

# Functional Pain: How Can I Help?

*Jared W. Nichols, D.O. – Assistant Professor OMM*



# Objectives

- Define functional pain
- Identify new factors influencing pain
- Improve patient interview
- Recognize areas for clinical growth
- Leave with resources to learn more



# What Is Pain?

# What is Pain?

- Unpleasant
- Burn
- Heartache
- Sorrow
- Discomfort
- Sharp
- Stabbing
- Neurotransmitters
- Electrical Impulses
- Debility

# What is Pain?

- Complex interaction between specialized nerves, spinal cord, and brain.
- Physical and Emotional
- Acute vs. Chronic

# Causes of Pain

- Pain from tissue damage, nerve damage, emotional/psychological
- Nerve ending stimulation: nociceptors
- Sometimes cause is unknown
- Sensitization

# Modifying Factors

- **Genetics**
- **Gender. Long-term health problems**
- **Psychological factors**
- **Social factors**
- **Past experiences**
- **Other individual factors**
- Henschke N, et al. The epidemiology and economic consequences of pain. Mayo Clinic Proceedings. 2015;90:139.

# Burden

- Common and Complex
- Interferes with Daily Activities
- Negative affect on Relationships
- Drain Energy
- Lacking Feeling of Health

# Economic Burden of Pain

- 5 Billion, False
- 35 Billion, False
- 635 Billion

*Date:* September 11, 2012

*Source:* American Pain Society

*Summary:* Health economists have reported the annual cost of chronic pain in the United States is as high as \$635 billion a year, which is more than the yearly costs for cancer, heart disease and diabetes.

# What is Functional Pain?



# Define the Terms

## Functional:

- of, connected with, or being a function: the functional differences between the departments
- affecting physiological or psychological functions but not organic structure: functional heart disease

# Define the Terms

Pain:

- punishment: the pains and penalties of crime
- usually localized physical suffering associated with bodily disorder (such as a disease or an injury) the pain of a twisted ankle; also : a basic bodily sensation induced by a noxious stimulus, received by naked nerve endings, characterized by physical discomfort (such as pricking, throbbing, or aching), and typically leading to evasive action the pain of bee stings
- acute mental or emotional distress or suffering : grief

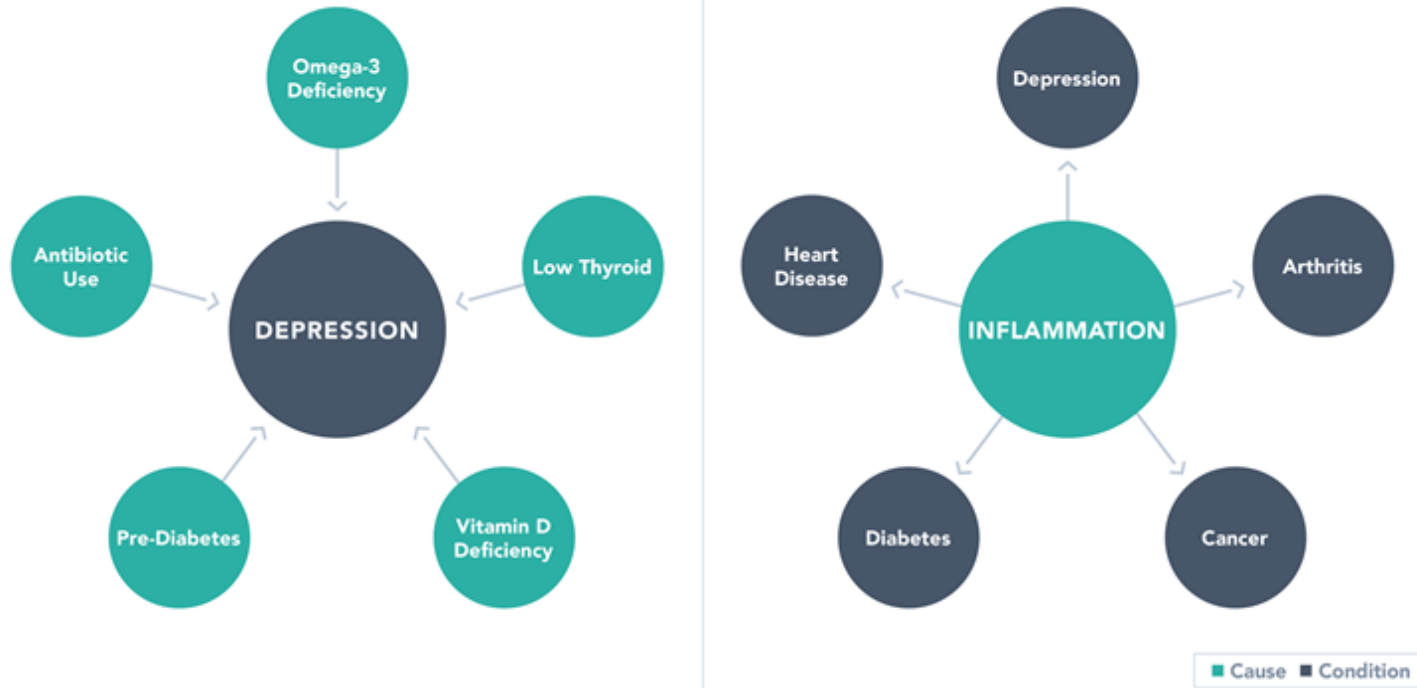
# Integrative and Functional Medicine

- Goal is to create health
- Combines alternative medicine practice with conventional practice
  - *Ex: using ginger syrup to prevent nausea during chemotherapy*
- Together complementary and alternative medicines (CAM)
- Philosophy that neither rejects conventional medicine nor accepts alternative therapies uncritically

# Functional Medicine

- Systems biology-based approach
  - *Focuses on identifying and addressing the root cause of disease*
  - *Diagnosis can be result of more than one cause*
- Look at individual's genes, environment, lifestyle
- Attention to timelines
- In-depth interviews

# One Condition, Many Causes | One Cause, Many Conditions



“Let food be thy medicine and medicine be thy food.”  
– **Hippocrates**

# Inflammatory Foods

- fried foods, including French fries
- white bread, pastry, and other foods that contain refined carbohydrates
- soda and sugary drinks
- red meat
- margarine and lard

# Sugars

- Processed sugars trigger the release of inflammatory messengers called cytokines
- Any sugar that ends in “ose” e.g. sucrose, fructose
- Note whole fruits have fiber so we will get full before we eat an overload of sugar.
- Glycemic load





# Refined Carbohydrates

- Refined Carbs (white flour products, white rice, white potatoes, French fries, many cereals)
  - *High-glycemic index*
  - *Driver of escalating rates of obesity and other chronic conditions*
- Fuel the production of advanced glycation end products (AGE)
  - *Stimulate inflammation*



# MSG (Mono-sodium glutamate)

- Flavor-enhancing food additive
  - *Commonly found in Asian food and soy sauce*
  - *Also added to fast foods, soups, salad dressings, deli meats*
- Triggers two pathways of chronic inflammation
- Affects liver health



# Gluten and Casein

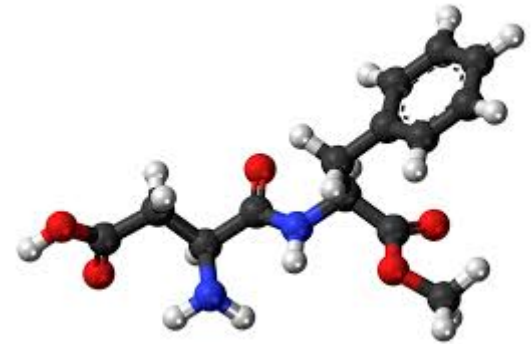
- Gluten
  - *Found in wheat, barley, rye*
- Casein
  - *Found in dairy products*
- Can have sensitivity (do not need to be full blown celiac)
- Can cause autoimmune response
- If have joint pain, consider elimination diet

GLUTEN FREE



# Aspartame

- Sugar-free artificial sweetener
- Studies are mixed
- Many people are sensitive to it which cause and inflammatory response to the chemical



# Alcohol

- Metabolized by the liver
- Produces free radical chemicals
- Disrupts other organ interactions
- Causes Inflammation
- Eliminate or use in moderation



# Saturated Fats

- Several studies have shown that saturated fats trigger adipose (fat tissue) inflammation, which is not only an
  - *indicator for heart disease*
  - *worsens arthritis inflammation*
- Pizza and cheese are the biggest sources of saturated fats in the average American diet
- Also meat products (especially red meat)
- Full-fat dairy
- Pasta dishes, grain-based desserts



# Trans Fats

- Triggers systemic inflammation
  - *found in fast foods and other fried products*
  - *processed snack foods*
  - *frozen breakfast products, cookies, donuts, crackers*
  - *most stick margarines*
- Avoid foods with partially hydrogenated oils in the ingredient labels.





# Omega 6 Fatty Acids

- Essential fatty acid the body needs for normal growth and development
- Balance of Omega-6 and Omega-3 fatty acids
- Excess consumption of Omega-6 can trigger production of pro-inflammatory chemicals
- Found in oils: corn, safflower, sunflower, grapeseed, soy, peanut, vegetable
- Also mayonnaise and many salad dressings





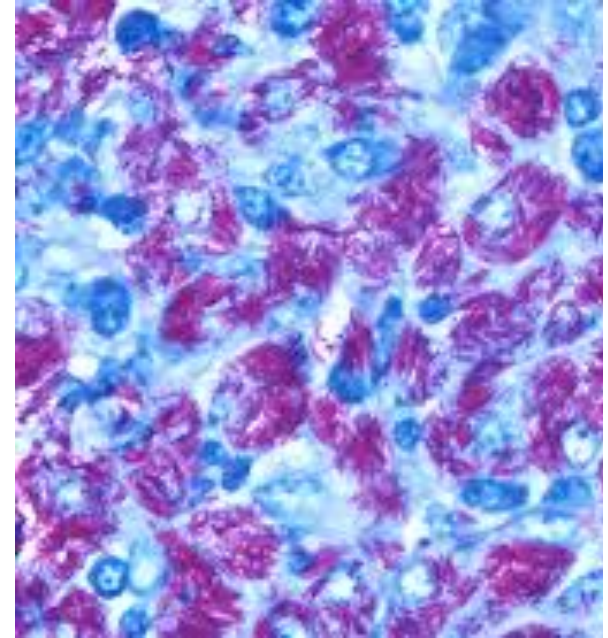
# Anti-Inflammatory Foods

- olive oil
- tomatoes
- nuts, such as walnuts and almonds
- leafy greens, including spinach and kale
- fatty fish, such as salmon and mackerel
- fruit, including blueberries and oranges



# The Largest Organ in the Body?

- Interstitium
  - *Includes Fascia*
  - *Complex network of fluid-filled cavities*
  - *Strong yet flexible*
  - *Shock absorber*
  - *Direct communication with the lymphatic system*
  - *Explains metastasis*
- Thought Acupuncture may work here

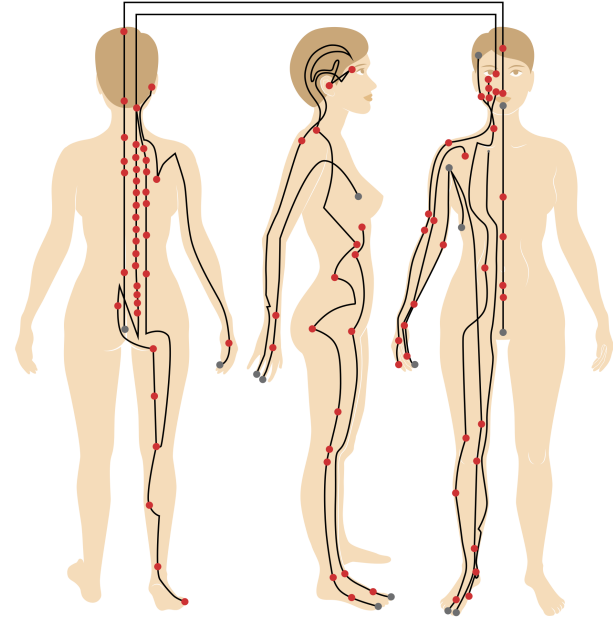
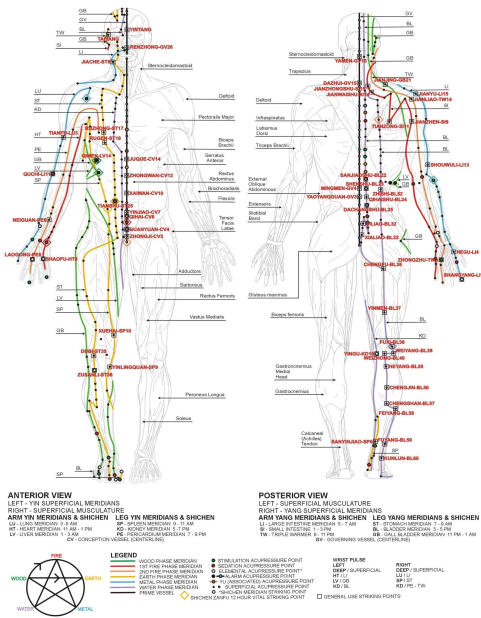


# The Data Question

- Evidence Based Medicine
  - *Risk vs. Benefit*
- \$\$\$\$\$?
- Standardization of Treatment
- Funding
- OMT?
- Functional MRI
  - *Pros*
    - Real-time monitoring
    - Excellent Image Quality
  - *Cons*
    - Time Consuming
    - \$\$\$\$\$\$\$\$\$\$\$\$\$

# Acupuncture Meridians

## Human body meridians



# Acupuncture \$\$\$?

1000 needles w/ guidetube

- 100 packs of 10 needles
- \$23.00 per box
- \$0.23 per pack
- \$0.023 cents per needle



# Acupuncture Safety

- Complications Rare
  - *MC Infection*
  - Xu S, Wang L, Cooper E, et al. Adverse Events of Acupuncture: A Systematic Review of Case Reports. *Evidence-based Complementary and Alternative Medicine : eCAM*. 2013;2013:581203. doi:10.1155/2013/581203.
- Low risk with MSK aka Western Acupuncture

# Infection? When in Doubt, Nix it Out

- Its what I use
- Kills Bacteria, Mold, Viruses
  - 200 ppm
- Full Strength Kills C. Diff
  - 500 ppm
- Used by Interventional Cardiology
- Can be diluted



<https://www.nixall.com/>

# Glucosamine and Chondroitin Sulfate

- Glucosamine 1500 mg + Chondroitin Sulfate 800-1200 mg/day
  - *Some studies show reduction in back and knee pain.*
  - *Some show decreased knee joint space narrowing at 2 years*
  - *Need to be taken for months for benefit*
  - *Some studies show no difference.*
- Conclusion: Conflicting evidence
- Risk: Low



# Yoga

- Significant reduction in pain compared to controls for:
  - *LBP, OA, Headaches*
- Magnetic resonance spectroscopic imaging shows:
  - *Increased brain gamma Aminobutyric Acid levels after yoga session*
- Pain improvement in endometriosis and fibromyalgia
- Some studies showed no improvement (Hatha yoga)
- Issue is many different types of yoga
- Risk: Low

# Relaxation Techniques

- Diaphragmatic breathing, guided imagery, mindfulness meditation, progressive muscle relaxation
- Significantly reduce tension headache frequency and headache disability
- Benefits in LBP
- Improvement in scores: pain intensity, activity interference, physical symptoms, anxiety, depression
- Risk: Low

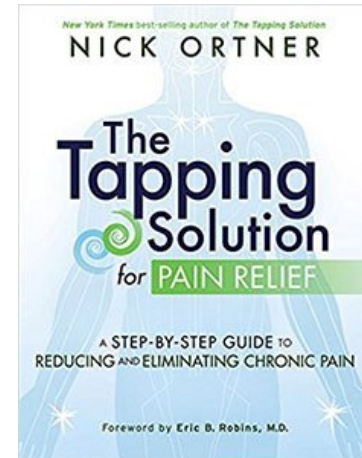
# Tai Chi

- Slow low-impact systemic motion and gentle breathing exercises
- Proven to help balance in elderly
- Increases pain threshold



# Tapping: Emotional Freedom Techniques

- Pain/Emotional- Tap on meridian endpoint
- Find a Pain spot
  - *Is there an emotion related to it?*
  - *Stress, Anger, Sadness*
  - *Give it a Number 0-10*
- “Even though I have this pain and tension in my body, I love, accept, and forgive myself.”
- “Even though I’m holding on to this: Stress, Issue, Event, I choose to relax now.”
- Sends signal to amygdala
- Emotions dissipate
- Still have memory, just without associated emotion



# Regenerative Medicine

*Potential to heal or replace tissues and organs damaged by age, disease, or trauma, as well as to normalize congenital defects.*

*Promising data to treat both chronic and acute insults*

*Dermal wounds*

*CVD*

*Traumas*

*Cancers*

***MSK/ Ortho injuries***

# Regenerative Medicine

- Prolotherapy- (Sclerotherapy)
- PRP- Platelet Rich Plasma
- Stem Cell Therapy



# Resources

- American Academy of Anti-Aging Medicine (A4M)
  - [www.a4m.com/](http://www.a4m.com/)
- [www.drweil.com](http://www.drweil.com)
- <https://integrativemedicine.arizona.edu>
- [Hhpfoundation.org](http://Hhpfoundation.org)
  - *Prolotherapy*
- American Association of Othropaedic Medicine
  - [www.aaomed.org/](http://www.aaomed.org/)
  - *Non-surgical Ortho*
- American Osteopathic Association of Prolotherapy Regenerative Medicine
  - [Prolotherapycollege.org](http://Prolotherapycollege.org)
- Institute for Functional Medicine
  - [www.ifm.org/](http://www.ifm.org/)

# Questions?