

# The Journal of Pain

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### Opioid Pharmacotherapy Research Guideline

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#### **Opioid Pharmacotherapy for Chronic Non-Cancer Pain in the United States: A Research Guideline for Developing an Evidence-Base**

C. Richard Chapman, David L. Lipschitz, Martin S. Angst, Roger Chou, Richard C. Denisco, Gary W. Donaldson, Perry G. Fine, Kathleen M. Foley, Rollin M. Gallagher, Aaron M. Gilson, J. David Haddox, Susan D. Horn, Charles E. Inturrisi, Susan S. Jick, Arthur G. Lipman, John D. Loeser, Meredith Noble, Linda Porter, Michael C. Rowbotham, Karen M. Schoelles, Dennis C. Turk, Ernest Volinn, Michael R. Von Korff, Lynn R. Webster, and Constance M. Weisner

The consensus of an interdisciplinary panel of research and clinical experts charged with reviewing the use of opioids for chronic non-cancer pain and formulating guidelines for future research is outlined in this piece. Prescribing opioids for chronic non-cancer pain has outpaced the growth of scientific evidence bearing on the benefits and harms of these interventions. The need for a strong evidence base is urgent. This report offers a strategic approach to creating a comprehensive evidence base for this purpose.

**The Journal of Pain** will publish appropriate images on the journal cover. Selected figures may accompany a submitted manuscript (authors should make a note in the covering letter), or images may be submitted individually. Please present your art for consideration. Visit <http://ees.elsevier.com/jpain> to upload your materials.

#### ON THE COVER

This image shows localization of substance P and cholera (SP-CTA) toxin in rat brainstem following intracisternal injection. The authors report that injection of SP-CTA in rodents is a useful model for studying central sensitization as a disease process without having to induce a peripheral injury. See Caudle, et al, page 838.

## Commentary

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### Is Lack of Evidence the Problem?

Jane C. Ballantyne

*The Journal* presents invited commentaries designed to discuss articles and the implications for research issues. This author comments on proposed research guidelines for opioid prescribing in chronic non-cancer pain patients, and the need for evidence to guide practice and inform healthcare policies and drug regulations.

## Case Reviews in Pain

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### Hiding in Plain Sight: A Case of Tarlov Perineural Cysts

Reta Honey Hiers, Donlin Long, Richard B. North, and Anne Louise Oaklander

This article is part of *The Journal's* "Case Reviews in Pain" series, designed to share scientific and clinical knowledge in a case review format. This piece focuses on a woman with perineurial Tarlov cysts, which form when cerebrospinal fluid is trapped in the sensory nerve root sleeves.

## Original Reports

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### Central Sensitization in the Trigeminal Nucleus Caudalis Produced by a Conjugate of Substance P and the A Subunit of Cholera Toxin

Robert M. Caudle, Christopher King, Todd A. Nolan, Shelby K. Suckow, Charles J. Vierck, Jr., and John K. Neubert

Individuals with chronic craniofacial pain experience symptoms consistent with central sensitization, which may constitute the major disease process in these conditions. These findings suggest central sensitization leads to activation of an endogenous opioid system, and demonstrates that the intracisternal administration of SP-CTA in rodents is a useful model for studying central sensitization as a disease process without having to induce a peripheral injury.

**847**     **Hyperbaric Oxygen Treatment Induces a 2-Phase Antinociceptive Response of Unusually Long Duration in Mice**

Eunhee Chung, Lisa M. Zelinski, Yusuke Ohgami, Donald Y. Shirachi, and Raymond M. Quock

Hyperbaric oxygen treatment of mice can induce a two-phase antinociceptive response of unusually long duration. Nitric oxide and opioid receptors appear to initiate or mediate both phases of the antinociceptive response. Further elucidation of the underlying mechanism may potentially identify molecular targets that cause long-lasting activation of endogenous analgesic systems, the authors report.

**854**     **Pediatric Nurses' Cognitive Representations of Children's Pain**

Catherine Van Hulle Vincent, Diana J. Wilkie, and Laura Szalacha

This mixed methods exploratory study aimed to describe pediatric nurses' cognitive representations of the assessment and management of children's pain and to determine relationships between representations and choices for pain assessment and morphine administration. Extensive details about the thought processes of pediatric nurses regarding pain assessment and management surfaced through this analysis, which provide excellent information for direction of future research and practice innovations.

**864**     **Spinal Cord Injuries Containing Asymmetrical Damage in the Ventrolateral Funiculus Is Associated With a Higher Incidence of At-Level Allodynia**

Bradley J. Hall, Jason E. Lally, Eric V. Vukmanic, James E. Armstrong, Jason D. Fell, Daya S. Gupta, and Charles H. Hubscher

The purpose of the present research was to determine if laceration at T8 of a specific amount or region of white matter results in the development and maintenance of 'at level' allodynia. A side-to-side lesion asymmetry following chronic spinal cord injury in a rodent model was found to be highly correlated with the presence and degree of allodynia. Greater insight of key factors contributing to the development and maintenance of chronic neuropathic pain is important for improving quality of life.

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**Changes in Situation-Specific Pain Catastrophizing Precede Changes in Pain Report During Capsaicin Pain: A Cross-Lagged Panel Analysis Among Healthy, Pain-Free Participants**

Claudia M. Campbell, Phillip J. Quartana, Luis F. Buenaver, Jennifer A. Haythornthwaite, and Robert R. Edwards

Does catastrophizing influence one's subsequent pain responses, or do individual differences in the perceived severity of pain lead to differential rates of catastrophizing? Little is known regarding the course of these variables. This study adds to a growing literature on prospective associations between catastrophizing and pain. The results provide initial evidence, in healthy individuals, that changes in catastrophizing may precede changes in pain response.

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**Actigraphy-Based Physical Activity Monitoring in Adolescents With Juvenile Primary Fibromyalgia Syndrome**

Susmita Kashikar-Zuck, Stacy R. Flowers, Emily Verkamp, Tracy V. Ting, Anne M. Lynch-Jordan, T. Brent Graham, Murray Passo, Kenneth N. Schikler, Philip J. Hashkes, Steven Spalding, Gerard Banez, Margaret M. Richards, Scott W. Powers, Lesley M. Arnold, and Daniel Lovell

Juvenile primary fibromyalgia syndrome is a chronic pain condition associated with significant impairment in physical functioning but no studies have used newer technologies – such as actigraphy – to document objective physical activity levels in JPFS. Results of physical activity monitoring in adolescents with JPFS using actigraphy are presented. Results show actigraphy provides a unique source of objective information that can advance our understanding of physical disability and impairment associated with physical impairment.

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**Ginger (*Zingiber officinale*) Reduces Muscle Pain Caused by Eccentric Exercise**

Christopher D. Black, Matthew P. Herring, David J. Hurley, and Patrick J. O'Connor

Ginger has been shown to exert anti-inflammatory effects in rodents, but its effect on human muscle pain is uncertain. This work demonstrates that daily consumption of raw and heat-treated ginger resulted in moderate to large reductions in muscle pain following exercise-induced muscle injury. These findings agree with those showing hypoalgesic effects of ginger in osteoarthritis patients and further demonstrate ginger's effectiveness as a pain reliever.

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**High Levels of Vicarious Exposure Bias Pain Judgments**

Kenneth M. Prkachin and Elizabete M. Rocha

The effects of exposure to facial expression of pain on observers' perceptions of pain expression were evaluated. This work provides an experimental demonstration that, when people have large amounts of exposure to others' expressions of pain, their estimation of others' pain is reduced. The findings offer one explanation for the widely-observed underestimation bias in pain judgments and may suggest ways of changing it.

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**The Association of Single Nucleotide Polymorphisms in the Catechol-O-Methyltransferase Gene and Pain Scores in Female Patients With Major Depressive Disorder**

Bonnie Fijal, Roy H. Perlis, Alexandra N. Heinloth, and John P. Houston

This research tested the hypothesis that single nucleotide polymorphisms in the catechol-O-methyltransferase gene are associated with baseline pain levels in female patients with major depressive disorder. The findings could help clinicians who seek to assess how genetic polymorphisms may contribute to a patient's pain experience.

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**Erratum**