

These symptoms occur less frequently as the series of injections progress and are very rarely severe enough for patients to want to cease treatment. The glucose solution can be diluted for those patients who are particularly sensitive. There may also be bruising at the site of injections. The skin is cleaned with antiseptic before treatment to reduce the risk of infections. Please avoid pools and spas for 24 hours to minimise the risk of infections.

Rare, but possible, complications from any injections include increased pain, swelling bleeding, infection, numbness, weakness, nerve injury, spinal headache due to unintended lumbar puncture, respiratory difficulty due to muscle spasm or pneumothorax, arrhythmia or allergic reaction. The level of risk is generally associated with the specific area being treated.



## OTHER TREATMENTS

Prolotherapy is ideally part of a whole treatment plan. You can continue your general exercises, strengthening and rehabilitation and have massage, acupuncture, mobilisation and manipulation treatment, if required. Please discuss with your prolotherapy doctor any timing and/or modifications that may be required.

Behavioural and psychological therapies can play a valuable role in helping you manage pain and adjust to any changes in function. Medications such as anti-depressants can be taken.

Your doctor may provide prolotherapy in conjunction with other regenerative treatments such as PRP (Platelet Rich Plasma) or perineural injection treatment.



## HOW EFFECTIVE IS PROLOTHERAPY?

Many clinical trials and systematic reviews assessing the efficacy of prolotherapy have been performed. We are yet to determine the exact mechanism of action of prolotherapy and there have been conflicting results from the research. More research is currently being undertaken.

Prolotherapy has demonstrated more long term benefits and less side effects than cortisone.

Studies show that prolotherapy is a safe, well tolerated treatment option for many chronic musculoskeletal conditions.

Prolotherapy can provide improvements in pain, function and quality of life.

Two Australian prolotherapy studies are listed below:

- Yelland MJ et al Prolotherapy injections, saline injections and exercises for chronic low-back pain: a randomised trial. Spine 2004;29:9-16
- Cusi M and Saunders J et al The use of prolotherapy in the sacroiliac joint. Br J Sports 2010;44:100-4



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# Dextrose Prolotherapy

*A regenerative injection therapy that stimulates the growth of connective tissue to strengthen weakened ligaments, tendons and joints.*

*A non-surgical approach to managing musculoskeletal pain and injuries by treating the cause of the problem.*





## WHAT IS PROLOTHERAPY?

Prolotherapy is a safe and effective regenerative injection treatment that increases strength and stability in ligaments, tendons and joints.

These injections aim to treat the cause of the pain and have the potential to offer longer lasting relief than some other treatments. It may be an alternative to surgery, long term pain medication use and cortisone.

Weakened ligaments and tendons are believed to be a common cause of musculoskeletal pain, joint pain and instability.

Prolotherapy injections contain 15-20% glucose (dextrose) and a small amount of local anaesthetic (lignocaine). The strong glucose and the mild trauma from the needle are thought to cause inflammation which triggers the immune system to restart the healing and repairing process. New stronger collagen fibres are formed, strengthening weakened ligaments and tendons and reducing pain and disability.



## TREATMENT SCHEDULE

Before treatment is commenced, an initial assessment is done by your doctor to decide if prolotherapy is suitable for you. This typically includes providing a medical history, undergoing a physical examination, and, in some cases, having an X-ray, scan or blood tests.

Prolotherapy is a regenerative therapy which will require several treatments before ligament strengthening occurs and improvement is noted. To achieve lasting results, a series of injections is needed, spaced approximately 1-3 weeks apart. Typically, 6-8 treatments are needed for low back, 4-5 treatments for the neck, hip and shoulder and 3-4 treatments for the knee.

Different joints/areas can be treated during the same visit, if needed. No injection treatment is totally pain-free. If required, you can take paracetamol or codeine/tramadol ½ hour prior to treatment.

***For optimum results, your doctor may advise ceasing anti-inflammatory medications for 7-10 days prior to your treatment. These include aspirin, ibuprofen, diclofenac and meloxicam.***



## TECHNIQUE

If needed, the overlying skin can be numbed with an injection of local anaesthetic. Local anaesthetic is also included in the injections to reduce injection pain and may allow your nervous system to reset itself to a level that tolerates pain better.

Prolotherapy solution is injected into several tender, weak areas of the ligament or tendon to promote repair. Glucose injected into joints may encourage regeneration of worn cartilage. Prolotherapy injections can also be used to treat muscle trigger points.



## WHAT CONDITIONS CAN BE TREATED?

Prolotherapy can be used to treat a number of conditions, some of these include:

- Osteoarthritis
- Low back and sacroiliac joint pain
- Shoulder pain and rotator cuff injuries
- Tennis elbow
- Achilles tendinopathy and plantar fasciitis
- Joint laxity and instability (hypermobility and connective tissue disorders)



## NUTRITION

Vitamin C, zinc and manganese are building blocks for collagen. In addition to a healthy diet, with plenty of protein and vegetables, taking these nutrients in the form of supplements seems to improve the efficacy of prolotherapy.

**Vitamin C 1-2g per day**

**Zinc 15-30mg per day**

**Manganese 5-20mg per day**

Your doctor may also recommend:

Magnesium 300-600mg per day to help reduce muscle tightness and a collagen supplement to increase protein intake.



## WHAT ARE THE SIDE EFFECTS OF TREATMENT?

Side effects are minimised by using careful injection techniques and ultrasound guidance, however side effects can still occur.

The main side effects of prolotherapy injections are a mild to moderate flare in pain (a deep, dull ache) and stiffness. This usually occurs during the first 48 hours after treatment, but could last just a few hours or up to seven days after the injections. It is temporary and usually well controlled with simple pain relief medication such as paracetamol, heat packs and gentle walking/movement.

Please avoid anti-inflammatory medications like aspirin, ibuprofen and diclofenac for 7 days. The post-treatment discomfort is due to the inflammation caused by the injections to help stimulate the healing process.