

# The Journal of Pain

Table of Contents  
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## Critical Review

755

### **Comparative Effectiveness of Conservative Interventions for Nonspecific Chronic Spinal Pain: Physical, Behavioral/Psychologically Informed, or Combined? A Systematic Review and Meta-Analysis**

Mary O'Keeffe, Helen Purtill, Norelee Kennedy,  
Mairead Conneely, John Hurley, Peter O'Sullivan,  
Wim Dankaerts, and Kieran O'Sullivan

Nonspecific chronic spinal pain (NSCSP) is highly disabling. Current conservative rehabilitation commonly includes physical and behavioral interventions, or a combination of these approaches. Since it remains unclear whether any of these approaches are superior, this systematic review aimed to assess the comparative effectiveness of physical, behavioral/psychologically informed, and combined interventions on pain and disability in patients with NSCSP. The authors report that only small differences in pain or disability were observed between physical, behavioral/psychologically informed and combined interventions.

#### ON THE COVER

Chemotherapy-induced peripheral neuropathy is a disruptive and persistent side-effect of cancer treatment with paclitaxel. This clinical problem is steadily on the rise as the number of long-term cancer survivors increases. This paper shows that activation of innate immunity by paclitaxel results in a sequence of signaling events that results in the infiltration of the dorsal root ganglia by activated macrophages. See Zhang et al, page 775.

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## Original Reports

775

### **Dorsal Root Ganglion Infiltration by Macrophages Contributes to Paclitaxel Chemotherapy-Induced Peripheral Neuropathy**

Hongmei Zhang, Yan Li, Marianna de Carvalho-Barbosa, Annemieke Kavelaars, Cobi J. Heijnen, Phillip J. Albrecht, and Patrick M. Dougherty

Chemotherapy-induced peripheral neuropathy is a disruptive and persistent side-effect of cancer treatment with paclitaxel. This clinical problem is steadily on the rise as the number of long-term cancer survivors increases. This paper shows that activation of innate immunity by paclitaxel results in a sequence of signaling events that results in the infiltration of the dorsal root ganglia by activated macrophages. Macrophages appear to drive the development of behavioral hypersensitivity and the loss of distal epidermal nerve fibers, and hence play an important role in the mechanism of paclitaxel-related neuropathy.

787

### **Changes Over Time of Prescription and Nonprescription Analgesics for Headache With or Without Other Somatic Pain: Effects of Prescription Regulatory Changes**

Marianne Moe Halvorsen, Jocelyne Clench-Aas, Grete Patil, and Christofer Lundqvist

Headaches are common health problems, with the most common types being migraine and tension headaches. The aims of this study were to evaluate the effects of the law amendment of 2003 in Norway on consumption of prescription-free analgesics, and whether the change has affected the prevalence of headaches with or without somatic pain and their interrelations in the population. A hypothesis was that the regulatory change may have led to higher consumption of prescription-free analgesics. The authors conclude that making over-the-counter analgesics available outside of pharmacies did not increase the self-reported intake.

796

### **Qigong or Yoga Versus No Intervention in Older Adults With Chronic Low Back Pain—A Randomized Controlled Trial**

Michael Teut, Judith Knilli, Dorothea Daus, Stephanie Roll, and Claudia M. Witt

This study sought to assess the effectiveness of the reduction of chronic lower back pain in older adults using either yoga classes or qigong classes, compared with no intervention. Older adults ( $\geq 65$  years of age) with chronic low back pain were enrolled in and randomly allocated to 1) yoga (24 classes, 45 minutes each, during 3 months), 2) qigong (12 classes, 90 min each, during 3 months) or 3) a control group who received no additional intervention. This randomized trial with 176 older adults showed that yoga and qigong were not superior to no treatment in reducing pain and increasing quality of life.

**806 Distress Intolerance and Prescription Opioid Misuse Among Patients With Chronic Pain**

R. Kathryn McHugh, Roger D. Weiss, Marise Cornelius, Marc O. Martel, Robert N. Jamison, and Robert R. Edwards

The risk for misuse of opioid medications is a significant challenge in the management of chronic pain. The identification of those at greater risk for misuse is needed to facilitate closer monitoring of high-risk subgroups and may help identify therapeutic targets for mitigation. This study examined whether distress intolerance—the perceived or actual inability to manage negative emotional and somatic states—was associated with opioid misuse. Results indicate that distress intolerance may be a relevant marker of misuse among chronic pain patients. This may be a useful identifier and may help reduce risk, the authors conclude.

**815 Position Sense in Chronic Pain: Separating Peripheral and Central Mechanisms in Proprioception in Unilateral Limb Pain**

Anthony J. Tsay and Melita J. Giummarra

Awareness of limb position is derived primarily from muscle spindles and higher-order body representations. Although chronic pain appears to be associated with motor and proprioceptive disturbances, it is not clear if this is due to disturbances to position sense, muscle spindle function or central representations of the body. The results of this study indicate that both painful and nonpainful limbs are involved in bilateral limb-matching. Lateralized pain, whether in the arm or leg, does not influence forearm position sense. Muscle spindle function appears to be preserved in the presence of chronic pain.

**824 Predictors of Improvements in Pain Intensity in a National Cohort of Older Veterans With Chronic Pain**

Steven K. Dobscha, Travis I. Lovejoy, Benjamin J. Morasco, Anne E. Kovas, Dawn M. Peters, Kyle Hart, J. Lucas Williams, and Bentson H. McFarland

Little is known about the factors associated with pain-related outcomes in older adults. In this observational study, the authors sought to identify patient factors associated with improvements in pain intensity in a national cohort of older veterans with chronic pain. This research included 12,924 veterans receiving treatment from the Veterans Health Administration. Findings showed that older veterans frequently demonstrate improvements in pain intensity over time, and that opioid prescription initiation during follow-up, mental health issues, and certain pain diagnoses were associated with lower likelihood of improvements.

836

### **Using Structural and Functional Brain Imaging to Investigate Responses to Acute Thermal Pain**

Tracy Warbrick, Vera Fegers-Stollenwerk, Ivan I. Maximov, Farida Grinberg, and N. Jon Shah

Despite a fundamental interest in the relationship between structure and function, the relationships between measures of white matter microstructural coherence and functional brain responses to pain are poorly understood. Relationships between functional brain responses, white matter microstructural coherence, and subjective ratings are crucial for understanding the role of the mid-cingulate cortex in pain. These findings provide a basis for investigating the impact of the reduced white matter microstructural coherence observed in some pain disorders on the functional responses to pain.

845

### **Associations of Sedentary Behavior, Physical Activity, Cardiorespiratory Fitness, and Body Fat Content With Pain Conditions in Children: The Physical Activity and Nutrition in Children Study**

Anu Vierola, Anna Liisa Suominen, Virpi Lindi, Anna Viitasalo, Tiina Ikävalko, Niina Lintu, Juuso Väistö, Jari Kellokoski, Matti Närhi, and Timo A. Lakka

This research investigated the cross-sectional associations of sedentary behavior, physical activity, cardiorespiratory fitness and body fat content with pain conditions in prepubertal children (439 children aged 6 to 8 years). Sedentary behavior, physical activity and pain conditions were assessed by questionnaires, cardiorespiratory fitness using maximal cycle ergometer test, and body fat percentage using dual-energy X-ray absorptiometry. The findings suggest that low cardiorespiratory fitness, high levels of sedentary behavior and low body fat content are associated with increased likelihood of various pain conditions among prepubertal children. This information could be used to develop strategies to prevent chronic pain in childhood.

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