

# Newsletter

March 2006

## How exercise helps BACK PAIN

By Catherine Clifford

A growing number of researchers say that exercising- despite an aching back – is not only OK, but may be the key to a healthier one.

Ask anyone with a chronically bad back what she has tried in the way of treatment and she's likely to respond, "What haven't I tried?" Massage, medication, manipulation or stretching may provide relief, but for most sufferers, the reprieve- if any – is relatively fleeting.

Surprisingly, a number of recent studies suggest that what most back-pain sufferers should try is a back-muscle workout that will probably leave them in increased pain – at first, that is, but feeling much better in the long term. "It's not hard to help someone with her back pain one time, but the challenge is to keep her from having to come back," says Vijay Vad, M.D. a sports-medicine specialist at the Hospital for Special Surgery, and affiliate of Weill Medical College of Cornell University in New York City. "That's where the exercise is crucial. The first couple of weeks you're going to be sore, but the long-term solution for back-pain lies, basically, in exercise."

For instance, a study led by Vad that's still under way has found that although patients with disc problems who follow a carefully designed exercise program were in more pain for the first three weeks, after that they started feeling better than a control group who used daily medication and a nightly back brace. More significantly, one year later, 70 percent of the exercise group reported that their pain was reduced by more than half, as opposed to only 33 percent of controls.

Of course, exercise has been recommended for back problems before. The catch: usually patients were cautioned to stop if it hurt. "But studies have shown that when someone has an incidence of back pain, back muscles atrophy very quickly, and surprisingly, even if the pain goes away on its own, which it usually does, the muscles stay weakened," says Vert Mooney, M.D., a clinical professor of orthopedic surgery at the University of California, San Diego, and president of Measurement Driven Rehabilitation Systems, Inc. "So almost anything you can do to make those muscles work is a good thing. If exercising cause sharp pain, exactly the kind of pain you're trying to treat, then you're doing something wrong. But you should feel discomfort or achiness, the way you do whenever you start moving something that hasn't been moved in a long time."

More Pain, more gain?

How does exercise help alleviate back pain? "No one really knows," says James Rainville, M.D., chief of physical medicine and rehabilitation at New England Baptist Hospital and an assistant clinical professor at Harvard Medical School in Boston. "but our data on approximately 2,000 patients per year who undergo rehabilitation suggest that most who exercise, even if it is painful, experience improvement in the amount and intensity of exercise they can perform. And that is associated with a decrease in back pain. "Their backs become more tolerant to the stresses of exercise, and are more resistant to producing pain messages after movement and strenuous activities," he adds. "But we don't know where this improved tolerance or desensitization occurs - whether at the back tissues, the spinal cord, brain stem or cerebral cortex."

Part of the explanation is psychological: Pain perception is made much worse by worry, fear or the expectation of pain," Rainville notes. "People are afraid that if they move, stretch or exercise their backs,

they'll harm them further," he says. "But there's no indication in the medical literature or our vast experience that exercise is unsafe or unreasonably risky for people with back pain."

### High-Tech help

Some of the underpinnings of the exercise-till-it-hurts approach come from the relatively recent arrival of more sophisticated hardware. Some of the exercise machines used by back centers (and some gyms) are able to home in precisely on strengthening crucial muscles like the lumbar extensors, transversalis or paraspinals (back muscles that, with other exercises, tend to let stronger muscles nearby do all the work, Mooney explains). Based on patients' individual progress, doctors and trainers then can make informed recommendations on how hard a particular patient should push herself to maximize payoffs while minimizing pain.

Mooney estimates that perhaps only 10 percent of back doctors in the United States are on board with this exercise-centered approach (chiropractors and physical therapists are, similarly, found on both sides of the fence). Still, a number of facilities around the country operate practically as medical gyms, where back sufferers can learn how to exercise the right way. At the Spine & Sports Centers owned by Mooney in California and Tennessee, for example, many patients are set up with a six- to eight-week, twice-a-week program with on-site equipment. Trainers make sure that workouts are done correctly and track progress.

One of the leaders of the exercise-centered movement is The Spine Center at New England Baptist Hospital in Boston, headed by Rainville. It specializes in evaluation people with complicated spinal disorders – two-thirds or more of its 400 new patients a month are referrals from other doctors, typically cases in which, after years of various treatments, the patient is still in pain and hoping to avoid spinal surgery – or another spinal surgery. (The remainders are mostly referrals from other patients.) For 5 percent of patients, the center does recommend surgery, but for more than half of extreme cases it instead prescribes a very aggressive program of personally tailored exercise, continually tracking those patients for back strength, pain, flexibility and the ability to perform everyday tasks and activities.

### Getting back your life

Staying active in general is key to keeping back troubles at bay, according to Rainville. "The theory used to be that disc degeneration – the major source of recurrent back pain in younger people – was caused by physical activity, and the standard advice therefore was first, to rest, and second, to avoid physical activity, or at least any activity involving the back," he says. (discs – the cushions between your spine's vertebrae – have soft, gel-like center and are sealed in place by outer bands, or rings, of fiber. These bands can weaken and, in time, can tear under the normal load of the spine and trigger inflammation and intense pain. If they completely fail, they can ooze out – known as a ruptured disc.) Most back-pain sufferers who exercise find their backs become more resistant to pain.

Disc injuries can be precipitated by severe accidents or injuries, or occur spontaneously, often during trivial activities like reaching, bending or even sneezing. "The real source of most disc problems appears to be genetically pre-determined for age related degeneration," Rainville adds. "Following a long-term exercise program is ideal, but without torturing themselves, to their usual activities – which could be yoga, weight training, running, skiing, golf, basketball, gardening, carrying laundry baskets, pickling up their kids, you name it – recover quicker, have better range of motion, less overall pain, fewer flare-ups of pain, fewer spine surgeries and, of course, a richer, happier life."

A typical case in point: Cheri Reeves, 26, of San Diego, who suffered a herniated disc in a car accident. Reeves went to doctors who gave her pain medication and muscle relaxants, and saw chiropractors and physical therapists who manipulated, massaged and stretched her back. They all told her that, basically, when she was in pain, she should lie down or rest, she recounts. But after almost two years with no improvement in her back, and having gained 40 pounds because she'd given up all the walking and inline skating she used to do, Reeves saw a new orthopedist who sent her to U.S. Spine & Sport in San Diego.

There she embarked on an eight-week course of exercise. "It changed my life," Reeves says. "I rejoined the gym, where they have some of the same back machines as those at U.S. Spine & Sport, stopped walking like an old lady and lost 12 pounds. I still have bad days, but now when my back hurts I know that's when I need to work out." Reeves has since lost a total of 20 pounds.

A little exercise helps a little; a lot helps a lot- to a point. "Two or three workouts a week is optimal for most people," Rainville says. "At the same time, we're not aware of any evidence that more frequent exercise causes damage to the spine - though some report more irritation to the back when exercising more than three times per week."

Having that kind of control over you own body and treatment is one of the most appealing aspects of the exercise-based approach. "Too much of back medicine put health-care providers in control: They say, "You need to come to me so I can help you out with a prescription, or by using this instrument or performing this surgery,"" Rainville says. "People just want something that makes sense to them and puts them in control, and for a lot of them, exercise is it."