

# *Pain Management: Beyond Opioids*

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# DISCLOSURES

Neither I, Kyle Yost, DO, nor any family member(s), have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.

# OBJECTIVES

1. **What is the goal of pain management**
2. **Be aware of different modalities which can decrease pain besides opioids.**
3. **Understand what OMT is**
4. **Know different medication combinations that can decrease pain and have other benefits**

# TYPES OF PAIN

**Pain can be classified as:**

- **Nociceptive**
- **Neuropathic**
- **Nociplastic/Algopathic/Nocipathic**

# NOCICEPTIVE PAIN

- **Pain clearly associated with tissue damage or inflammation**
  - Type of pain most commonly associated with a sport injury.
  - Inflammatory pain is a type of nociceptive pain that results from the activation of nociceptors by inflammatory mediators.
    - This is what occurs with inflammation and swelling

# NEUROPATHIC PAIN

- **Lesion or disease in the somatosensory nervous system.**
  - Common in Paralympic athletes with spinal cord injuries.

# NOCIPLASTIC

- **Also known as Nocipathic or Algopathic pain**
- **Associated with clinical and psychophysical findings that suggests altered nociceptive functioning causing hypersensitivity**
  - Seen in fibromyalgia and chronic low back pain.
  - Takes about six weeks for pain to “centralize.”
  - This is the pain you are trying to avoid with acute pain.

# THE EPIDEMIC

- **The prescribing of opioid analgesics and the nonmedical use of prescription opioid analgesics have increased significantly among U.S. children and adolescents over the past two decades – but has declined over that past few years.**
- **More than one-third of past-year nonmedical users of prescription opioids used leftover medications from their previous prescriptions.**



# ADOLESCENT ATHLETES AND OPIOIDS

- **Adolescent athletes are more likely to sustain injuries than non-athletes: Roughly 2 million high school athletic injuries occur each year.(Burt et al., 2001; NYSF, 1993; Gotsch et al., 2001).**
- **Adolescents who participate in athletics may be at a greater risk for both medical and nonmedical opioid use due to the increased risk of injury or because of a greater opportunity to receive diverted opioid medications from teammates.(Veliz et al., 2013; 2014; 2015; 2017).**
- **Certain high contact sports like ice hockey, lacrosse, football, and wrestling have been found to increase the risk of nonmedical use of opioids among adolescents.(Veliz et al., 2013; 2017).**
- **Adolescent male athletes have also been found to be at greater risk of being prescribed opioid medications and misusing them for other reasons beyond simply pain relief.(Veliz et al., 2014).**

# PAIN MANAGEMENT VS INJURY MANAGEMENT

- **These are not identical and you can have one without the other**
  - Pain is a subjective experience dependent on complex interactions such as: cognitive, affective, neurobiological, contextual and environmental.

# WAYS TO TREAT PAIN

- **Physical Therapy**
- **Psychosocial**
- **Sleep**
- **Medication Combos**
- **Injections**
- **TENS units**
- **OMT**
- **Accupuncture**
- **Aromatherapy**
- **Massage Therapy**
- **Hypnotherapy**

# PHYSICAL THERAPY

- **Should be the first thing we use in subacute and chronic pain**
- **Most physical therapy utilizes different modalities:**
  - Massage
  - Movement and exercise
    - Both can have pain relieving effects
  - Dry needling

# MASSAGE

- **Can be used to relax painful muscles tendons and joints**
- **May also be used to relieve stress and anxiety**
- **May slow pain signals to the brain**
- **Can allow for increased sleep as well**

# MOVEMENT & EXERCISE

- **Strength training and condition are effective tools for rehabilitation after injury.**
  - They allow for increasing endurance and decreasing pain in chronic conditions such as: osteoarthritis, chronic low back pain, etc.
- **Exercise can induce an anti-inflammatory state and activate anti-nociceptive receptors.**

# DRY NEEDLING

- **The art of sticking a needle which is dry (without medication) into a muscle in order to decrease tightness.**

# PSYCHOSOCIAL

- **Interventions: Skill setting, imagery, relaxation**
- **CBT**
  - Cognitive Restructuring



# SLEEP

- **Sleep and pain has a reciprocal relationship**

# OMT

- **Identifying parts of the musculoskeletal system that is altered or impaired, known as somatic dysfunctions.**
- **Understands the body works as a unit**
  - Therefore one area that has a somatic dysfunction can alter another part of the body causing pain
- **Use different techniques to restore the musculoskeletal system.**
  - Goal is to restore function to allow the body to heal

# OMT TECHNIQUES

Table 1. Descriptions of some of the more commonly used OMT techniques according to the Glossary of Osteopathic Terminology.<sup>11</sup>

- High velocity/low amplitude thrust involves a rapid, therapeutic force of brief duration that travels a short distance within the anatomic range-of-motion of a joint, and that engages the restrictive barrier in one or more planes of motion to elicit release of restriction. It is also known as a thrust technique.
- Muscle energy involves a technique in which the patient's muscles are actively used on request, from a precisely controlled position, in a specific direction, and against a distinctly executed physician counterforce, in order to achieve release of myofascial tissues.
- Direct myofascial release engages the restrictive barrier of the myofascial tissues. The tissues are then loaded or tractioned with a constant force until tissue release occurs.
- Indirect myofascial release involves dysfunctional tissues that are guided along the path of least resistance until free movement is achieved.
- Counterstrain considers dysfunction to be a continuing, inappropriate strain reflex, which is inhibited by applying a position of mild strain in the direction opposite to that of the reflex. This is accomplished by specific directed positioning about the point of tenderness to achieve the desired therapeutic response.
- Osteopathy in the cranial field involves techniques based on the primary respiratory mechanism and balanced membranous tension.

# ACCUPUNCTURE

- **Branch of Traditional Chinese Medicine**
- **Works by applying needles, heat and pressure to specific parts of the body**
- **Stimulating these areas redirects the energy or chi**
  - Illness and pain come from blockages or imbalances of chi.

# CBD

- **Most studies come from animal based research**
- **May have moderate pain-relieving effects for neuropathic pain without the cannabinoid-like side effects**
  - However, there is currently a lack of large, well-designed clinical trials

# MEDICATIONS

- **Medication Combos**
  - NSAIDS+Tylenol
  - Anti-Depressants+ Lyrica/Neurontin
  - Anti-Seizure medications
  - Muscle relaxants

# NSAIDS AND TYLENOL

## Know Your Options: The PPM Guide to Non-Opioid Medications

by Mena Raouf, PharmD

Category	Generic Name	Brand Name(s)	Generic Available?
<b>Analgesic/Antifever:</b> Used for arthritis, aches, and fever. Lacks anti-inflammatory properties. Often available in combination products, including cough and cold. Tylenol dosage should NOT exceed 4,000 mg in a day with all combined products.	Acetaminophen	Tylenol	Yes
<b>NSAIDs (non-steroidal anti-inflammatories):</b> used for generalized aches and pains, and inflammatory pain such as arthritis Ask your doctor or pharmacist before using NSAIDs and only use chronically under medical supervision. Serious adverse effects can include heart problems, kidney damage, and gastrointestinal ulcers. The incidence can be higher in patients at high risk for these complications.	Aspirin	Bayer, BC Pain Fast, others	Yes
	Celecoxib	Celebrex	Yes
	Choline magnesium trisalicylate	Trilisate	Yes
	Diclofenac	Voltaren	Yes
	Diffunisal	Dolobid	Yes
	Etodolac	Lodine	Yes
	Ibuprofen	Motrin, Advil	Yes
	Indomethacin	Indocin	Yes
	Ketorolac	Toradol	Yes
	Magnesium Salicylate	Doan's	Yes
	Meloxicam	Mobic	Yes
	Nabumetone	Relafen	Yes
	Naproxen	Naprosyn, Aleve	Yes
	Oxaprozin	Daypro	Yes
	Piroxicam	Feldene	Yes
Sulindac	Clinoril	Yes	
Tolmetin	Tolectin	Yes	

# ANTIDEPRESSANTS

**Antidepressants:** are indicated for generalized pain, migraines, neuropathy, and fibromyalgia as they work by increasing serotonin and norepinephrine within nerves. The effect on norepinephrine acts on the body's descending pain pathway and block pain signals. Not all antidepressants have this additional effect on norepinephrine and the ability to impact the pain pathway.

Duloxetine	Cymbalta	Yes
Venlafaxine	Effexor	Yes
Milnacipran	Savella	Brand only
Levomilnacipran	Fetzima	Brand only
Desvenlafaxine	Pristiq	Brand only
Amitriptyline	Elavil	Yes
Nortriptyline	Pamelor	Yes
Imipramine	Tofranil	Yes
Desipramine	Norpramin	Yes



# ANTI SEIZURE MEDICATIONS

**Antiepileptics:** used for neuropathy and fibromyalgia. Pharmacology is variable among classes, but generally they calm down the nerves by affecting sodium, calcium, and chloride by one or more mechanisms.

Gabapentin	Neurontin	Yes
Gabapentin extended-release	Gralise	Brand only
Gabapentin enacarbil	Horizant	Brand only
Pregabalin	Lyrica	Brand only
Carbamazepine	Tegretol	Yes
Oxcarbazepine	Trileptal	Yes
Valproic acid	Depakene	Yes
Valproic acid (delayed release)	Stavzor	Yes
Divalproex	Depakote	Yes
Topiramate	Topamax	Yes

# MUSCLE RELAXERS

**Muscle relaxants:** used for cramps and muscle spasms. Most of the muscle relaxants don't work on the actual muscles but instead slow the pain signal that go through the muscles.

Cyclobenzaprine	Flexeril, Amrix, Fexmid, others	Yes
Baclofen	Gablofen, Lioresal, others	Yes
Tizanidine	Zanaflex	Yes
Methocarbamol	Robaxin	Yes
Metaxolone	Skelaxin, Metaxall	Yes
Carisoprodol	Soma	Yes
Chlorzoxazone	Parafon Forte, Lorzone	Yes
Orphenadrine	Norflex	Yes
Dantrolene	Dantrium	Brand only
Riluzole	Rilutek	Brand only

# INJECTIONS

- **Epidural Steroid Injection**
- **Facet Injection**
- **Lumbar Sympathetic Block**
- **Celiac Plexus Block**
- **Stellate Ganglion Block**

# TAKE HOME POINTS

- **Motion is lotion.**
- **It is necessary to understand the full kinetic chain. The site of pain is NOT likely the etiology of symptoms.**
- **Prolonging the pain experience beyond 6 weeks will set the athlete up for chronic pain.**
- **There are different options to treat pain than just opioids.**

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