

# PROLOTHERAPY

Chronic pain is unfortunately a common and challenging condition for patients and physicians alike. The generally accepted definition of chronic pain is pain that lasts more than three months or longer than expected for the injury or trauma that started the symptoms. Chronic muscle, tendon and ligament pain is one of the most difficult conditions to treat in modern medicine. The accepted treatment has been use of non-steroidal anti-inflammatory medications, steroid injections such as corticosteroids or even surgery. These treatments do not restart or effectively promote the physiology of the healing process. When an injury lasts longer than expected, our bodies stop the healing process and change to a maintenance process. In simple terms, this means the tendon, ligament or muscle no longer has inflammation, such as a tendinitis, but rather a chronic thickening called tendinosis. This stage is where our body is no longer trying to heal, but maintains the painful condition. Non-steroidal anti-inflammatory medications remarkably may inhibit the recovery process acutely by stopping our body's natural mechanism to heal. Corticosteroids may give short-term pain relief, but can prevent healing. To jump start the healing process surgery many times actually causes a "re-injury" and so a body can repair itself.

More than 60 years ago, Dr. George S. Hackett, a general surgeon, began using injections with an irritant solution to repair joints and hernias. Dr. Gustav Hemwall learned of this at a medical meeting and began training with Dr. Hackett in his office to learn this technique called "sclerotherapy." The initial notion was that this caused scar tissue, which would tighten the tendons and ligaments. Originally, the injections were toxic to tissue and may have indeed caused scarring. As this technique evolved, the preferred solution was a dextrose solution commonly known as sugar. A solution between 15% and 25% was used and did not cause scarring, but rather re-initiated the healing process of connective tissue, releasing chemicals that use the body's own natural method to heal.

Prolotherapy is becoming much more popular. It is used for various injuries including ligaments, tendons and muscles. Recent use by professional and college athletes has helped increase its popularity. Prolotherapy, though, is not limited to competitive athletes. Individuals with common strains and sprains may benefit from this healing technique. Unfortunately, most insurance companies do not pay for Prolotherapy injections. This is unfortunate since recent research shows a significant improvement with Prolotherapy in conditions such as tennis elbow and knee arthritis. Meanwhile, Corticosteroids injections are covered by insurance, but there is little evidence that they actually increase function or decrease pain long term. Hopefully, this accepted fact will change with the review of recent research.

The first step in Prolotherapy is that the physician makes an accurate diagnosis and determines if the injury will respond to this regenerative technique. Additionally, prior to injection one needs to stop taking any anti-inflammatory medications, aspirin or aspirin-like products, blood-thinning medications, or immunosuppressants which will decrease the initial benefits of Prolotherapy. Smoking also appears to inhibit the effectiveness of Prolotherapy. Additionally, nutritional support (such as protein, essential fatty acids, and vitamin C) prior to any injection is very important and provides the building blocks that help restore injured tissue.

Once a doctor determines an individual is a candidate for Prolotherapy after obtaining a history and performing a thorough physical examination, the patient is again briefed on the procedure. The technique consists of cleaning the skin around the affected area with a cleaning solution. The doctor will anesthetize the areas of injection with a small amount of numbing medicine. Then a different needle will be used to inject a small amount of dextrose solution into the specific sites of injury. These sites have been outlined by doctors Hackett and Hemwall, and have proven to be very effective over the years. Interestingly, the injection usually causes little pain. Following the injection, patients are advised to

avoid antiinflammatory medications and continue with nutritional support. The area injected may require rest, such as short-term use of a sling or crutches. One can expect improvement in the next five to seven days, but the entire healing process may take as long as six weeks. Occasionally more than one Prolotherapy injection is required. Areas that respond to such Prolotherapy injections include the shoulder, elbow, wrist, hip, knee pain, ankle, neck and back.

The complications of Prolotherapy include local irritation and, in rare cases, infection. A sterile technique is used, so the risks for Prolotherapy are no greater than those of any other injection through the skin. In the hands of a skilled practitioner, anatomical landmarks are used so the chances of injuring structures such as an artery or vein are exceedingly rare. The dextrose is absorbed by the body and does not increase blood sugar or worsen diabetes.

Followup after injection is usually at two- and six-week intervals. At the two-week interval, an individual is re-evaluated to see if the Prolotherapy is indeed taking effect. At six weeks, if there is inadequate symptom relief, repeat Prolotherapy may be considered.

Prolotherapy has been accepted and utilized throughout the world. In the United States, institutions such as the Mayo Clinic and Harvard Medical School use this therapy routinely. Dr. Joanne Borg-Stein, medical director of the Spaulding-Wellesley Rehabilitation Center in Wellesley, Massachusetts, part of the Harvard Medical School, routinely uses this technique and finds it effective in carefully selected patients. The Hackett-Hemwall Institute at the University of Wisconsin is the leading training center for Prolotherapy. They also sponsor several medical mission trips to provide Prolotherapy to individuals who do not have access to medications or surgery. I have trained at the Hackett-Hemwall Institute and completed a medical mission trip to Honduras in March of 2013 and worked side by side with several of the world's Prolotherapy experts.

As mentioned, Prolotherapy is usually not covered by insurance. The cost of Prolotherapy ranges from \$200.00 to \$1,500.00 depending upon the body part to be injected. There has been recent evidence that intraarticular (i.e., in the joint) injection of dextrose solution can slow down or even reverse advanced degenerative changes. This is a promising application of Prolotherapy that is currently being researched.

Prolotherapy is a safe technique that injects a sugar solution to help our bodies re-initiate the natural healing process. It can be effective, but it is important that the patient and clinician have realistic expectations and that there is careful selection of patients for injection.

If you have further questions regarding Prolotherapy or other regenerative injection therapies, please contact Donald A. Lakatos, M.D., at (865)577-1914.