Soft Tissue Mobilization for Cervical and Shoulder Disorders

By
William J. Hanney, DPT, PhD, ATC, CSCS

Approaches to STM

- Deep friction massage
- Trigger point therapy
- Myofascial Release
- Rolfing
- Feldenkrais
Stress-Strain Curve

- Toe Region
- Elastic Region
- Elastic Limit
- Plastic Region
- Ultimate Stress
- Necking
- Ultimate Failure
Viscoelastic Model
Cycle of fibrosis and Decreasing Mobility

• Distinct from scar formation
• Fibrotic process is cyclical with no distinct end
• It typically begins with an irritant and can continue as long as it is present

Cycle of fibrosis and Decreasing Mobility in Connective Tissue
Response of Myofascial Tissue to Immobilization

- Non-traumatized Connective Tissue
- Traumatized Connective Tissue

Non-Traumatized Connective Tissue Immobilization

- Fibro fatty infiltrate in capsular folds
- The longer the immobilization the greater amount of infiltrate
- Found significant loss in ground substance with minimal loss of collagen
- Loss of critical inter-fiber distance
- Results in decreased tissue extensibility
Traumatized Connective Tissue Immobilization

- Implications of the inflammatory process and immobilization.
- Cascade of events in non-traumatized immobilization will be exaggerated when traumatized connective tissue is immobilized

Scar Tissue vs. Fibrosis
Physiology of Myofascial Manipulation

- Effects of Massage on Blood Flow and Temperature
- Physiological Reflexive (Autonomic) Effects of Massage
- Effects of Massage on Fibroblastic Activity/Collagen Synthesis during Healing

Effects of Soft Tissue mobilization on Blood Flow and Temperature

- Significant increase in blood flow with deep tissue manipulation when compared to superficial strokes
- Effects of increase blood flow for approx 30 min and dropped off significantly
- Increased rate caused by mechanically emptying vessels and allowing them to refill
- Ultimately in blood flow results in increase temperature
Physiological Reflexive (Autonomic) Effects of Massage

- Mechanical friction of STM stimulated the mast cell
- The stimulated mast cell produced histamine which is a vasodilator
- Vasodilation increases blood flow both locally and globally
- Increased permeability allow for quicker and more complete diffusion of waste products

Effects of Massage on Fibroblastic Activity/Collagen Synthesis during Healing

- External factors responsible for assuming orderly arrangement of fibrils
- Protect injured tissue during early inflammatory stage
- Tension during regeneration phase will help collagen fibers align properly
- Transverse friction
Questions?

Basic Evaluation of Myofascial System

- History
- Postural and Structural Evaluation
- Active Movement Analysis
- Palpatory Examination
History

- What is the quality of the pain?
- How is the patient sleeping at night?
- Is the pain waking the patient?
- How much generalized fatigue is the patient experiencing during the day?
- What pattern does the pain follow during the day?
- What medications is the patient taking?
- Does the patient have a hyper‐allergenic history or have tendency toward irritable bowel syndrome

Postural and Structural Evaluation

- Observation of posture
- Myofascial aspects
- Cervical spine
- Thoracic spine
- Lumbar spine
Upper Cross Syndrome

- Postural muscle – responds to dysfunction by tightening
- Phasic muscle – responds to dysfunction by weakening

Active Movement Analysis
Palpation

A muscle trigger point is a hyper-irritable spot within a taut band of muscle that is painful on compression, stretch, over load, or contraction in the shortened position.

- Responds with a referred pain pattern that is often distant from the spot.
- Active TrPs cause pain and evoke a familiar pain.
- Latent TrPs also evoke referred pain with mechanical stimulation, contraction or stretch by pain is not familiar.

Upper Trapezius

Flat Palpation

Pincer Palpation
Scalene muscles

Sternocleidomastoid
Suboccipital muscle

Temporals
Masseter

Frontalis
Treatment Sequencing

• Myofascial manipulation
• Joint mobilization
• Joint and myofascial elongation
• Neuromuscular re-education
• Postural instruction

STM Clavicular Clearing
STM First Rib

Pectoral Fascial Mobilization
Scapular Clearing
-lateral-

Scapular mobilization
Inhibitive Distraction

Suboccipital mobilization
Cervical Laminar Release

Scalene Stretch
STM
Sternocleidomastoid

putting the pieces together
Questions?