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New Approaches Show Promise in Helping People With Low-Back Pain

Researchers say nonsurgical interventions can be more effective and less expensive than surgical treatments

By Laura Landro Follow

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Often there is no clearly identifiable physical cause for low-back pain, leaving patients to veer from one ineffective treatment to another. PHOTO: ISTOCKPHOTO/GETTY IMAGES

Millions of adults struggle for years with chronic low-back pain—a disabling ailment that has no easy fix.

Common causes include injury, arthritis and degenerative changes in the spine. It tends to start at midlife with the natural wear and tear of aging. But often there is no clearly identifiable physical cause, leaving patients to veer from one ineffective treatment to another—including highly addictive prescription opioids.

Now, researchers are working on personalized treatment plans that can address physical, emotional and psychological traits in individual patients that influence the pain they are experiencing. Physical therapy, exercise, diet and lifestyle choices often play a role. Some research is also looking at ways to retrain the brain to think differently about pain.

To be sure, low-back pain can be a sign of something life-threatening, such as cancer, or a severe spine condition that requires surgery. As a result, chronic low-back pain needs to be fully evaluated. But once "red flags" are eliminated, doctors need a more precise way to determine what will work for individual patients, says Dr. Matt Mauck, a researcher and pain-medicine physician at the University of North Carolina Chapel Hill's UNC Pain Management Center.

UNC is part of the Back Pain Research Consortium, or Bacpac, funded by the National Institutes of Health as part of a broader effort to improve the understanding, treatment and management of pain and reduce opioid abuse and addiction. In a study at multiple sites nationwide, researchers are testing the effectiveness of four nonsurgical treatments in connection with specific personal traits of patients. Each treatment has been shown to work, though not equally well for everyone.

The four treatments: acceptance-and-commitment therapy, which helps people learn new skills for dealing with pain; duloxetine, a medication used for depression, anxiety and chronic musculoskeletal pain; an online program with personalized messages to teach lifestyle skills for pain management; and a form of exercise therapy with stretches, strength training and hands- on treatment by a physical therapist or chiropractor.

Participants in the study are randomly assigned to an initial treatment for three months, which could then be modified depending on how they respond. That may include switching to another treatment, or combining two treatments.

Nonsurgical approaches

Studies have shown that nonsurgical approaches can be more effective and less expensive than surgery. A recent University of Pittsburgh study of nearly 30,000 patient records over three years found that patients who first seek out physical therapy or chiropractic care have better outcomes and lower costs. Patients who first sought care through an emergency department, by contrast, were more likely to have high-cost imaging and steroid injections; and more than half of them filled prescriptions for opioids, compared with just 11% among those who sought chiropractic care and physical therapy first.

One of the most puzzling aspects of back pain is that patients who have had physical damage to their lower back may not have any pain, while others who have little visible damage can have a great deal of pain.

“What we see on the X-ray, or the MRI may not tell the whole story, so we have to address all aspects of a person’s condition to better characterize who needs what type of treatment,” says Dr. Gwendolyn Sowa, director of the UPMC Rehabilitation Institute at UPMC, a large healthcare provider affiliated with the University of Pittsburgh.

Part of the Bacpac consortium, UPMC is one of an increasing number of healthcare providers taking a more holistic approach. Experts in its spine-health program evaluate sleep habits, nutrition, exercise, social engagement and lifestyle. Patients may see pain psychologists, physical therapists trained specifically in spine care, surgeons and physiatrists, the specialized physicians who focus on nonsurgical treatments for back pain.

Dr. Christopher Standaert, a UPMC physiatrist who oversees the program, says the center has had success in helping patients identify what works best for their pain, with a low percentage needing surgery or steroid injections and the majority benefiting from physical therapy and other lifestyle and mental-health interventions.

“Patients aren’t just afraid of pain; they are afraid of what might come of it—‘Am I going to be able to play with my children or work in my garden?’ ” says Standaert. By overcoming fear and reconnecting patients to movement and activities they enjoy, “they can live well, age well and successfully adapt.”

Downward spiral

Vinny Rossitto, 67, a former Navy officer and retired businessman, says his back first went out in 1986, and he had recurrent and often severe bouts of pain. He took anti-inflammatory medications and Valium and regularly visited a chiropractor, but things only got worse over time.

By 2017, diagnosed with degenerative disk disease, lumbar spinal stenosis and scoliosis, he was finding it hard to walk. He cycled through treatments including physical therapy, opioid and other medications, steroid injections, an antidepressant and an anticonvulsant drug. The stenosis and scoliosis worsened by 2022, but he says he wasn’t considered a good candidate for surgery.

“I was spiraling downward and mentally resigned and depressed. I gave myself a year before I thought I would be in a wheelchair,” he says.

Vinny Rossitto during a Pilates session. PHOTO: DALE ROSSITTO

At that point he was referred to the UPMC spine-health program, where he says the spine-specific, personalized physical therapy helped him begin feeling better after three weeks, strengthening his abdominal muscles and providing him with exercises to do at home. A spine-health psychologist helped him better manage his mental outlook and adapt his lifestyle to his situation, he says. A dietitian recommended an anti-inflammatory diet with more fresh fruits and whole grains, and a medical masseuse helped loosen up muscles that had been problematic, improving his gait enough to enable hiking on rugged trails with the use of walking sticks. He started Pilates classes to build core strength and improve balance.

Rossitto says the program has helped him take greater control of managing his pain and reduce stress and anxiety. He no longer uses opioids or other pain medications, and he sticks to his home regimen of exercises and stretches. From an average day with a pain level of 7 or 8 out of 10 in 2017, "'I am now at about a 5, and on good days a 4."

Rechecking signals

Researchers are also investigating a treatment called pain-reprocessing therapy, or PRT, which focuses on retraining the brain to help people recover from chronic pain. The brain creates pain as a warning signal to restrict movement and let the body recover from injury. But in many cases of chronic pain, changes in the brain can cause pain to continue even after the injury has healed, according to Yoni Ashar, an assistant professor in the department of internal medicine at the University of Colorado Anschutz Medical Campus.

Ashar says the inaccurate belief that chronic pain means injury may promote fear, avoidance of activity and the persistence of pain. In PRT, trained therapists

help patients to move in ways they have been afraid to, and to re-evaluate the sensations they experience as misfiring brain pathways rather than signs of injury. This helps the brain perceive such pain signals as less threatening, measurably reducing or eliminating pain, Ashar says.

In the first clinical trial of PRT, co-led by Ashar, 151 people with mild to moderate back pain were randomized into three groups. One got four weeks of intensive PRT, one received a placebo saline injection in the back, and one received care as usual. With PRT, 66% reported being pain free or nearly so after treatment, while only 20% of people who had the placebo and 10% of those in usual care reported similar improvements.

Study participants who were initially skeptical about the notion that the mind or brain processes were driving their pain described a shift in their thinking after the therapy, according to interviews published in a follow-up study. "It has actually made me less frightened of the pain," said one. "Now, if I get a little bit of pain, I deal with it."

Laura Landro is a former assistant managing editor of The Wall Street Journal and author of "Survivor: Taking Control of Your Fight Against Cancer." She can be reached at reports@wsj.com.

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