CHAPTER

Manual Therapy Techniques

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manual therapy: the use of hands-on techniques to evaluate, treat, and improve the status of neuromusculo-skeletal conditions
massage: the systematic and scientific manipulation of soft tissue for remedial or restorative purposes
Effects of Massage

- Muscle relaxation
- Blood vessel dilation
- Increased blood and lymph flow
- Promotion of fluid mobilization
- Stretching and breakdown of adhesions
Types of Massage

- Effleurage
- Petrissage
- Friction

Indications, contraindications, precautions
Application of Massage

- Elevate part if edematous.
- Make strikes toward heart.
- Maintain contact with skin throughout.
- Use slow, even, relaxing rhythm.
- Warn patient of sensation expected.
- Friction massage uses small area, constant pressure, crossing pattern.
myofascial release: the use of manual contact for evaluation and treatment of soft-tissue restriction and pain with the eventual goal of the relief of those symptoms to improve motion and function
Fascia Anatomy

- Continuous structure that surrounds and integrates tissue throughout body
- Provides tissue form, lubrication, nutrition, stability, integrity, and support and assists in muscular strength during eccentric contractions
Fascial Layers

- Superficial
- Deep
- Subserous
Biomechanical Considerations

- Biomechanical impact of fascia scar tissue
- Nonacute and acute biomechanical forces
- Myofascial release a misnomer
Pathology of Myofascial Restriction

- Myofascial restriction
  - Posture changes
  - Altered coordination
  - Changes in force requirement
  - Neurological readjustment
  - Force production imbalance of agonist/antagonist
  - Length imbalance of agonist/antagonist

- Acute or chronic trauma
Myofascial Release (MFR)
Treatment Guidelines

- Palpation: normal mobility, superficial to deep, autonomic responses
- Treatment time: 3-5 min
- Avoid bruising
- Stabilize tissue and take up slack
- Apply MFR with your upper extremities relaxed
- Can use various stroking techniques
Myofascial Release Strokes

- J-stroke
- Oscillation
- Wringing
- Stripping
- Arm pull and leg pull

- Indications, contraindications, precautions
trigger point: “a focus of hyperirritability in a tissue that, when compressed, is locally tender and, if sufficiently hypersensitive, gives rise to referred pain and tenderness, and sometimes to referred autonomic phenomena and distortion of proprioception” (Travell and Simons 1983)
Myofascial Trigger Points

- Taut band of muscle tissue
- Central focal point of tenderness and thickness
- Focal point—appears as nodule
- Pressure on the nodule—can cause referred pain or autonomic response
- Active trigger points
- Latent trigger points
Trigger Point Characteristics

- Dull ache or sharp stabbing
- Pressure can cause referred pain
- More irritable trigger point = more severe referred pain
Trigger Point Characteristics

- Each muscle has characteristic referred pain patterns
- Causes of pain
- Ways to ease pain
Causes of Trigger Points

- Injury
- Overload
- Fatigue
- Acute

The exact mechanism of trigger points is really unknown and is only theory at this time.
Trigger Point Treatment

- Trigger point examination

Treatment
- Ice stroking along muscle
- Ischemic compression
- Stripping of the taut band
- PNF, hot packs, ultrasound, electrical stimulation

Precautions
Effect of Trigger Point Release Via Ice-Stretch on Neural Pathways

Adapted from Simons, Travell, and Simons 1999.
Trigger point treatment must be accompanied by stretching of the muscle to be most effective.
**muscle energy technique:** a manual technique that involves the voluntary contraction of a muscle in a precisely controlled direction, at varying levels of intensity, against a distinct counterforce applied by the sport rehabilitation specialist. Essentially, it is the use of muscle contraction to correct a joint’s malalignment which occurs when the body becomes unbalanced.
Malalignments occur due to muscle spasm, weakness, restricted mobility etc.

Muscle contraction can be isometric, eccentric, concentric.

Patient controls magnitude.

A barrier restricts normal motion.

Muscle contraction allows for improved relaxation and motion.
**Muscle Energy Application**

- Patient’s segment is placed at end of barrier.
- Patient contracts muscle while rehabilitation specialist offers resistance.
- Muscle contraction is submaximal isometric contraction (2 oz), 5-10 s.
- Patient relaxes; segment is passively moved to the new barrier.
- 3-5 repetitions are performed.
**Muscle Energy Application**

- Repeat as above for **isotonic** contraction but allow thru full ROM
- Resistance should allow motion at an even and controlled speed.
- Refractory period is needed
- Patient relaxes; segment is passively moved to the new barrier.
- 3-5 repetitions are performed.
**joint mobilization**: passive movement of a joint in either physiological or accessory movements to either relieve pain or improve motion
Basic Concepts of Joint Mobilization

- Physiological vs. accessory motion
- Accessory-Jt. Play and component motion
- Arthrokinematics; five types of motion within joint
- Concave and convex rules
- Capsular patterns of motion
Rules for Concave-on-convex and Convex-on-concave Joint Surfaces
Joint mechanoreceptors are stimulated to inhibit pain stimulation and can cause muscle relaxation.

Distraction and gliding can cause improved synovial fluid movement to improve nutrition to the joint.

Stretch of the capsule can cause plastic deformation of collagen to improve motion.
Application of Joint Mobilization

- Grades of movement
- Using a movement diagram
- Normal joint mobility
- Close- and loose-packed positions
- Rules for application
- Indications, precautions, contraindications
Movement Diagram

Key
A = Beginning of movement
N = Normal limit of ROM
L = Abnormal limit of ROM
H = Hypermobile range
B = Intensity