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Higher Pain Tolerance in Athletes May Hold Clues for Pain Management

Regular Exercise May Help, According to New Study in *PAIN*[®]

Philadelphia, PA, May 17, 2012 – Stories of athletes bravely “playing through the pain” are relatively common and support the widespread belief that they experience pain differently than non-athletes. Yet, the scientific data on pain perception in athletes has been inconsistent, and sometimes contradictory. Investigators from the University of Heidelberg have conducted a meta-analysis of available research and find that in fact, athletes can indeed tolerate a higher level of pain than normally active people. However, pain threshold, the minimum intensity at which a stimulus is perceived as painful, did not differ in athletes and normal controls. Their findings are published in the June issue of *PAIN*[®].

“Our analysis reveals that pain perception differs in athletes compared to normally active controls,” says lead investigator Jonas Tesarz, MD. “Studies in athletes offer the opportunity for an evaluation of the physical and psychological effects of regular activity on pain perception, which might foster the development of effective types of exercise for relief in pain patients.”

Researchers reviewed fifteen studies that evaluated experimentally induced pain threshold or tolerance in athletes compared to normally active controls. 568 athletes and 331 normally active controls were included. Eight of the studies were conducted in the USA, two in Canada, one in Australia, and four were conducted in Europe. The studies, which included both men and women, evaluated endurance sports, game sports, and strength sports. Twelve studies reported on pain tolerance, and nine studies examined pain threshold.

Athletes were found to have consistently higher pain tolerance in comparison to normally active adults. The magnitude of pain that athletes could withstand varied depending upon the type of sport in which they participate. For example, endurance athletes had a moderate tolerance for pain and their scores were fairly uniform. Athletes involved in game sports had a higher tolerance for pain than other athletes, but the results varied widely, suggesting that endurance athletes are more alike in their physical and psychological profiles, while athletes involved in game sports are more diverse.

The finding that regular exercise is clearly associated with higher pain tolerance, but pain thresholds are affected more ambiguously, likely has clinical implications, according to Dr. Tesarz. “Numerous studies of the effect of physical exercise in pain patients demonstrate a consistent impact on quality of life and functioning without an improvement in pain scores. It may be advisable in exercise treatment for pain patients to focus on the development of their pain-coping skills that would affect tolerance, rather than the direct alleviation of pain threshold,” he notes.

“Further research is needed to clarify the exact relationship between physical activity and modifications in pain perception, and to identify the involved psychological factors and neurobiological processes. However, the observation that pain perception is modifiable by physical activity provides promise for the use of non-invasive methods with few side effects for patients with chronic pain conditions,” concludes Dr. Tesarz.

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NOTES FOR EDITORS

“Pain perception in athletes compared to normally active controls: A systematic review with meta-analysis,” by J. Tesarz, A.K. Schuster, M. Hartmann, A. Gerhardt, W. Eich, DOI: 10.1016/j.pain.2012.03.005. It appears in *PAIN*[®], Volume 153, Issue 6 (June 2012) published by Elsevier.

Full text of the articles is available to credentialed journalists upon request. Contact Christine Rullo at 215-239-3709 or painmedia@elsevier.com for copies. Journalists wishing to set up interviews should contact the corresponding author, Jonas Tesarz, Department of General Internal Medicine and Psychosomatics, Medical Hospital, University of Heidelberg at jonas.tesarz@med.uni-heidelberg.de.

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