

# A Pinch of Sugar for Pain

By LAURA JOHANNES

A syringe full of sugar water may not sound like a cutting-edge medical technique, but a growing number of doctors say sugar injections called prolotherapy can stimulate healing and provide relief from a range of chronic pain conditions. Scientific literature on prolotherapy, however, is inconclusive.

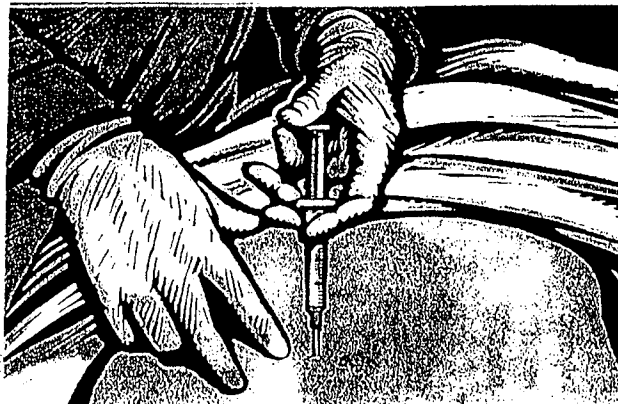
More than a quarter of Americans surveyed had recently experienced pain that lasts more than 24 hours—and of

**ACHES & CLAIMS** those, 42% had suffered for more than a year, according to a 2006 report by the National Center for Health Statistics. Many types of chronic pain, including lower back, arthritis and tennis elbow, can be effectively treated by prolotherapy after conventional measures such as rest and physical therapy have failed, say physicians who offer the procedure.

In prolotherapy, a syringe is used to inject a liquid—often containing sugar but which can include a variety of other substances—into the painful area. The idea is, paradoxically, to create a minor injury to stimulate a healing response. Some doctors scoff at prolotherapy and many insurers won't cover it. But the procedure is being performed by a growing number of physicians, and has even gained adherents at institutions such as the Mayo Clinic and Harvard Medical School.

Prices vary widely, from \$200 to \$1,000 or more a session. Depending on your injury and your doctor, you might get three to six treatments or more over several months. Some patients get maintenance treatments for years. The procedure, sometimes conducted under X-ray or ultrasound guidance, can take 10 minutes to an hour or more. The same area is often injected multiple times and hurts about as much as "if I came up to you and pinched you 30 times," says Ross Hauser, an Oak Park, Ill., physician who performs the procedure regularly.

A local anesthetic is used prior to the procedure, and a mild anesthetic is often mixed into the injection fluid. Some doctors offer sedatives. A variety of doctors perform the procedure, including family and physical-medicine specialists and osteopathic physicians.



THE FORK

At least 45 research reports on prolotherapy have been published in the medical literature, but only a handful of those are randomized clinical trials—the type most respected by scientists, says David Rabago, author of a review of the evidence published earlier this year.

"The evidence is suggestive of a positive effect, but a lot more work is needed," says Dr. Rabago, an assistant professor of family medicine at the University of Wisconsin in Madison.

Others are more skeptical of the therapy. "It is completely without any scientific basis," says John D. Loeser, a pain specialist and professor emeritus at the University of Washington in Seattle.

The strongest evidence in the scientific literature is for chronic tendon problems such as tennis elbow, says Joanne Borg-Stein, medical director of the Spaulding Wellesley Rehabilitation Center in Wellesley Mass. Some studies suggest it can work for thumb and finger arthritis, she adds. The evidence for back pain is conflicting, but Dr. Borg-Stein says she finds it effective in carefully selected patients.

One type of back pain, caused by looseness of the ligaments around the sacroiliac joint—near the hip—responds very well to prolotherapy, says Michael Osborne, assistant professor of physical medicine and rehabilitation at the Mayo Clinic in Jacksonville, Fla.

Scientists say the problem in studying prolotherapy has been that each physician uses different solutions—often custom mixed—and that many doctors combine the therapy with other measures, such as spinal manipulation.

"When you try to make sense of it, you are not going to get a simple answer," says Simon Dagenais, an assistant

professor at the University of Ottawa, and author of a Cochrane Collaboration review on prolotherapy for back pain. The review, last updated earlier this year, found that prolotherapy alone isn't effective for treating chronic low back pain, but that it may be helpful when combined with other measures including spinal manipulation and exercise.

Several high-quality studies have found prolotherapy using a sugar solution no more effective than a control injection with salt water. A 2003 study of 110 people with back pain, published in the journal *Spine*, found patients got about equally better with a glucose prolotherapy injection or with a salt solution.

Critics saw this as a clear indication that the positive results seen by physicians was based on the fact that patients thought the procedure would help them. But advocates argue that the salt-water injections probably stimulated healing as well. "Injection with anything is not a placebo," says K. Dean Reeves, a clinical associate professor at the University of Kansas in Kansas City who specializes in prolotherapy.

Before getting prolotherapy, ask the doctor to be clear about how you will make a decision to end therapy, says Dr. Dagenais. Dr. Borg-Stein says she expects to see 50% to 60% less pain by the third or fourth visit, along with a functional improvement—such as the ability to lift a child or throw a ball. If there's no improvement, it's time to try something else, she says. Patients are commonly sore for a few days afterward, says Dr. Reeves. More serious side effects can include infection, which could result in hospitalization, and bleeding.

Email [aches@wsj.com](mailto:aches@wsj.com)