

# The Journal of Pain

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### Focus Article

#### **221** The Psychological Flexibility Model: A Basis for Integration and Progress in Psychological Approaches to Chronic Pain Management

Lance M. McCracken and Stephen Morley

Chronic pain is an important, prevalent, and complex problem. It is an inherently biopsychosocial problem with an important psychological part. This Focus Article addresses the place of theory and models in psychological research and treatment development in chronic pain. It is argued that such models are not merely an academic issue but are highly practical. One potential model, the psychological flexibility model, is examined in further detail.

### Commentaries


#### **235** Psychological Flexibility: What Theory and Which Predictions?

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#### **237** Using Theoretical Models to Clarify Shared and Unique Mechanisms in Psychosocial Pain Treatments: A Commentary on McCracken and Morley's Theoretical Paper

Melissa A. Day and Beverly E. Thorn

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#### ON THE COVER

Double immunofluorescence analysis images demonstrate this report's examination of the role of the glial-neuronal GRK2 pathway in the development of trigeminal neuropathic pain in male rats. These results suggest a new potential target for the treatment of neuropathic pain. See Won et al, page 250.

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Lance M. McCracken and Stephen Morley

## Focus Article

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### The ACTTION-American Pain Society Pain Taxonomy (AAPT): An Evidence-Based and Multidimensional Approach to Classifying Chronic Pain Conditions

Roger B. Fillingim, Stephen Bruehl, Robert H. Dworkin, Samuel F. Dworkin, John D. Loeser, Dennis C. Turk, Eva Widerstrom-Noga, Lesley Arnold, Robert Bennett, Robert R. Edwards, Roy Freeman, Jennifer Gewandter, Sharon Hertz, Marc Hochberg, Elliot Krane, Patrick W. Mantyh, John Markman, Tuhina Neogi, Richard Ohrbach, Judith A. Paice, Frank Porreca, Bob A. Rappaport, Shannon M. Smith, Thomas J. Smith, Mark D. Sullivan, G. Nicholas Verne, Ajay D. Wasan, and Ursula Wesselmann

Current approaches to classification of chronic pain conditions suffer from the absence of a systematically implemented and evidence-based taxonomy. Moreover, existing diagnostic approaches typically fail to incorporate available knowledge regarding the biopsychosocial mechanisms contributing to pain conditions. To address these gaps, the Analgesic, Anesthetic, and Addiction Clinical Trial Translations Innovations Opportunities and Networks (ACTTION) public-private partnership with the U.S. Food and Drug Administration and the American Pain Society (APS) have joined together to develop an evidence-based chronic pain classification system called the ACTTION-APS Pain Taxonomy (AAPT). This paper describes the outcome of an ACTTION-APS consensus meeting, at which experts agreed on a structure for this new taxonomy of chronic pain conditions.

## Original Reports

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### The Glial–Neuronal GRK2 Pathway Participates in the Development of Trigeminal Neuropathic Pain in Rats

Kyoung A. Won, Min J. Kim, Kui Y. Yang, Jae S. Park, Min K. Lee, Min K. Park, Yong C. Bae, and Dong K. Ahn

Recent evidence has shown that glial cells (microglia and astrocytes) in the central nervous system respond to peripheral nerve insults resulting in pain facilitation. This study examined the role of the glial–neuronal GRK2 pathway in the development of trigeminal neuropathic pain in male rats. These results suggest a new potential target for the treatment of neuropathic pain.

## 262 **Health Care Professionals' Reactions to Patient Pain: Impact of Knowledge About Medical Evidence and Psychosocial Influences**

Lies De Ruddere, Liesbet Goubert, Michaël André Louis Stevens, Myriam Deveugele, Kenneth Denton Craig, and Geert Crombez

Pain management poses a considerable challenge for both healthcare practitioners and people in pain. This study examined the impact of evidence concerning the presence of a biomedical basis for pain, and psychosocial influences on practitioner appraisals of patient experiences. The results indicate that in the absence of clear medical evidence and in the presence of psychosocial influences, patient pain might be taken less seriously by health care practitioners. These findings are important to further understand the difficulties that relate to the clinical encounter between pain patients and health care practitioners.

## 271 **Influence of Experimental Pain on the Perception of Action Capabilities and Performance of a Maximal Single-Leg Hop**

Thibault Deschamps, François Hug, Paul W. Hodges, and Kylie Tucker

This study aimed to determine the effect of experimental pain on perceived capabilities and performance of a dynamic motor task. The authors demonstrate that the relationship between perception and performance is effectively updated during acute experimental muscle pain. This could be relevant during clinical pain assessment, with the potential to be a biomarker of transition from acute to chronic pain state.

## 272 **Age and Race Effects on Pain Sensitivity and Modulation Among Middle-Aged and Older Adults**

Joseph L. Riley, III, Yenisel Cruz-Almeida, Toni L. Glover, Christopher D. King, Burel R. Goodin, Kimberly T. Sibille, Emily J. Bartley, Matthew S. Herbert, Adriana Sotolongo, Barri J. Fessler, David T. Redden, Roland Staud, Laurence A. Bradley, and Roger B. Fillingim

The effects of aging and race on responses to noxious stimuli were tested, using a wide range of stimulus modalities. Participants between the ages of 45 and 76 years participated in a sensory testing session. The results suggest that there are selected age differences, with the older group less sensitive to warm and painful heat stimuli than middle-aged participants, particularly at the knee. The greatest decline in pain sensitivity with aging occurs in the lower extremities. In addition, race differences in pain sensitivity observed in younger adults were also found in the older sample, the authors report.

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**Deep Brain Stimulation as a Treatment for Neuropathic Pain: A Longitudinal Study Addressing Neuropsychological Outcomes**

Alan M. Gray, Elizabeth Pounds-Cornish, Fiona J. R. Eccles, Tipu Z. Aziz, Alexander L. Green, and Richard B. Scott

Deep brain stimulation (DBS) of the periventricular/periaqueductal gray area and sensory thalamus can reduce pain intensity in patients with neuropathic pain. This article examines the neuropsychological outcomes of DBS surgery as a treatment for neuropathic pain. The authors followed up with 18 patients who received DBS treatment. Results indicate that this intervention improves pain severity, emotional well-being, and quality of life, although such benefits may be accompanied by reduced ability on tasks measuring executive functioning.

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**Classification of and Risk Factors for Estrogen Deprivation Pain Syndromes Related to Aromatase Inhibitor Treatments in Women With Breast Cancer: A Prospective Multicenter Cohort Study**

Francoise Laroche, Joël Coste, Terkia Medkour, Paul Henri Cottu, Jean-Yves Pierga, Jean-Pierre Lotz, Karine Beerblock, Christophe Tournigand, Xavier Declèves, Patricia de Cremoux, Didier Bouhassira, and Serge Perrot

Aromatase inhibitors (AIs) are the first-line treatment in women with breast cancer for total estrogen depletion. Half the treated women may develop pain, and this condition may therefore be seen as a clinical model of pain related to estrogen deprivation. In this prospective multicenter study, the authors classified AI-related pain syndromes and identified their predictors. Primarily psychological risk factors for pain development are identified.

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**Attachment Styles, Pain, and the Consumption of Analgesics During Labor: A Prospective Observational Study**

José Manuel Costa-Martins, Marco Pereira, Henriqueta Martins, Mariana Moura-Ramos, Rui Coelho, and Jorge Tavares

Individuals with less secure attachment styles have been shown to experience more pain than people with more secure attachment styles. However, attachment styles have not been examined in the context of labor pain and analgesic consumption. The purpose of this research was to assess the influence of the mother's attachment style on such pain. In conclusion, findings show that women with an insecure attachment style were more likely to report higher pain before patient-controlled epidural analgesia and higher analgesic consumption, and to request supplemental analgesia during labor.

## 312 **Second Messengers Mediating the Expression of Neuroplasticity in a Model of Chronic Pain in the Rat**

Luiz F. Ferrari, Oliver Bogen, and Jon D. Levine

Hyperalgesic priming, a model of the transition from acute to chronic pain produced by a prior inflammatory insult, is expressed as a long-lasting neuroplastic state in which there is enhanced hyperalgesia induced by pronociceptive cytokines. This work demonstrates that the mechanisms previously shown to induce the neuroplastic state of hyperalgesic priming also mediate the prolongation of hyperalgesia. The data provided by this study suggest that direct intervention on specific targets may help to alleviate the expression of chronic hyperalgesic conditions.

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