extensively documented for the above

Types of Trigger Points

a. Symptom
    1. Active Trigger Point
    2. Latent Trigger Point
b. Location
    1. Primary
    2. Secondary
    3. Satellite

A1. Active Trigger Point

- Painful at rest
- Painful with active or passive movements/stretches of the muscle containing it
- Refers pain in a pattern that is usually specific and predictable for that muscle
- TP's prevent the muscle from lengthening and decreases its strength
    - Protective spasm will occur to prevent further damage by preventing lengthening
- Palpation can elicit a local twitch response
- Palpation can also cause muscle to contract
- Palpation may produce referred Autonomic phenomenon
    - Vasomotor changes (constriction followed by dilation)
    - Increased sudomotor activity (sweating)
    - Pilomotor response (goose bumps)
    - Lacrimation (tears)
    - Nasal irritation/discharge

A2. Latent Trigger Point

- Produces pain only when pressure is applied
- May have all the other characteristics of of an active TP
- More common
- May persist for years after original trauma
- Can become ACTIVE if:
    - Activated by referred pain
    - Overuse of mm
    - Over stretch of mm
    - Chilling of mm
    - Leaving mm in a shortened position for several hours ie.) sleep, road trip, airplane

B1. Primary Trigger Point

- Directly activated by acute or chronic mechanical strain or overload of affected mm

B2. Secondary Trigger Point

- Activated in the overworked synergist or antagonist mm

B3. Satellite Trigger Point

- Found in mm that lies within the referral pattern of another trigger point

Effects of Trigger Points

- Shortens affected mm
- Can mimic the pain of other conditions, OA, tendonitis, cardiac pain
- A healthy mm
    - Does not contain TP's
    - No taut bands
    - Not tender
    - Reffered pain cannot be evoked and local twitch response is absent

Origin of a Trigger Point

- TP's are idiopathic in nature
    - Mechanisms that cause TP's are not fully understood
- Janet Travell's theory is that an initial trauma to the mm overloads some of the mm fibers which leads to the development of TP's
- Travell theorized that:
    - Active TP's develop in the most physically active years of life
    - Latent TP's develop in the more sedentary or later years of life

Activating a Trigger Point

Travell believed that an initial trauma gave rise to the development of a TP and that direct and indirect stimuli can activate a trigger point

Direct Stimuli:

- Trauma
- acute mm overload
- overwork
- fatigue
- chilling of the mm

Indirect Stimuli:

- Referred pain from other TP
- Emotional stress
- Visceral pain

Perpetuating Factors

1. Mechanical Stresses
    a. Bony asymmetries that indirectly or directly shorten mm's
        i. Leg length discrepancy
        ii. Small hemipelvis

2. Postural Stresses
    a. Poor posture
    b. Mm immobilities
    c. Poor body mechanics *

3. Muscle Constriction
    a. Back packs
    b. Sports bras
    c. Sport equipment

4. Nutritional inadequacies
    a. Vitamin b
    b. Vitamin c
    c. Folic acid

5. Metabolic Inadequacies
    a. Hyperthyroidism
    b. Hypothyroidism

6. Psychological Factors
    a. Depression
    b. Anxiety

7. Chronic Infections
    a. Viral Infections
    b. Bacterial Infections

8. Impaired Sleep
    a. Can lead to anxiety and increased mm tension, fatigue

The more perpetuating factors a person has, or the more severe the perpetuating factors, the increased probability of a latent trigger point becoming active.

How to Recognize a Trigger Point

- Sensitivity of a TP can change over several hours/days
- Passively stretching the mm causes pain
- Contraction of the affected mm can be painful
- Shortening and hypertonicity of the affected mm occurs, therefore; decreasing ROM
- Mm weakness is present without mm atrophy or neurological deficit
- Perpetuating factors may be present
- Possible autonomic factors
- Feels like a nodule
- Pain can be described as achey, deep, and constant

Health History Questions

Clients general health?
Previous acute or overuse injury to the affected mm?
Pain?
    Describe, onset, location, aggrevate/alleviate
Are any autonomic Sx present?
Was the mm in a shortened state for a long time?
Is mm stiffness, weakness, decreased ROM present?
Are there any perpetuating factors present?

CI's

- DO NOT apply ischemic compression too quickly or too deep
- Do not release too quickly
- Do not forget to apply either a passive stretch and heat OR slow full active free ROM and heat after treating TP
- When treating TP's that are proximal to an area of acute inflammation, DO NOT use heat
    - For acute inflammation, use EFF to increase flushing
- DO NOT treat TP's in areas of Acute or early Subacute overstretch injuries (strain or sprain)
- Avoid prolonged chilling of a mm containing a TP
- DO NOT ice a TP
- Avoid combining aggressive techniques on the same mm in the same Tx
    - Friction + TP work = too much stress on mm
- DO NOT fully stretch mm's that cross hypermobile joints
    - Use mm stripping and heat

Other Considerations

- Reassess mm length after tx of TP's
- Treat any secondary TP's in synergists or antagonist that may refer pain into the same region
- If there are multiple trigger points, do not over treat
    - Treat TP in area of Primary complaint
    - Treat others next Tx

Tx of Trigger Points

1. Put mm into a slight stretch (pain free)
2. Locate TP using skin rolling or palpation or pincer grasp (mm belly between thumb and fingers)

Use one or more of the following techniques;

A. Prolonged Ischemic Compressions

- Most specific technique

1. Reinforced finger or thumb pressure is slowly applied to the TP, keep pain tolerance at client's level
    a. For deeper muscles, elbow can be used
    b. Do not apply pressure to fast as client will experience pain and guard the muscle
2. Appropriate pressure is maintained until the TP reduces
    a. 20 seconds – 1 minute
    b. as it reduces, TP will feel like it is melting
    c. client will feel the pain diminish
    d. communicate with client – client is to let therapist know when pain diminishes
3. Compression will slowly be released
4. Repetitive petrissage is used to flush the area
5. Follow with heat and stretch

- If the pain does not diminish, MT may slowly increase pressure until client's tolerance is reached again, holding for appropriate amount of time, or until the pain diminished (Repeat 1-4)
- Deep breathing should be encouraged
- If TP moves, follow it
- If TP does not release after 1 minute, flush area appropriately and treat TP next Tx

B. Slow, Repetitive muscle stripping

- Pressure begins superficial, and slowly deepens
- Performed along the entire length of the taut band of muscle

C. Alternating Ischemic Compressions

- Used for TPs that are too painful for prolonged ischemic compressions
- Use reinforced fingers or thumbs

1. Apply pressure for 7-10 seconds
2. Release
3. Cycle through 1-2, pain should diminish with every application
4. Apply repetitive eff, and pet between compressions

- May take several Tx's to decrease TP's

Expected Outcome

- Outcome depends largely on eliminating any perpetuating factors
- Time of onset affects outcome
  - A TP is more likely to be decreased if Tx'd shortly after development
  - A TP that is months or years old may take several tx's to eliminate
- ***Client compliance with self-care greatly affects outcome***
  - ***Along with eliminating perpetuating factors***

Tx Frequency

- Fiona Rattray says…
  - 1 or 2 TP's
    - TP may be eliminated in a general Tx
  - Multiple or hyperirritable TPs
    - 30 min sessions 2-3x per week