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From Medscape Medical News

## Exercise Relieves Fibromyalgia Pain, Ups Cognitive Function

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Authors and Disclosures

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### Information from Industry

December 9, 2011 — Six weeks of aerobic exercise can relieve the pain typically experienced by patients with fibromyalgia (FM) who discontinue analgesic medications, according to imaging studies reported at the Neuroscience 2011, the Society for Neuroscience annual meeting. The exercise also improves their working memory. The researchers suggest that this is a result of the increased activation of task-related parts of the brain, as shown by functional magnetic resonance imaging (fMRI) data.

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"These results are suggestive of the effect [of] exercise on not only self report of global change in pain sensation in FM but also improvement in the network of cortical areas recruited in working memory," report a research team led Manish Khatiwada, MS, from Georgetown University Medical Center in Washington, DC. "Thus, exercise may have benefit in both reducing FM symptoms and improving cognitive capacity." Khatiwada is working in the laboratory of coauthor John VanMeter, PhD, director of Georgetown University's Center for Functional and Molecular Imaging.

Senior author Brian Walitt, MD, director of the university's Fibromyalgia Evaluation and Research Center, said in a statement: "This study demonstrates how these symptoms change with treatment and withdrawal of treatment, and what the neurological correlates of these changes are." Dr. Walitt said the study is not suggestive of a change in clinical care for fibromyalgia.

The researchers studied 9 women with FM (8 right-handed, 1 left-handed; age, 45.8 ± 10.60 years). The study consisted of 4 visits:

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- baseline: receiving current FM medications;
- washout: off all FM medications for 3 half-lives;
- no treatment: 6 weeks after stopping FM medications; and
- exercise: after a 6 weeklong aerobic exercise intervention.

At each visit the participants completed an N-Back fMRI working memory task (serial letter recognition with 0 and 2 back). The researchers analyzed changes in neuronal activity across visits based on changes in their patient global impression change. Analysis of this change across visits revealed increased activation in left superior medial frontal, left dorsal lateral prefrontal, right midfrontal, right supplementary motor, left thalamus, left caudate, left inferior parietal, and bisuperior parietal, all of which are task-related areas.

According to Dr. Walitt, in conditions similar to FM, the body perceives something by mistake. Unlike psychosomatic pain, the pain of FM is objectively verifiable and is probably produced by the central nervous system.

The research team used fMRI to "provide a definitive measure of cognitive functioning, so that we can more scientifically measure the effect of exercise," said Khatiwada in a statement. "This is a novel approach to the study of fibromyalgia."

The researchers concluded, "Our results indicate that as the patients discontinue their current medication treatment and transition into the exercise treatment their subjective rating of change in pain initially increases and then decreases. Neuronal activity in areas recruited for an N-Back [fMRI] working memory task follow[s] an inverse pattern with an initial drop following medication cessation that increases on subsequent visits."

*The authors have disclosed no relevant financial relationships.*

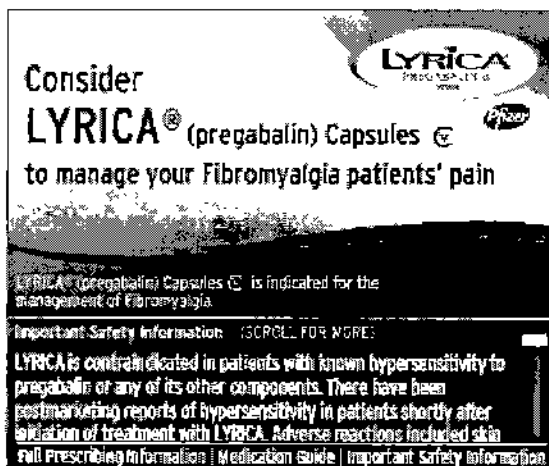
Neuroscience 2011: Abstract 258.08, Poster BB5. Presented November 13, 2011.

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