PHYSICAL THERAPY INTERVENTION FOR PAIN.

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OBJECTIVES

Identify types of pain.
Identify nature of pain.
Identify physical therapist’s role in pain management.
- Acute pain.
- Chronic pain.

TYPES OF PAIN

- Mechanical
  - Joint, soft tissue stress/strain, discogenic
- Radicular
  - Nerve root irritation
  - Compression
  - Chemical (inflammation)
- Referred
  - Trigger point
  - Deep structure (muscle, joint, organ)

MECHANICAL PAIN

- Joint stress strain
  - Facet joints
  - Sacroiliac joints
    - Pelvic torsion
    - Upslip
    - Leg length?
- Muscle strain

MECHANICAL PAIN

- Discogenic
  - Normal disc is avascular and insensate.
    - With the exceptions of the very outer layers of the annulus.

DISCOGENIC PAIN

- Damaged disc has vascular and nerve ingrowth to inner layers of annulus making the disc a sensitive pain generator.
DISCOGENIC PAIN

Radicular Pain
- Nerve compression causing pain along dermatome.
  - Root level compression
  - Disc herniation
  - Spinal stenosis
  - Peripheral nerve compression
    - Piriformis syndrome
    - Cubital, carpal, and tarsal tunnel syndroms

Referred Pain
- Pain generator that is felt away from the source of pain.
  - Structures deep to the skin do not have specific sensory mapping in the brain, nerve convergence leads brain to try to interpret where the pain is coming from.
  - Pain often hard to describe by patient, hard to pinpoint exactly where it is.
  - May be hard to reproduce.

Referred Pain
- Referred pain can very often mimic radicular pain.
  - Must be ruled out by examination.
    - Nerve tension
    - ROM with overpressure
    - Quadrant
    - Spurling’s
    - Compression tests.

Trigger Point Referred Pain
TRIGGER POINT REFERRED PAIN

REFERRED PAIN

ACUTE PAIN AND RECURRENT PAIN
- Identify the pain generator.
- Identify the contributing factors.
- Treat the dysfunctions leading to problem.
- Educate the patient about the cause, contributing factors, and how to prevent future episodes.
  - "teach a man to fish..."

NATURE OF PAIN
- Acute
  - New injury, inflammatory phase
- Recurrent
  - Repeat injury, new inflammatory phase each time
  - Related to posture, position, mechanical
  - Example: disc
- Chronic
  - No longer inflammatory phase
  - Tissue damage (tendinosis)
  - Hypersensitized
  - May or may not catastrophize.

PHYSICAL THERAPY EVALUATION
- Identify source and/or contributing factors.
  - Hyper versus hypo mobile segments.
  - Overuse, repetitive stress/strain.
  - Postural, positional.
  - Asymmetries.
  - Body awareness.
HYPERMOBILE AND HYPOMOBILE SEGMENTS

* Most common in the spine.
* Multiple segments or links in a chain.
* One joint segment becomes stiff. The adjacent segments take up the slack by moving more, becoming hypermobile. With repeated movements the hypermobile segments move more easily and become perpetually more flexible leading to too much movement at that segment. The hypomobile segment becomes perpetually stiffer with less movement.
* Pain can be from either or both the hypermobile and hypomobile segments.

OVERUSE

* What is the history of the injury. Repeated overuse of activity.
  + Reaching, gripping, bending.
  + Sports (running, jumping)
    - Soft tissue stress/strain
      - Muscle and tendon
      - Ligament
      - Cartilage (ie: PFPS)
    - Bone
      - Stress reaction
      - Stress fracture

POSTURE AND POSITION

* Slouch sitting
* Forward head – computers
* Rounded, protracted shoulders
* Lifting mechanics
* Ergonomics

ASSYMETRIES

* Structural
  + Scoliosis
  + Pelvic torsion
  + Leg length
  + Joint stiffness
  + Muscle weakness
    - Scapular winging
    - Hip internal rotation
  + Muscle contracture
  + Combination - imbalance
ASSYMETRIES

• Position sense
  - Typically leads to imbalances
• Motor control
• Normal versus the “new normal”

BODY AWARENESS

PHYSICAL THERAPY INTERVENTIONS

• Modalities
  - Heat, cold packs
  - Ultrasound
  - Electrical stimulation
  - Diathermy
  - Near infrared light

• Convergence of neural input.
  - Use of modalities can reduce pain stimuli below threshold to allow for movement, exercise.

• Manual therapy
  - Joint stretching, mobilizations
  - High velocity manipulations
  - Myofascial treatments
    - Massage, cross friction, MFR
    - Trigger point dry needling
    - Instrument assisted soft tissue mobilization
      - Graston
      - ASTYM

• Therapeutic exercise
  - Stretch tight structures
  - Strengthen weak structures
  - Learn motor control and body awareness
    - Strength gains in first 3-4 weeks of exercise program are neuromuscular training.
  - Balance
PHYSICAL THERAPY INTERVENTIONS

- Supportive devices
  - Braces
  - Splinting
  - Taping
    - Kinesiotape, Elasticon, athletic tape
  - Shoe orthoses
    - Arch support
    - Medial or lateral wedge

MOST COMMON BODY PARTS INJURED

- Low back
- Shoulder
- Knee
- Neck

LOW BACK PAIN

- Posture syndrome
- Acute strain
- Muscular or discogenic?
- Directional preference
  - Flexion
  - Extension
- Pelvic torsion
- Instability
- Nonspecific

FUNCTIONAL LUMBAR INSTABILITY

- Poor motor control and sensory awareness
- Loss of disc height = reduced stiffness
- Spondylolisthesis = true instability
- Treatment
  - Sensory/ motor control
  - Spinal stabilization
  - Mobilize hypomobile segments.

ROTATOR CUFF TENDONITIS

- Example
  - Kyphotic thoracic spine.
  - Protracted and downward tilted scapula.
  - Limited scapulothoracic movement with arm elevation.
  - Increased movement stress at glenohumeral joint.
  - Supraspinatus compressed under coracoacromial arch too soon = pain.
  - Injection?

CHRONIC PAIN
CHRONIC PAIN

- Pain beyond inflammatory phase.
- Will have underlying dysfunction.
  - Tightness
  - Weakness
  - Multifidus
  - Tissue damage
  - Disc derangement, tendonosis
- Hypersensitized
- Fear avoidance behavior

CHRONIC PAIN TREATMENT

- Pain is multifactorial so treatment must be multifactorial
  - Treat the underlying dysfunction.
  - Exercise away from pain to break fear avoidance behavior.
  - Example: exercise arms and legs keeping neutral or supported spine.
  - Redirect attention from pain to movement.
    - Walk further, stairs, yard work, fishing, etc.
  - Psychological – coping strategies.

CHRONIC PAIN TREATMENT

- Modalities ??
  - Can reduce overall sensory input to lower pain temporarily to allow exercise or activity.
    - Sympathetic chain
    - TENS unit
    - Trigger point dry needling with stimulation

CHRONIC PAIN TREATMENT

- Movement heals.
  - Joint specific mobilizations.
  - Traction, unilateral axial separation.
  - Hydrating effect
  - Strengthening
  - Stretching
  - Cardiovascular exercise

CHRONIC PAIN TREATMENT

- Goal:
  - Restore movement so they can function.
    - If pain decreases that is a bonus but not the goal.

PHYSICAL THERAPY FOR PAIN

- Our job is to identify the origin or nature of the pain.
- Identify the contributing factors to the cause.
- Treat the contributing factors.
  - Stretching, strengthening, soft tissue treatments, modalities, home exercise program.
- Teach the patient to care for themselves.
WHO SHOULD YOU SEND TO PHYSICAL THERAPY?

- Anyone with musculoskeletal pain.

QUESTIONS