

# The Journal of Pain

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## Critical Review

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### Inserting Needles Into the Body: A Meta-Analysis of Brain Activity Associated With Acupuncture Needle Stimulation

Younbyoung Chae, Dong-Seon Chang, Soon-Ho Lee, Won-Mo Jung, In-Seon Lee, Stephen Jackson, Jian Kong, Hyangsook Lee, Hi-Joon Park, Hyejung Lee, and Christian Wallraven

This review article facilitates a better understanding of acupuncture needle stimulation and its effects on specific activity changes in different brain regions as well as its relationship to the multiple dimensions of pain. A total of 28 fMRI studies, which consisted of 51 acupuncture and 10 tactile stimulation experiments, were selected for the meta-analysis. Future studies can build on this meta-analysis and will help to elucidate the clinically relevant therapeutic effects of acupuncture.

#### ON THE COVER

A total of 28 fMRI studies, which consisted of 51 acupuncture and 10 tactile stimulation experiments, were selected for meta-analysis as part of a review to better understand acupuncture needle stimulation and its effects on specific activity changes in different brain regions. Shown are brain areas associated with acupuncture stimulation that exhibited increased (red) and decreased (blue) activity. See Chae, et al, page 215.

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## Original Reports

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### **Different Stages in Attentional Processing of Facial Expressions of Pain: A Dot-Probe Task Modification**

Corinna Baum, Raphaela Schneider, Edmund Keogh, and Stefan Lautenbacher

This report focuses on different stages of attentional processing of pain faces in pain-free individuals. Results highlight the importance in distinguishing between early (engagement) and later (disengagement) components of attention, and also consider the role that fear of pain has in understanding the nature of these effects. These findings provide evidence that the dot-probe task is suitable to investigate different stages of attentional processing for pain-related stimuli.

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### **Willing and Able: A Closer Look at Pain Willingness and Activity Engagement on the Chronic Pain Acceptance Questionnaire (CPAQ-8)**

Rosemary A. Fish, Michael J. Hogan, Todd G. Morrison, Ian Stewart, and Brian E. McGuire

An 8-item version of the Chronic Pain Acceptance Questionnaire, the CPAQ-8, was recently proposed and validated. This research provides further evidence for the reliability and validity of the CPAQ-8. Support was found for the 2 related subscales, pain willingness and activity engagement, which appear to work in synergy to influence levels of pain interference and emotional distress in people living with chronic pain.

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### **Effects of Monoamine Reuptake Inhibitors in Assays of Acute Pain-Stimulated and Pain-Depressed Behavior in Rats**

Marisa B. Rosenberg, F. Ivy Carroll, and S. Stevens Negus

Pain is associated with stimulation of some behaviors but depression of many other behaviors. Drugs that block reuptake of serotonin, norepinephrine, and/or dopamine are widely used to treat depression, and they have also emerged as useful drugs for pain treatment. This study compared effects of selective and mixed-action inhibitors of serotonin, norepinephrine, and/or dopamine reuptake in assays of acute pain-stimulated and pain-depressed behavior. The results support further consideration of dopamine reuptake inhibitors for analgesic use under selected circumstances, although abuse liability remains a concern.

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**Motor Cortex Stimulation Activates the Incerthalamie Pathway in an Animal Model of Spinal Cord Injury**

Myeounghoon Cha, Yadong Ji, and Radi Masri

A common consequence of spinal cord injury is the development of severe, debilitating neuropathic pain. The pain is spontaneous and persistent in the absence of an insult but can also present as hypersensitivity to painful stimuli. This article describes a novel brain circuit that can be manipulated, in rats, to produce antinociception. These results have the potential to impact the standard of care currently in place for the treatment of patients with intractable pain.

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**Sexually Dimorphic Effects of Unpredictable Early Life Adversity on Visceral Pain Behavior in a Rodent Model**

Aaron Chaloner and Beverley Greenwood-Van Meerveld

Visceral pain is the hallmark feature of irritable bowel syndrome (IBS), which is more commonly diagnosed in women. Female IBS patients frequently report a history of early life adversity (ELA); however, sex differences in ELA-induced visceral pain and the role of ovarian hormones have yet to be investigated. This research directly implicates a critical role for ovarian hormones in maintaining visceral hypersensitivity following ELA, specifically identifying the activational effect of estradiol as a key modulator of visceral sensitivity.

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**The Osteoarthritis Knee Model: Psychophysical Characteristics and Putative Outcomes**

R. Norman Harden, Gila Wallach, Christine M. Gagnon, Arzhang Zereshki, Ai Mukai, Meryem Saracoglu, Maxine M. Kuroda, Joseph R. Graciosa, and Stephen Bruehl

The knee osteoarthritis (KOA) model is a convenient and coherent archetype that is used in pharmaceutical trials of drugs with analgesic and/or anti-inflammatory properties. Yet, little is known about its specific pathophysiology. The authors compared psychophysical characteristics; thermal, mechanical, and functional wind-up; thermal and mechanical aftersensations; and pressure algometry of subjects with KOA. These results further develop the KOA model and suggest mechanistic hypotheses.

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### **Anastrozole-Associated Joint Pain and Other Symptoms in Patients With Breast Cancer**

Qiuling Shi, Sharon H. Giordano, Huifang Lu, Angele K. Saleeba, Donna Malveaux, and Charles S. Cleeland

More than a third of breast cancer patients undergoing aromatase inhibitor (AI) treatment report joint pain. This longitudinal study characterized the course of AI-induced joint pain and other symptoms and sought to identify potential predictors for developing these symptoms. This pain associates with development of other symptoms, and pretreatment pain level is a potential, measurable predictor of symptom development during treatment, this report concludes.

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### **Is the Verbal Numerical Rating Scale a Valid Tool for Assessing Pain Intensity in Children Below 8 Years of Age?**

Elena Castarlenas, Jordi Miró, and Elisabet Sánchez-Rodríguez

The verbal numerical rating scale (vNRS-11) is one of the most widely used scales in assessing pediatric pain intensity. The literature shows that it is a valid instrument for assessing pain intensity in children above 8 years of age. The aim of this work was to study whether the vNRS-11 is also a valid instrument when it is used with Catalan-speaking children between 6 and 8 years old. This study contributes to the increasing literature that supports the use of vNRS-11. Specifically, it shows that it can be used in children as young as 6 years of age.

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### **Acceptance, Cognitive Restructuring, and Distraction as Coping Strategies for Acute Pain**

Annika Kohl, Winfried Rief, and Julia Anna Glombiewski

Little is known about treatment mechanisms underlying acceptance strategies. Acceptance is a strategy that is expected to increase pain tolerance more than distraction, while distraction should lead to lower pain intensity. This research aimed to explore differential short-term effects of acceptance, distraction, and cognitive restructuring on pain tolerance and intensity. The results demonstrate that acceptance was superior to cognitive restructuring in increasing tolerance for experimentally induced pain but was inferior to distraction with respect to decreasing pain intensity.

## Letter to the Editor

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### The Need to Focus on Pain Management Among Sexual Assault Survivors

Nancy Lutwak

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