

# Prolotherapy



## Prolo Your Pain Away

Prolotherapy (sometimes called ligament reconstruction therapy) has been developed for the treatment of chronic pain due to ligament instability and resulting joint, muscle, nerve and structural dysfunctions. Conditions which may benefit from Prolotherapy are:

- Arthritis Pain
- Low Back Pain
- Leg Pain
- Herniated Discs
- Sciatica
- Hip, Knee, Ankle and Foot Pain
- Neck Pain
- Wrist, Elbow and Shoulder Pain
- Headaches
- TMJ (jaw) Pain
- Post Injury/Trauma Pain
- Fibromyalgia
- Sports Injuries
- Loose Joints
- Tendonitis
- Post Fracture Treatment

## What is Prolotherapy

The word comes from proles or proliferate – “to stimulate growth”. A variety of agents have been found to stimulate the growth and regrowth of ligament tissue when injected into the ligament attachment sites. Simply put, Prolotherapy consists of a stimulus on the substance of the ligaments provoking them into self healing.

Historically, Earl Gedney, an osteopath from Philadelphia was the first to use an injection to strengthen sacroiliac ligaments. Dr. George Hackett, an industrial surgeon from Canton, Ohio, active in the late fifties, correlated pain patterns from the strained ligament with instability. He treated thousands of patients with ligament strengthening injections which he renamed Prolotherapy. He reported a 90% improvement in his patients.

Since it is possible with Prolotherapy to stimulate ligaments to become stronger and more elastic, it is quite easy to understand that Prolotherapy, along with proper joint realignment, is the treatment of choice when chronic pain is due to ligament relaxation. Think of it as a kind of “stretchy crazy glue” for the joints.

## The Function of Ligaments

Ligaments are the “stays” which hold the bones of the body together. They constitute a “nylon rope-like” consistency which acts to bind the bones together but also allow flexible movement. They are particularly important for structural stability within the joints and especially the spine. Ligaments are also thought to store elastic energy, like a spring. This springiness of ligaments improves body motion and when they deteriorate, this elasticity and springiness fails.

## Stretched Ligaments

It was Dr. Hackett who introduced the term “relaxation of ligaments”. It is understood that, in injury, the ligaments are frayed and even torn. In the instances of bone fractures, ligaments usually tear before the bone breaks. It is thought, particularly in connection with the spine, that the ligaments become relaxed because of the shrinkage of the intervertebral discs and from direct stretching and damage to the ligaments themselves. Probably both mechanisms are active to different degrees in different people. It is important to also consider that ligaments are rich in pain sensitive nerve fibers and that any damage to them can be the direct cause of pain.

## The Spine as a Common Site for Ligaments

The spine can be described as analogous to a pile of bricks bound together in a mobile column by the ligaments which tie each vertebra to its neighbour creating from this pile a strong and flexible support for the body. It is not surprising that this combination of mobility and support occasionally fails. Through stress, strain, or injury, ligaments can become stretched or weakened.

## The Spine as a Common Site for Ligaments

When the ligaments do not hold the vertebrae in perfect alignment there is a tendency for one or more vertebrae to be displaced or rotated. When this happens the normally perfect and smooth movements can become stiff or “kinky” and the muscles react by contracting or going into spasm to protect the joint. The pelvis, spine, ribs, and neck are particularly prone to minor displacements between the connected joint structures. Chiropractors use the terminology of a “subluxation” to describe this.

Many patients have had the experience they describe as “having put my back out”. Correction with manipulation when properly done can give great relief and restore mobility and function. A common complaint, however, is the ongoing need for these corrections without long term resolution. The underlying cause for the recurrence of these subluxations and abnormal movements is ligament injury or relaxation. By the same token, relaxed ligaments cause muscles to tighten or spasm in an attempt to stabilize the dysfunctional joints.

Often repeated massage, trigger point release and other therapies have little lasting effect. It is only when the ligaments are stabilized with Prolotherapy can the joint function normalize, the muscle tension relax and the spasms release.

## An Integrated Approach to Spinal and Joint Treatment

It is obvious that if something is out of place it should first be put back with adjustments and/or mobilizations and then kept in place by strengthening the ligaments. It is a simple concept.

In cases of chronic low back, thoracic, neck or rib pain, the diagnosis of ligament insufficiency may be made in association with a displacement of the sacrum or spinal vertebrae. In such cases the following procedures are undertaken:

- Manipulation to restore normal alignment of the sacrum, spine and/or the extremity joints.
- Prolotherapy injections, usually weekly, bi-weekly or of longer intervals depending on the case, for six sessions.
- Exercises to ensure healing in the presence of movement

- Nutrients to support the strengthening of ligaments and joints.

Other factors to address that will affect recovery include hormonal status, quality of the diet, general fitness and healthy lifestyle.



*Prolo injection sites for the neck*

## Selecting Treatment

Each method of therapy whether it is allopathic (medicine), physiotherapy, chiropractic etc., promotes its own methods. Patients are often stranded without a shopper’s guide. It is the recognition of this problem which is bringing the orthopedic trained holistic physician and naturopathic physician back into popularity.

The combined use of medicine, nutrients, exercises, injections, manipulation and body-mind approach is to the patients’ best advantage. It is worth the effort to seek out the physician who understands and is trained in these principles.

## All Parts of the Body Benefit from the Integrated Model

These principles are useful in the management of pain and instability of any part of the musculo-skeletal system. It can be very effective for hip, knee, ankle, foot, hand, wrist, and elbow and shoulder problems.

Chronic neck pain and headaches are usually relieved, even after many years of trouble, with Prolotherapy. It is also effective for TMJ (temporomandibular joint) problems, tendonitis, loose joints, sports injuries and fibromyalgia.

The study found that not only did the dextrose solution prove to give statistically significant pain relief against placebo, it was that much better when compared to the procaine solution.

## All Parts of the Body Benefit from the Integrated Model (Cont'd)

The study also found that in follow-up, the pain relief with the dextrose solution remained. The simplest Prolotherapy solution is 12.5% dextrose with 0.5% procaine.

The dextrose makes the solution more concentrated than blood, acting as a strong proliferant. Procaine is an anesthetic that helps reinforce the diagnosis because the patient may experience immediate pain relief after the Prolotherapy injections. The current Prolotherapy technique using this solution has been safely administered to more than 10,000 patients in more than 40,000 treatment sessions, with more than 4 million injections given.

The main side effect has been one to two days of pain after the procedure due to inflammation caused by the injection solution. The dextrose solution, in addition to being safe, will not affect a diabetic's blood sugar level. If a patient is corn intolerant, othe proliferant agents can be used. Such agents include sodium morrhuate (an extract of cod liver oil), or a dextrose-glycerin-phenol solution know as PG2.

PG2 has been used in several double blind studies that prove Prolotherapy causes ligaments to rebuild and grow stronger thicker tissue.

## Exercise

To stimulate the new growth of collagen, the proliferant is injected, but in order to align the new collagen correctly with the existing ligament tissues, it is very important for the structures to heal in the presence of movement. This will protect the ligament from forming adhesions to neighboring structures and increase longitudinal alignment of the new collagen.

You will receive instructions for the correct exercises. These movements, which we have named exercises, are essential. Repetition of the movements ensures proper healing.

As the healing process goes on for several months, it is recommended that patients continue with the exercises for at least 3 months after the last injection.

## Disc Disease, Drugs, and Surgery

Chronic back, leg and arm pain is sometimes due to disc disease. When this is so, medical doctors often recommend anti-inflammatory medication to relieve the symptoms.

Although the pain may be eased in the short term, the drugs do nothing to heal the spine. Studies have shown that the use of these medications actually weaken ligaments and tendons and increase the long term instability in the joints, as well as damaging the digestive system and being a potential cause of death.

A New England Journal of Medicine study determined that 16,500 people in the U.S. die each year from the use of NSAIDs (non-steroidal anti-inflammatory drugs). As well, the FDA recently announced that 450 Americans die each year from the use of acetaminophen (Tylenol).



Often surgery is recommended in an attempt to relieve pressure on a nerve. Although this surgery is often successful in relieving pain, it should be reserved as a treatment of last resort. Not all surgeries are successful, and frequently even successful ones, require further surgery in the future as other discs degenerate because the underlying problems have not been addressed.

Surgery requires a long recovery time as well as having much greater risks than other treatments. There is a 3 – 4% rate of complication for cervical spine surgery, and 4,000 – 10,000 deaths per million neck surgeries. If you are considering lumbar spinal surgery, realize that there is a risk of death of 7 persons per 10,000 surgeries. It should be understood that the presence of disc degeneration is often seen in cases of chronic back pain but it is also often found in individuals without pain.

## Disc Disease, Drugs, and Surgery (Cont'd)

Even though spinal or disc degeneration may be seen on x-rays or MRI, it is not always the actual cause of pain. Disc disease itself is due to ligament relaxation in the first place. It is the abnormal range of movement caused by relaxed ligaments which allows for most of the abnormal strain on the discs.

Therefore, Prolotherapy; ligament strengthening treatment is highly recommended for treating disc problems, even if surgery has been recommended. Orthopaedic surgeon, Dr. Jean Paul Oullette, of Orleans, Ontario, has stated that after more than 20 years he stopped performing disc surgery, relying instead on Prolotherapy to successfully treat these problems.

There are cases of course where surgery is essential and sometimes urgent. Many doctors do realize that in the majority of instances a trial of conservative therapy is best first. Surgeons should, however, recognize that if an operation is needed after Prolotherapy has been used, there is an increase in the thickness of the ligaments, so the dissection can take longer to reach the deeper structures (the nerves and dura).



## Referred Pain

There are instances when the patient feels pain at a site remote from the injured ligament. This is called referred pain. Referred pain from ligaments can mimic sciatica and nerve pain and is often confused with pain due to pressure on a nerve root from an abnormal disc in the spine.

Differentiating between these causes is not always easy, but it is exactly this differentiation that is necessary for the skillful and proper resolution of the patient's complaints and dysfunction. Most cases of back pain, suitably diagnosed, improve with treatment with Prolotherapy.

## Success

Hackett reported about 90% success. Contemporary research shows similar results. In a double blind trial of Ongley's method performed in Santa Barbara in 1986 on 81 patients, 88% reported more than 50% improvement in their back pain over the 6 months the trial was "blinded", and at a year, the improvement was the same.

A similar rate of success is reported from several doctors' offices where circumstances allow the treatment to be offered to a larger variety of patients. Several additional scientific papers have been published on a number of aspects of Prolotherapy. Recurrent pain can develop, but is usually less severe, and more easily treated, often with a single visit to the doctor and perhaps one injection. Patients who are treated are, however, not immune to injury - there are no bionic backs.

## Secondary Effects

Soreness and bruising at the injection site and temporary stiffness are normal. Patients often report a numbness over the injection site and tingling or itching. It always passes. Soreness usually lasts for 1 to 2 days then subsides as the ligaments go through their growth and repair phases.

It is not uncommon as one area of the body begins to recover, that other areas of previous injury begin to display symptoms. This is because the symptom of pain is usually the latest expression of a process of adaptation from previous injuries and degenerative changes.

For example, you might have injured your knee when younger and limped around for a period of time. The limping put strain on the back, but eventually the knee pain stopped. The strain on the back at some point became aggravated with a lifting injury and a disc problem emerged. Prolotherapy would stabilize the lower back, return normal function, but the untreated knee injury may flare up as the body decompensates.

Occasionally, for some patients the correction of old traumas will cause a release of long held emotion. This is a positive sign and indicates that healing is occurring.

## Pain from Injections

The injections themselves may be painful, particularly in the first 2 to 3 visits. For this reason, relaxation methods and local anesthesia of the skin prior to injection may be used. After injection there is usually significant change of sensation with some contraction or release of muscles and changes of blood flow.

For this reason, it may be useful to have a driver for the trip home and plan on resting for a while after treatment. After the second or third treatment, these changes in autonomic nerve function are usually not so profound.

## After Treatment Guidelines

The main side effect from Prolotherapy is one to two days of soreness and stiffness following the procedure. The injected areas may feel achy, and it is common to experience muscle stiffness for a few days.

This can be alleviated through alternating hot and cold compresses over the affected area, as well through the application of a “deep heat” like liniment, such as Tiger Balm.

*It is very important to avoid anti-inflammatory medication while undergoing treatment, as these will defeat the very purpose of Prolotherapy which is to increase inflammation temporarily. This includes anti-inflammatory agents such as Advil, Ibuprofen, Aspirin, Clinoril, Voltaren, Motrin, Vioxx, Celebrex, Prednisone, Cortisone, etc. All of the above will be counterproductive to the healing process of soft tissues and ligaments initiated by the Prolotherapy.*

It is best to take no medication at all but if the pain is bad enough and relief is required, Tylenol, Tylenol with Codeine or prescription opioids may be used. The regular use of MSM and Glucosamine Sulphate may also lessen the secondary pain reaction. Natural anti-inflammatories, such as bromelain, curcumin, proteolytic enzymes, etc., may also inhibit the healing response.

It is recommended that although these substances are generally helpful in the healing of injured joints, their use should be suspended the day of prolo treatment and for 4 days after to allow the natural inflammatory response to occur.

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It is important to note that aggressive exercise may worsen ligament injury and is thus not recommended until Prolotherapy has strengthened the joint sufficiently to provide pain relief. A useful rule of thumb is “If it hurts, don’t do it”.

Once the healing begins, movement and range of motion exercises are useful to facilitate healing. A formal exercise program is helpful after the ligament strengthens and the joint stabilizes to prevent further injury.

It is also important to remember the effect of diet and lifestyle choices on the overall recovery process. Nutritional deficiencies are epidemic in our modern society and this affects both overall health and the healing of ligaments and tendons. Ligaments require proper vitamins, minerals, amino acids, and collagen factors to repair.

Proper diet and nutrition is imperative for healing to occur. Similarly, lack of proper hydration will hinder healing and cause ligaments to shrink. It is recommended that you drink at least 6 – 8 glasses of water per day.

Each injection has a strengthening effect that takes about 6 weeks to maximize. It is important to note that it still requires 1 – 2 months of being pain free after the course of treatment is completed for optimal healing to occur. So don’t overdo your activity just because you have less pain. Let nature take its course.

# Patient Aftercare Instructions Following Prolotherapy Treatment



**IT IS IMPORTANT THAT YOU READ ALL OF THE FOLLOWING INFORMATION**

- You can expect to have increased discomfort for 3 – 10 days after the Prolotherapy injections because the solution is causing a healing inflammatory response.
- This may cause you to feel like you had the sprain or arthritis flare-up all over again for a few days and is a good sign that you are getting a proper response to the injections.
- Do not be concerned if you do not have any discomfort from the injections or any pain, or if the pain you are being treated for goes away permanently after the injections. This occurs in 10% of the patients. You can expect some bruising, local swelling or tenderness at the injection site.
- Some patients prefer to go home and rest after treatment, but others carry on with their work or other activities immediately after treatment.
- Ice packs are the most useful method of controlling discomfort and swelling after injections. This is particularly important in the first 24 – 48 hours and heat should not be applied during this time period.
- After 48 hours, either heat or ice packs can be used, depending on your own comfort. Do not use either heat or ice for more than 15 – 20 minutes out of each hour. Do not fall asleep on a heating pad. An inexpensive and convenient ice pack is a large bag of frozen peas or corn, which can be refrozen for reuse.
- Strenuous work or sports may need to be stopped or modified for 2 or 3 weeks after injections to give the tissue repair a chance to mature. The growth pattern of tendons and ligaments should be complete in 6 weeks after each set of injections.
- Do not take Aspirin, Advil, Vioxx, or other arthritis-type pain medicines or anti-inflammatory drugs. Stop them if you are on them now. These medicines stop inflammation, so they stop any healing or repair that Prolotherapy is intended to produce. It is also wise to avoid them if you have a fresh sprain, as they prevent the natural healing of the sprained structures. If you have been instructed to take one Aspirin a day for your heart, continue to take it. One Aspirin a day will not interfere enough with Prolotherapy to matter. Narcotics, like codeine or hydrocodone, may be prescribed if needed for short term use. Extra strength Tylenol may be used for less severe pain. Do not use Tylenol if you are drinking any alcohol.

**If you have any questions or concerns,  
please contact us at:**

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P: 604.738.1012 ext 1**

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