

The Journal of Pain

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Focus Article

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Prevalence of Persistent Pain in the U.S. Adult Population: New Data From the 2010 National Health Interview Survey

Jae Kennedy, John M. Roll, Taylor Schraudner, Sean Murphy,
and Sterling McPherson

This Focus Article presents a secondary analysis of the 2010 Quality of Life Supplement of the National Health Interview Survey and determined that about 19.0% of adults in the United States report persistent pain—50.5% of whom call the pain “unbearable and excruciating.” The authors note that persistent pain, defined as self-reported pain “every day” or “most days” in the preceding 3 months, is a useful way to characterize health-related quality of life in the general population. Policy makers should consider including this core measure in ongoing health surveys like the National Health Interview Survey and the Medical Expenditure Panel Survey, the authors conclude.

Critical Review

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Is Tactile Acuity Altered in People With Chronic Pain? A Systematic Review and Meta-analysis

Mark J. Catley, Neil E. O’Connell, Carolyn Berryman,
F. Figen Ayhan, and G. Lorimer Moseley

Impaired tactile acuity in people with chronic pain conditions has been suggested to reflect altered cortical representation of the painful body part, and treatments that aim to improve tactile acuity in these conditions have shown clinical benefit. This systematic review synthesizes the evidence for tactile acuity deficits in people with chronic non-neuropathic pain. The findings suggest that tactile acuity deficits may be characteristic of chronic pain. That tactile acuity training may benefit those with chronic pain disorders suggests that clinical trials may be warranted.

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ON THE COVER

Although functional magnetic resonance imaging (fMRI) has been proposed as a method to elucidate pain-related biomarkers, little information exists related to psychometric properties of fMRI findings. The purpose of this study was to assess the test-retest reliability of pain-related brain activity and how it compares to the reliability of self-report. Findings suggest that fMRI is a valuable tool for measuring pain mechanisms but did not show an adequate level of test-retest reliability to potentially act as a surrogate for individuals’ self-report of pain. See Letzen et al, page 1008.

Original Reports

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Development and Testing of Painometer: A Smartphone App to Assess Pain Intensity

Rocío de la Vega, Roman Roset, Elena Castarlenas, Elisabet Sánchez-Rodríguez, Ester Solé, and Jordi Miró

Electronic and information technologies are increasingly being used to assess pain. This study aimed to introduce Painometer, a smartphone app that helps users to assess pain intensity, and to report on its usability and acceptability (willingness to use it). The app was tested in a sample of 24 health care professionals and 30 nonprofessionals. Findings show that the Painometer app shows good usability and acceptability properties when used by health care professionals and nonprofessionals.

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Test-Retest Reliability of Pain-Related Brain Activity in Healthy Controls Undergoing Experimental Thermal Pain

Janelle E. Letzen, Landrew S. Sevel, Charles W. Gay, Andrew M. O'Shea, Jason G. Craggs, Donald D. Price, and Michael E. Robinson

Although functional magnetic resonance imaging (fMRI) has been proposed as a method to elucidate pain-related biomarkers, little information exists related to psychometric properties of fMRI findings. In this study, 22 healthy controls underwent 3 runs of an fMRI paradigm that used thermal stimuli to elicit experimental pain. This information is essential for potential translation of this technology to clinical settings. Results suggest that fMRI is a valuable tool for measuring pain mechanisms but did not show an adequate level of test-retest reliability for fMRI to potentially act as a surrogate for individuals' self-report of pain.

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Survival Patterns in Squamous Cell Carcinoma of the Head and Neck: Pain as an Independent Prognostic Factor for Survival

Cielito C. Reyes-Gibby, Karen O. Anderson, Kelly W. Merriman, Knox H. Todd, Sanjay S. Shete, and Ehab Y. Hanna

Survival outcomes in patients with squamous cell carcinoma of the head and neck (HNSCC) vary by extent of disease, behavioral factors, and socioeconomic factors. This report assessed the extent to which pretreatment pain influences survival in 2,340 newly diagnosed patients. Results show that pretreatment pain was an independent predictor of survival in a large sample of HNSCC patients even after accounting for cancer stage, fatigue, age, race/ethnicity, smoking, and alcohol intake. Therefore, symptoms at presentation and before cancer treatment are important factors to be considered in understanding survival outcomes in HNSCC patients.

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Longitudinal Interactions of Pain and Posttraumatic Stress Disorder Symptoms in U.S. Military Service Members Following Blast Exposure

Kelcey J. Stratton, Shaunna L. Clark, Sage E. Hawn,
Ananda B. Amstadter, David X. Cifu, and William C. Walker

Military personnel returning from conflicts in Iraq and Afghanistan often display pain and posttraumatic stress disorder (PTSD) symptoms, either separately or concurrently. Associations between pain and PTSD symptoms may be further complicated by blast exposure from explosive munitions. Although many studies have reported on the prevalence and disability associated with polytraumatic injuries following combat, less is known about symptom maintenance over time. This study examined longitudinal interactive models of co-occurring pain and PTSD symptoms in a sample of 209 military personnel who experienced combat-related blast exposure. The findings indicate that pain and PTSD symptoms strongly influence one another and interact across time.

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Immobilization Contributes to Exaggerated Neuropeptide Signaling, Inflammatory Changes, and Nociceptive Sensitization After Fracture in Rats

Tian-Zhi Guo, Tzuping Wei, Wen-Wu Li, Xiang-Qi Li,
J. David Clark, and Wade S. Kingery

Complex regional pain syndrome (CRPS) is characterized by allodynia, pain with movement, warmth, and edema in the injured extremity. The mechanisms mediating CRPS are unknown, but several observations suggest that limb immobilization plays a role. Data suggest that immobilization can induce exaggerated substance P signaling, causing increased inflammatory mediator expression in the fractured limb and resulting in nociceptive sensitization. Early limb mobilization after fracture may prevent the development of CRPS, the authors note.

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Contingency Learning Deficits and Generalization in Chronic Unilateral Hand Pain Patients

Ann Meulders, Daniel S. Harvie, Jane K. Bowering,
Suzanne Caragianis, Johan W. S. Vlaeyen, and
G. Lorimer Moseley

The formation of danger beliefs underpins conditioned fear and avoidance behavior, yet the formation of safety beliefs is equally important. When threat beliefs and accompanying fear/avoidance spread to technically safe cues, it might cause disability. Such overgeneralization has been advanced as a transdiagnostic pathological marker, but it has not been investigated in chronic pain. This study reports that chronic hand pain patients demonstrate reduced differential contingency learning determined by a lack of safety belief formation, but not by exaggerated threat belief formation, as well as flatter, asymmetric generalization gradients than the healthy controls.

Music Modulation of Pain Perception and Pain-Related Activity in the Brain, Brain Stem, and Spinal Cord: A Functional Magnetic Resonance Imaging Study

Christine E. Dobek, Michaela E. Beynon, Rachael L. Bosma, and Patrick W. Stroman

The oldest known method for relieving pain is music, and yet the underlying neural mechanisms have not been studied. Here, the authors investigated these neural mechanisms by applying a painful stimulus while participants listened to their favorite music or to no music. Neural responses were mapped with functional magnetic resonance imaging. The results show that music modulates pain responses in the brain, brain stem, and spinal cord, and that neural activity changes are consistent with engagement of the descending analgesia system. This is the first imaging study to characterize the neural response of pain and how pain is mitigated by music. This provides new insights into the neural mechanism of music-induced analgesia within the central nervous system.

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