

## PMSIG Research: Abstracts, Articles and Reviews

Every other month, the Pain Management Special Interest Group will be providing updates on new topics, new information and research related topics. Please feel free to submit a topic and/or research question to [dana-dailey@uiowa.edu](mailto:dana-dailey@uiowa.edu). If you would like to help in preparing the information, please let me know as well.

Special thanks to Sarah Wenger, PT, DPT, OCS and Bill Hanlon, PT, DPT, OCS for contributing recommended articles to this month's research topic on pain and opioids. Their webinar, [Navigating at the Intersection of Chronic Pain and Substance Use Disorders](#), designed to help PTs effectively manage patients who have both substance use disorders and chronic pain, can be found at the APTA Learning Center, <http://learningcenter.apta.org/student/MyCourse.aspx?id=7c310be5-1bde-46b8-bc5c-b73215df99a0&programid=dcca7f06-4cd9-4530-b9d3-4ef7d2717b5d>

July 2018 Topic: Pain and Opioids

1. Reducing opioid use for patients with chronic pain: an evidence-based perspective
2. Exercise as an adjunct treatment for opiate agonist treatment: review of the current research and implementation strategies
3. A comprehensive review of opioid induced hyperalgesia
4. Overlapping mechanisms of stress-induced relapse to opioid use disorder and chronic pain: clinical implications
5. Distress intolerance and prescription opioid misuse among patients with chronic pain

1. Wenger S, Drott J, Fillipo R, et al. Reducing opioid use for patients with chronic pain: an evidence-based perspective. *PhysTher.* 2018;98(5):424–433.

### **Abstract**

The implementation of recent Centers for Disease Control and Prevention recommendations to move away from opioids and toward nonpharmacological therapies for the treatment of chronic pain could involve a difficult transition period for patients and practitioners. The focus of treatment should shift from eliminating pain completely to minimizing the impact of pain on quality of life. Many patients with chronic pain take opioids either because opioids were previously prescribed as a first-line treatment for chronic pain, on the basis of old standards of care, or because opioids were initially prescribed for acute pain. Patients currently taking opioids will need a tapering period during which they transition their pain management to interdisciplinary care and nonpharmacological treatments. To provide useful treatment options, physical therapists need to have a good understanding of the neuroscientific mechanisms of chronic pain, biopsychosocial components of chronic pain management, issues related to opioid use, and pain management strategies used by other health care professionals. Armed with knowledge and good communication skills, physical therapists can work within an interdisciplinary team to adapt care to each patient's needs and abilities. This perspective article provides guidance for physical therapists to effectively treat patients with chronic pain during the opioid tapering process. A framework has been created to

help health care providers structure their reasoning as they collaborate to develop a unique approach for each patient.

Available at PTJ website: <https://academic.oup.com/ptj/issue/98/5>

2. Weinstock J, Wadson H, VanHeest J. Exercise as an adjunct treatment for opiate agonist treatment: review of the current research and implementation strategies. *Subst Abus.* 2012; 33(4):350–360.

### **Abstract**

Opiate dependence is a significant public health concern linked to poor quality of life, comorbid psychiatric disorders, and high costs to society. Current opiate agonist treatments are an effective but limited intervention. Adjunctive interventions could improve and augment opiate agonist treatment outcomes, including drug abstinence, quality of life, and physical health. This article reviews exercise as an adjunctive intervention for opiate agonist treatment, especially in regards to improving mood and overall quality of life, while reducing other substance use. Poor adherence and dropout frequently prevent many individuals from garnering the many physical and mental health benefits of exercise. Strategies for implementing an exercise intervention, including safety considerations, are discussed.

Free Pub Med Central Article: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4631114/>

3. Lee M, Silverman SM. A Comprehensive Review of Opioid Induced Hyperalgesia. *Pain Physician.* 2011 Mar-Apr;14(2):145-161

### **Abstract**

Opioid-induced hyperalgesia (OIH) is defined as a state of nociceptive sensitization caused by exposure to opioids. The condition is characterized by a paradoxical response whereby a patient receiving opioids for the treatment of pain could actually become more sensitive to certain painful stimuli. The type of pain experienced might be the same as the underlying pain or might be different from the original underlying pain. OIH appears to be a distinct, definable, and characteristic phenomenon that could explain loss of opioid efficacy in some patients. Findings of the clinical prevalence of OIH are not available. However, several observational, cross-sectional, and prospective controlled trials have examined the expression and potential clinical significance of OIH in humans. Most studies have been conducted using several distinct cohorts and methodologies utilizing former opioid addicts on methadone maintenance therapy, perioperative exposure to opioids in patients undergoing surgery, and healthy human volunteers after acute opioid exposure using human experimental pain testing. The precise molecular mechanism of OIH, while not yet understood, varies substantially in the basic science literature, as well as clinical medicine. It is generally thought to result from neuroplastic changes in the peripheral and central nervous system (CNS) that lead to sensitization of pronociceptive pathways. While there are many proposed mechanisms for OIH, 5 mechanisms involving the central glutaminergic system, spinal dynorphins, descending facilitation, genetic mechanisms, and decreased reuptake and enhanced nociceptive response have been described as the important mechanisms. Of

these, the central glutaminergic system is considered the most common possibility. Another is the hypothesis that N-methyl-D-aspartate (NMDA) receptors in OIH include activation, inhibition of the glutamate transporter system, facilitation of calcium regulated intracellular protein kinase C, and cross talk of neural mechanisms of pain and tolerance. Clinicians should suspect OIH when opioid treatment's effect seems to wane in the absence of disease progression, particularly if found in the context of unexplained pain reports or diffuse allodynia unassociated with the original pain, and increased levels of pain with increasing dosages. The treatment involves reducing the opioid dosage, tapering them off, or supplementation with NMDA receptor modulators. This comprehensive review addresses terminology and definition, prevalence, the evidence for mechanism and physiology with analysis of various factors leading to OIH, and effective strategies for preventing, reversing, or managing OIH.

Free article at [painphysicianjournal.com](http://painphysicianjournal.com):

<http://painphysicianjournal.com/current/pdf?article=MTQ0Ng%3D%3D&journal=60>

4. Ghitza UE. Overlapping mechanisms of stress-induced relapse to opioid use disorder and chronic pain: clinical implications. *Front Psychiatry*. 2016 May;7:80.

#### **Abstract**

Over the past two decades, a steeply growing number of persons with chronic non-cancer pain have been using opioid analgesics chronically to treat it, accompanied by a markedly increased prevalence of individuals with opioid-related misuse, opioid use disorders, emergency department visits, hospitalizations, admissions to drug treatment programs, and drug overdose deaths. This opioid misuse and overdose epidemic calls for well-designed randomized-controlled clinical trials into more skillful and appropriate pain management and for developing effective analgesics that have lower abuse liability and are protective against stress induced by chronic non-cancer pain. However, incomplete knowledge regarding effective approaches to treat various types of pain has been worsened by an under-appreciation of overlapping neurobiological mechanisms of stress, stress-induced relapse to opioid use, and chronic non-cancer pain in patients presenting for care for these conditions. This insufficient knowledge base has unfortunately encouraged common prescription of conveniently available opioid pain-relieving drugs with abuse liability, as opposed to treating underlying problems using team-based multidisciplinary, patient-centered, collaborative-care approaches for addressing pain and co-occurring stress and risk for opioid use disorder. This paper reviews recent neurobiological findings regarding overlapping mechanisms of stress-induced relapse to opioid misuse and chronic non-cancer pain, and then discusses these in the context of key outstanding evidence gaps and clinical-treatment research directions that may be pursued to fill these gaps. Such research directions, if conducted through well-designed randomized-controlled trials, may substantively inform clinical practice in general medical settings on how to effectively care for patients presenting with pain-related distress and these common co-occurring conditions.

Free Pub Med Central Article: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4852181/>

5. McHugh RK, Weiss RD, Cornelius M, et al. Distress intolerance and prescription opioid misuse among patients with chronic pain. *J Pain*. 2016 Jul;17(7):806-14.

### **Abstract**

The risk for misuse of opioid medications is a significant challenge in the management of chronic pain. The identification of those who may be at greater risk for misusing opioids is needed to facilitate closer monitoring of high-risk subgroups, and may help to identify therapeutic targets for mitigating this risk. The aim of this study was to examine whether distress intolerance—the perceived or actual inability to manage negative emotional and somatic states—was associated with opioid misuse in those with chronic pain. A sample of 51 participants prescribed opioid analgesics for chronic back or neck pain were recruited for a 1-time laboratory study. Participants completed measures of distress intolerance and opioid misuse, and a quantitative sensory testing battery. Results suggested that distress intolerance was associated with opioid misuse, even controlling for pain severity and negative affect. Distress intolerance was not associated with pain severity, threshold, or tolerance, but was associated with self-reported anxiety and stress after noxious stimuli. This study found robust differences in distress intolerance between adults with chronic pain with and without opioid medication misuse. Distress intolerance may be a relevant marker of risk for opioid misuse among those with chronic pain.

### *PERSPECTIVE:*

This study demonstrated that distress intolerance was associated with opioid misuse in adults with chronic pain who were prescribed opioids. Distress intolerance can be modified with treatment, and thus may be relevant not only for identification of risk for opioid misuse, but also for mitigation of this risk.

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