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Special Report

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Report of the NIH Task Force on Research Standards for Chronic Low Back Pain

Richard A. Deyo, Samuel F. Dworkin, Dagmar Amtmann, Gunnar Andersson, David Borenstein, Eugene Carragee, John Carrino, Roger Chou, Karon Cook, Anthony DeLitto, Christine Goertz, Partap Khalsa, John Loeser, Sean Mackey, James Panagis, James Rainville, Tor Tosteson, Dennis Turk, Michael Von Korff, and Debra K. Weiner

Despite rapidly increasing intervention, functional disability due to chronic low back pain (cLBP) has increased in recent decades. We often cannot identify mechanisms to explain the major negative impact that cLBP has on patients' lives. A task force was convened by the National Institutes of Health (NIH) Pain Consortium, with the goal of developing research standards for cLBP. The results include recommendations for definitions, a minimum dataset, reporting outcomes, and future research. The Research Task Force believes that these recommendations will advance the field, help to resolve controversies, and facilitate future research addressing the genomic, neurologic, and other mechanistic substrates of cLBP.

ON THE COVER

Central neuropathic pain (CNP) is believed to be accompanied by increased activation of the sensorimotor cortex. This study compares the electroencephalography (EEG) activity of spinal cord-injured patients with CNP to that of spinal cord-injured patients with no pain and also to that of able-bodied people. The study shows that the presence of CNP itself leads to frequency-specific EEG signatures that could be used to monitor CNP and inform neuromodulatory treatments of this type of pain. See Vuckovic et al, page 645.

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Critical Review

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Associations Between Pain Appraisals and Pain Outcomes: Meta-Analyses of Laboratory Pain and Chronic Pain Literatures

Todd Jackson, Yang Wang, and Huiyong Fan

In this research, meta-analyses were performed to evaluate associations between primary appraisals of pain as a source of threat and/or challenge on responses to noxious laboratory stimuli and chronic noncancer pain. Twenty-two laboratory pain studies comprising 2,031 participants were identified for analysis. For laboratory pain, elevated threat appraisals were linked to overall increases in reported pain, reduced pain tolerance, and high levels of passive coping. For chronic pain studies, threat appraisals had positive overall correlations with pain intensity, impairment, affective distress, and passive coping but were negatively related to active coping.

Original Reports

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Intranasal Fentanyl Versus Fentanyl Pectin Nasal Spray for the Management of Breakthrough Cancer Pain in Doses Proportional to Basal Opioid Regimen

Sebastiano Mercadante, Giovanna Prestia, Claudio Adile, and Alessandra Casuccio

The aim of this randomized, crossover, comparison study was to assess analgesic and adverse effects of 2 nasal preparations, intranasal fentanyl (INFS) and fentanyl pectin nasal spray (FPNS), for breakthrough pain. Each patient randomly received INFS or FPNS in doses proportional to opioid dosages used for background analgesia for 2 pairs of episodes, and 69 patients were studied. Results show that INFS and FPNS in doses proportional to basal opioid regimen are equally safe and effective for the management of breakthrough pain in cancer patients. These data provide new insights on the use of nasal preparations of fentanyl.

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The Role of Sex/Gender in the Experience of Pain: Resilience, Fear, and Acceptance as Central Variables in the Adjustment of Men and Women With Chronic Pain

Carmen Ramírez-Maestre and Rosa Esteve

Fear-avoidance models provide a theoretical explanation for the relationship between the variables involved in the experience of pain and chronic pain disability. This study sought to analyze differences between men and women in the experience of chronic pain. Resilience, fear-avoidance of pain, and pain acceptance were included in a hypothetical model as variables involved in chronic pain adjustment. A sample of 400 chronic spinal pain patients participated. The authors concluded that the fear-avoidance model should be taken into account in psychological interventions in patients with chronic pain, regardless of patient gender.

619 **Action of $\text{Ph}\alpha 1\beta$, a Peptide From the Venom of the Spider *Phoneutria nigriventer*, on the Analgesic and Adverse Effects Caused by Morphine in Mice**

Raquel Tonello, Flávia Rigo, Camila Gewehr, Gabriela Trevisan, Elizete Maria Rita Pereira, Marcus Vinicius Gomez, and Juliano Ferreira

Opioids are standard therapy for the treatment of pain. However, adverse effects limit their use. Voltage-gated calcium channel blockers may be used to increase opioid analgesia, but their effect on opioid-induced side effects is little known. This study evaluated the action of the peptide $\text{Ph}\alpha 1\beta$, a calcium channel blocker, on the effects of morphine in mice. The results present preclinical evidence that $\text{Ph}\alpha 1\beta$ could potentiate morphine analgesia and reduce the adverse effects caused by repeated administration of morphine.

632 **Positive Affect Protects Against Deficient Safety Learning During Extinction of Fear of Movement-Related Pain in Healthy Individuals Scoring Relatively High on Trait Anxiety**

Ann Meulders, Michel Meulders, and Johan W. S. Vlaeyen

From a treatment perspective, it is relevant to pinpoint vulnerability factors for resistance to exposure treatment in highly fearful chronic pain patients. Previous fear conditioning research showed that healthy individuals scoring relatively high on trait anxiety display sustained fear to safety cues during extinction. Findings from this work suggest that learning is more vulnerable in healthy people with a high anxious disposition and/or relatively lower levels of positive affect. In addition, this is the first study to show that the negative impact of high trait anxiety on fear inhibition to safety cues during extinction can be countered by high levels of positive affect.

645 **Dynamic Oscillatory Signatures of Central Neuropathic Pain in Spinal Cord Injury**

Aleksandra Vuckovic, Muhammad A. Hasan, Matthew Fraser, Bernard A. Conway, Bahman Nasserolelami, and David B. Allan

Central neuropathic pain (CNP) is believed to be accompanied by increased activation of the sensorimotor cortex. This study compares the electroencephalography (EEG) activity of spinal cord-injured patients with CNP to that of spinal cord-injured patients with no pain and also to that of able-bodied people. The study shows that the presence of CNP itself leads to frequency-specific EEG signatures that could be used to monitor CNP and inform neuromodulatory treatments of this type of pain.

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Exercise-Induced Modulation of Pain in Adults With and Without Painful Diabetic Neuropathy

Matthew T. Knauf and Kelli F. Koltyn

It is well established that lifestyle changes that include exercise can significantly reduce the prevalence of diabetes and associated complications such as neuropathy. However, very little research has focused on the effects of exercise on painful diabetic neuropathy (PDN). The purpose of this study was to examine exercise-induced pain modulation in diabetic adults with PDN compared to diabetic adults without PDN. Eighteen adults diagnosed with type 2 diabetes with and without PDN completed 2 sessions. The results provide support that adults with PDN exhibit exercise-induced endogenous pain modulatory system dysfunction.

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The Effects of Minocycline or Riluzole Treatment on Spinal Root Avulsion–Induced Pain in Adult Rats

Daniel J. Chew, Thomas Carlstedt, and Peter J. Shortland

Adult spinal root avulsion injuries commonly occur with major trauma associated with traffic accidents and acts of violence. The injuries damage the dorsal and ventral roots, and patients who suffer complete plexus injuries complain of excruciating pain. This report finds that immediate treatment with minocycline or riluzole prevents the onset of evoked pain hypersensitivity by reducing microglial cell activation. When treatment is delayed, minocycline, but not riluzole, reverses pre-established hypersensitivity. These drugs may provide a new translational treatment option for chronic avulsion injury pain.

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