

Do Muscles Put the Strength in Low Back Pain?

Emerging Evidence Points to Neglected Role

For the roughly 50% of Americans who undergo unsuccessful surgery for low back pain, it will come as little consolation that a much less invasive—and less costly—procedure might have treated their condition.

The approach is built on the theory that much, if not most, low back pain stems from muscle discomfort around the shoulders and elsewhere. Indeed, several recent studies suggest that treatments targeting painful muscles can significantly improve otherwise refractory back pain.

Norman Marcus, MD, medical director of the Norman Marcus Pain Institute in New York City, is one of the pioneers in the field of treating muscle pain and the inventor of a device that, his research shows, can markedly reduce back pain by properly identifying muscle as the basis for the pain. Unfortunately, Dr. Marcus said, treatment of muscle pain is “not taught in medical schools, and there is nothing about muscles or exercise in the pain guidelines.”

Standard treatment of muscle pain involves identification, by manual palpation, of trigger points that may be the source of pain, Dr. Marcus said. However, palpation has low interrater reliability, and it tests muscles when they are at rest; however, it is when they are active that they elicit pain.

In a recent study of 40 patients with failed back surgery syndrome and chronic low back and/or sciatic pain who presented at a pain treatment center, 85% were found to have painful muscles on examination (*Reg Anesth Pain Med* 2008;32:14). Eighteen of these patients received muscle injections of lidocaine. On the last day of treatment, patients completed both the Brief Pain Inventory (BPI) and the Beck Depression Scale. Thirteen of 18 patients (72%) were found to have at least an 85% reduction in pain and depression, and 11 patients (61%) had a 64% reduction five months posttreatment, according to lead investigator Corey Hunter,

MD, a rehabilitation expert at the Rusk Institute of Rehabilitative Medicine of New York University Langone Medical Center, in New York City.

In order to more effectively isolate the source of muscular pain, Dr. Marcus invented the Muscle Pain Detection Device (MPDD). The wandlike electric device stimulates individual muscles, causing them to contract, eliciting a painful response. Once a painful muscle is identified, Dr. Marcus treats the

area with lidocaine injections followed by physical therapy, a technique pioneered by Hans Kraus, MD, who successfully treated President John F. Kennedy for debilitating back pain.

In a study he presented at the 2009 annual meeting of the American Academy of Pain Medicine, in Honolulu (abstract 212), Dr. Marcus found

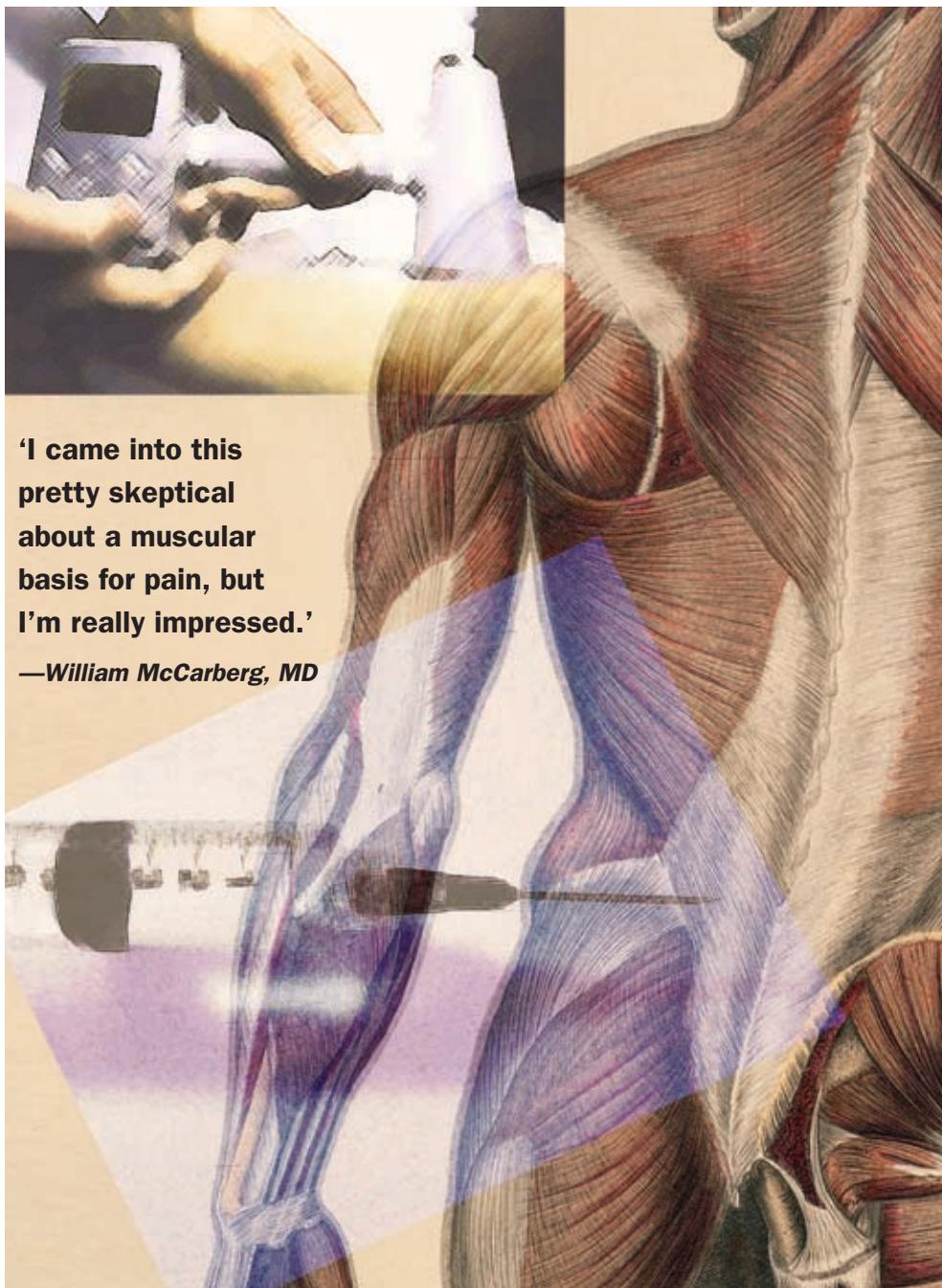
Patients filled out the BPI at the beginning of the study, on the last day of treatment and one month after the therapy. At the end of treatment, patients reported a median drop of 67% in the severity of their pain, the researchers found. One month later, the percentage increased to 70% ($P < 0.001$ vs. baseline). Pain interference with regard to activities of daily living decreased by 85%, both directly after and one month after treatment ($P < 0.001$ vs. baseline).

In a double-blind, randomized controlled study, the MPDD was used to assess muscle pain in 40 patients who presented to a pain treatment center with chronic back pain of at least three months' duration (*Reg Anesth Pain Med* 2008;32:14). Half of the subjects were assessed with traditional manual pressure (MP) and half with the MPDD, after which physicians who were unaware of the method of pain detection injected the painful muscles with lidocaine. Subjects completed pain questionnaires one week before, one week after and one month after injection. There was a statistically significant difference in pain reduction between the MPDD and MP groups ($P < 0.004$ at one week and $P < 0.001$ at one month). Also, 82.5% of the MPDD group reported pain relief at one month compared with 53.2% of patients in the control group.

Bill McCarberg, MD, founder of the Chronic Pain Management Program at Kaiser Permanente Health Center, San Diego, and a member of the editorial board of *Pain Medicine News*, said he was not initially optimistic about muscles as focus of chronic back

pain. However, in a study of patients who had been referred to Kaiser Permanente for back surgery, assessment with the MPDD revealed that half had a muscular source for their pain—eliminating the need for surgery. “I came into this pretty skeptical about a muscular basis for pain,” Dr. McCarberg said, “but I’m really impressed.”

—Laura Tendler



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high rates of pain relief with his protocol. Forty-five patients with chronic pain were enrolled and assessed with the MPDD for the presence of pain of muscular etiology. There were three possible outcomes: no pain; pain that disappeared with continued stimulation, indicating transient functional pain; and pain that persisted with consistent stimulation, indicating a structural change in the muscle that would cause chronic pain.