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## WHAT IS PROLOThERAPY?

ALVIN STEIN, M.D.

Prolotherapy is also known as non-surgical ligament reconstruction, and is a permanent treatment for chronic pain. Prolotherapy is derived from the Latin word "proli" which means to regenerate or rebuild.

It is important to understand what the word PROLOThERAPY itself means. "Prolo" is short for proliferation, because the treatment causes the proliferation (growth, formation) of new ligament tissue in areas where it has become weak.

Ligaments are the structural "rubber bands" that hold bones to bones in joints - acting like the body's shock absorbers. Ligaments can become weak or injured and may not heal back to their original strength or endurance. Ligaments also will not tighten on their own to their original length once injured. This is largely because the blood supply to ligaments is limited, and therefore healing is slow and not always complete. To further complicate this, ligaments also have many nerve endings and therefore the person will feel pain at the areas where the ligaments are damaged or loose.

Prolotherapy uses a sugar-based solution that is injected into the ligament or tendon where it attaches to the bone. This causes a localized inflammation in these weak areas, which then increases the blood supply and flow of nutrients and stimulates the tissue to repair itself, strengthening and tightening and thereby stabilizing the area.

The response to treatment varies from individual to individual, and depends upon one's healing ability. Some people may only need a few treatments while others may need 30 or more. The best thing to do is get an evaluation by a trained physician in your area. Once you begin treatment, your doctor can tell better how you are responding and give you an accurate estimate.

### List of Conditions that can be treated using Prolotherapy

Chronic Pain resulting from injuries to the ligaments and tendons of the appendicular skeleton has been well recognized. However, soft-tissue injuries to the ligaments, tendons and fascia of the lower back have been largely ignored as a potential source of chronic back pain. Prolotherapy, is a collagen-strengthening injection technique that targets the soft tissues of the lower back.

The treatment is excellent for many different types of musculoskeletal pain, including:

Arthritis	Deep Aching
Back pain	Degenerative Disc Disease
Neck pain	Disc Herniation
Fibromyalgia	Heel Spurs
Sports injuries	Knee Injuries
Unresolved Whiplash	Migraine Headaches
Carpal Tunnel syndrome	Multiple Sclerosis
Torn Tendons, Ligaments and	Muscular Dystrophy
Cartilage	Osteoporosis
Degenerated or Herniated discs	Polio

TMJ  
Sciatica  
Barre-Lieou syndrome  
Cluster Headache

Rotator Cuff Tears  
Tennis Elbow

## How was Prolotherapy Developed?

Historical review shows that a version of this technique was first used by Hippocrates on soldiers with dislocated, torn shoulder joints. He would stick a hot poker into the front of the joint, and it would then miraculously heal normally. Of course, we don't use hot pokers today, but the principle is essentially the same - get the body to repair itself, an innate ability that the body has.

The injection of sclerosing agents first began in the 1830's, when potent chemical irritants were used to treat hernias non-surgically. Prolotherapy in its most current form has been used for over 40 years and is currently used at 5 University centers.

## How it Works

Prolotherapy uses sugar based solutions, which are injected into the ligament or tendon where it attaches to the bone. This causes a localized inflammation in these weak areas, which then increases the blood supply and flow of nutrients and stimulates the tissue to repair itself.

The area where the ligament attaches to the bone or other structures is injected with a proliferant. Normally 15% Dextrose (sugar) mixed with Lidocaine, a local anesthetic. The proliferant solution causes a local reaction or inflammation. The body reacts by laying down collagen that in turn becomes new ligament or tendon tissue. We apply local anesthetics to numb the area to reduce the discomfort of the procedure. The patient may be a little sore for a day or so, but this usually goes away. The injection process is repeated every 2-3 weeks. Patients should not expect results for about 6 weeks. After that the patient will notice the pain level diminishing. The good thing about prolotherapy is that the results are more of a permanent nature. You may need a "booster" injection every year or so after the initial series. If prolotherapy is administered correctly by a trained medical practitioner and the patient is chosen well, there is a 75% chance for the chronic pain sufferer to becoming pain free and for most people to have significantly less pain.

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### Introduction to Prolotherapy

Why Get Prolotherapy? Donna Alderman, D.O.

What is Prolotherapy? Alvin Stein, M.D.

Introduction to Prolotherapy Ross Hauser, M.D.

How Safe Is Prolotherapy? Ross Hauser, M.D.

The Importance of an Experienced Prolotherapist Ross Hauser, M.D.

Non-Surgical Tendon, Ligament and Joint Reconstruction William J. Faber, D.O.

How Does Prolotherapy Work? Marc Darrow, M.D.

When Prolotherapy May Not Work David Harris, M.D.

Twenty Common Questions About Prolotherapy David Harris, M.D.

The History of Prolotherapy Ross Hauser, M.D.

Curing Chronic Pain with Prolotherapy Scott Greenberg, M.D.

Why So Many Turn To Prolotherapy David Harris, M.D.

Prolotherapy and Chronic Pain Ross Hauser, M.D.

Peripheral Joints & Prolotherapy Jay W. Nielsen, M.D.

Orthopedic Medicine: A Non-Surgical Approach to Chronic Pain Lawrence Cohen, M.D.

The Difference Between Prolotherapy, Trigger Points, and Acupuncture Marc Darrow, M.D.J.D.