EDS: Understanding your pain and how to treat it

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It’s complicated

- Current concepts of EDS pain mechanisms and treatments
- Why muscles cause pain in EDS
- Understanding pain mechanisms
- Functional muscle pain
- Treatments
Pain Mechanisms

Musculoskeletal Pain

Psychosocial Factors
  - Anxiety
    - Pain-related fear

Physical Fitness
  - Deconditioning
    - Muscle Weakness
    - Decreased cardiovascular Capacity

Biomechanical Factors
  - Joint instability
  - Altered motor control
    - Connective tissue laxity: GJH
    - Nonphysiological motor patterns
    - Proprioceptive inacuity

Neurological Factors
  - CNS upregulation
    - Generalized hyperalgesia

Various Treatments

- **Medications**
  - NSAIDs
  - Opioids
  - Antidepressants
  - Sedatives/Benzos
  - Cardiovascular
  - Pulmonary

- **Physiotherapy**
  - Strength Training
  - Massage
  - Stabilization Training
  - Electrotherapy
  - Manual Therapy
  - Aquatic Therapy
  - Heat Therapy
  - Stretching

- **Surgery**
Oxygen and Muscle Pain

Constricted blood vessels inhibit the flow of blood and deliver less oxygen:

Areas of lower oxygen cause **Pain** with activity

Impaired Calcium Pump/Inability to relax a part of a contracted muscle (Trigger Points)

LESS OXYGEN → PAIN

Decreased oxygen
When we feel pain
how does it affect us?
Life of Pain

Pain
how the body produces pain
Nociceptive/Pain Pathways
Microglia: Trauma, Infection, Persistent Pain

Pro-inflammatory cytokines

Sickness response:
- lethargy
- depression
- anxiety
- social withdrawal

Hyperalgesia
Treating Microglia

**Naltrexone**

- Used in overdose and heroin addiction
- Commercial doses (50-100mg) versus microdoses (0.1mg+)
- Effect on opiates
Mast Cell Activation Disorder
Treating Mast Cells

Medications:
- Anti-histamines
- Anti-leukotrienes
- Cannabinoid Family:
  - PEA
  - Medical marijuana (CBD/THC)
    - 3 delivery systems
    - 5 Ratios
Pain stimulates microglia

+ Mast cells stimulates microglia

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MORE PAIN!
Opposing Mechanisms

Central Sensitization (CS)

Versus

Diffuse Noxious Inhibitory Control (DNIC)/Conditioned Pain Modulation (CPM)
Hans Kraus, M.D.
Functional Muscle Pain

- **Tension/Stress**
- Deficiency: Weakness and/or Stiffness
- Spasm
- Trigger Points
Animal model: Stress as a contributing factor to back pain

Hans Kraus, M.D.

Functional Muscle Pain

- Tension/Stress
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Kraus-Weber Tests
The Y’s Way to a Healthy Back

• Taught to 300,000 patients – twice a week for six weeks

• 12K patients studied: 80% of patients experienced reduction and/or elimination in back pain

• Patients with previous back surgery had an 82% success rate

Kraus/Marcus Lower Body Exercises (Level 1)

- Diaphragmatic Breathing
- Shoulder Shrugs
- Leg Slides
- Head Rotations
- Single Knee to Chest
- Side Lying Knee to Chest
- Buttocks Squeeze
Precautions

– Individualized needs
  (subluxation/dislocation, strength)

– Work with providers who know EDS

– Physical therapy:
  • No Isometrics!
  • Use Manual Resistance
  • No Passive Stretching
Hans Kraus, M.D.
Functional Muscle Pain

- Tension/Stress
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Pain-Spasm-Pain Concept

Spinothalamic tract

III-IV

α-Motor fibers
Lund Hypothesis

Hans Kraus, M.D.
Functional Muscle Pain

- Tension/Stress
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- Trigger Points
Myofascial Trigger Points

- Tender nodular area in muscle
- Taut band
- May refer to proximal and distal muscle
- Diagnosis made by pain to palpation
Palpation/Pressure

- Unreliable
- Sedentary vs. Activity
- Primary Muscle/Referred Pain?
- Entheses vs. muscle tissue

Muscle Stimulation Hypothesis

**Postulate:**

Externally induced contraction

- Stimulates nociceptors in the entheses
- Deforms sensitized muscle tissue (trigger points)
Hans Kraus, M.D.
Functional Muscle Pain

- Tension/Stress
- Deficiency: Weakness and/or Stiffness
- Spasm
- Trigger Points
- Muscle Pain Amenable to Injection
Injections

• Injectate DOESN’T T matter!


• Location, Location, Location!

Post-injection Physical Therapy

- Neuromuscular electrical stimulation
- Limbering exercises
Too much of a good thing?
Photobiomodulation (Low Level Laser Therapy)

Conclusion

• Muscles are a key factor in understanding EDS-related pain
• Develop protocols to lengthen effectiveness of pain treatments
• Prevent re-injury
• Individualize treatment