

Electromagnetic pulses provide pain relief for osteoarthritis

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Electromagnetic pulses significantly decrease pain and inflammation associated with osteoarthritis of the knee, according to Henry Ford Hospital researchers.

In the double-blind, randomized placebo-controlled study, 34 patients used a portable battery-operated device that emits a low-intensity pulsating electromagnetic frequency and experienced more than 40 percent pain relief on their first day.

"Our results show pulsed electromagnetic fields caused a significant decrease in pain" says Fred Nelson, M.D., associate program director for research and director of the Osteoarthritis Center, Department of Orthopaedics, Henry Ford Hospital.

Dr. Nelson will present the results this week at the Orthopaedic Research Society's annual meeting in New Orleans.

Dr. Nelson explains that in the laboratory, electromagnetic signals have been shown to decrease calcium in cartilage cells. This sets off a series of chemical events that can lead to reduced inflammation. Previously, the electromagnetic fields have been used to control pain related to cosmetic surgery.

"We are really fine-tuning what we are doing to the cell environment with a very specific pulse sequence and frequency," says Dr. Nelson.

Patients strapped the small, ring-shaped plastic device around their knees for 15 minutes, twice daily for six weeks. The device was lightweight and patients could position the device directly over clothing. All participants were given a device with a coil that appeared to work but some were assigned active coils and others were given non-active coils. The electromagnetic device was developed by Ivivi Health Sciences of Montvale, New Jersey.

Osteoarthritis of the knee is a leading cause of disability and loss of independence. It is a slow, progressively [degenerative disease](#) in which the [joint cartilage](#) gradually wears away due to trauma, aging or infection. As the cartilage thins, the surrounding bone thickens and often bones rub against one another, causing additional wear. Normal activity becomes painful and difficult.

Current treatments include drug therapies like anti-inflammatory medication or pain relievers; physical therapy; support devices; health and behavioral modifications such as weight loss; surgery and joint replacement.

Dr. Nelson explains that medications often have variable success and can produce considerable side effects such as changes in kidney and liver function, a reduction in the ability of blood to clot as well as abdominal pain, nausea and indigestion.

"The exciting thing about this new approach is that it has been found to have no side effects, it is relatively low-cost in the long-run and the onset of pain relief is immediate," says Dr. Nelson. "We look at electromagnetic pulses as a potential way to improve quality of life and independence for those who suffer from [osteoarthritis](#) of the knee."

Dr. Nelson says researchers will continue to look at the consistency of the relief, how long the pain relief lasts and if electromagnetic pulses

might affect other joints.

Provided by Henry Ford Health System

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