**Prolotherapy & Injection Therapy**

**Prolotherapy is a safe, effective injection treatment which provides increased strength in joints, ligaments and tendons by making new connective tissue. It can eliminate even chronic longstanding foot, ankle and knee pain.** The solution is usually 20% or less glucose and mixed with local anaesthetic. Sometimes the patient’s own blood (autologous blood injection) may also be used. Prolotherapy was developed by a USA surgeon, George Hackett in the 1940’s and has been refined and researched by many other doctors since. It is used in several different ways:

**Ligament strain**

Strained ligaments leave muscles and joints weak and unprotected, and cause muscle spasm and instability leading to osteoarthritis in joints. They can also become strained if overstretched constantly. Suprisingly mobility following prolotherapy has been shown to increase. This is because stiffness is often due to protective muscle spasm and once the pain from the ligaments is relieved, the muscle relaxes. There are more than 60 research reports published in medical journals showing that the technique is more effective than most other treatments for these problems.

**Tendinopathy**

When tendons are overused they become painful and occasionally fail to heal due to excess VEGF (Vascular Endothelial Growth Factor). The swollen or torn tissue can be seen on ultrasound, and with modern techniques, neovessels can be seen around the tendon. They have nerves alongside them which are painful. The usual treatment for tendinopathy in knees, Achilles tendon and Posterior Tibial tendon is rest, then very slow increase in exercise. The glucose in the prolotherapy solution inhibits VEGF and allows the healing to occur more quickly.

**Neuropathic pain**

Pain can be due to injury to the nerves themselves. If there is restriction of the fibres of a nerve, the nutrients can’t flow down the fibres, so the ends of the nerves can’t repair themselves and become pain generators themselves. These points are extremely tender. Inflammation in the nerve (neurogenic inflammation) causes inflammation in the soft tissues and joints, preventing healing. The glucose/water mixture allows healing in the nerve itself and the tissues it supplies. This new technique was developed by Dr John Lyftogt in NZ and is called Neural Prolotherapy. It is done with very fine, short needles as the nerves are cutaneous nerves, close to the skin.

**Osteoarthritis**

Ligaments are vital for joint stability. If strained and loose, the joint slips and slides out of the track it was designed to follow, and the cartilage becomes worn causing osteoarthritis. Prolotherapy for worn joints (knees, ankles, subtalar, tarsometatarsal and metatarsophalangeal) involves treatment of the ligaments around the joint and usually injection into the joint, as it also stimulates the growth of cartilage. This has been seen on xray in some knees.

**The technique**

The solution is injected to where the pain is coming from. Usually many different points must be injected. The local anaesthetic brings relief from pain in a short time. This can be useful diagnostically; especially if there has been some doubt as to where the pain was coming from. Then inflammation begins – and pain may occur and may last about 2 days. Pain relief is used if necessary.

**How many treatments?**

A series of 2-6 injections are usually necessary. The spacing of the treatments varies from weekly to monthly. Two weeks apart is a good time.

**How effective is it?**

A success rate of about 88% is reported by US doctors for low back pain. Research has shown that this treatment is significantly more effective than injecting local anaesthetic alone. An Australian study of very chronic back pain found that 20% became pain free and over 40% had at least 50% reduction in pain. Many more reports of success have been published for other joints – knees, whiplash neck, fibromyalgia, jaw joint, pubic symphysis, fingers and thumb joints.

**Are there any risks?**

With any injection there is a slight risk of infection, bruising or reaction to the substance injected such as the anaesthetic. There may be soreness after the procedure for a day or two. When injecting near nerves there is slight risk of nerve injury. Most of the time there is no adverse reaction beyond very minor bruising at the procedure site. Care, knowledge and skill on the part of the practitioner treating you can minimise risk.

**Can I drive home afterwards?**

In most cases yes. If a nerve block is performed as a part of the procedure a large part of the foot may be numb and driving home afterwards would not be recommended. It is always safer if possible to have an accompanying person to drive. In some cases numbness may be present for 12 hours.

**What can I do to help?**

**Avoid aspirin, other anti-inflammatory drugs or liniments. For pain relief** use paracetamol, dextropropoxyphene or codeine. **Exercises** may be necessary to re-educate correct muscle patterns. They can begin immediately or when pain has decreased. They should not be painful.

**Nutrients are very important** to encourage good health and repair of ligaments, tendons and bones and should be taken until 3 months after the end of treatment.

* **Vitamin C** 1000-2000mg/day (makes strong connective tissue, helps healing)
* **Manganese (as chelate)** 5-10mg/day (essential for discs, cartilage)
* **Zinc** 15-30mg/day (wound healing, important for new protein)
* **Vitamin D** from sun (10-20min) or Vitamin D3 supplements

People who eat lots of vegetables, wholemeal bread, nuts and meat, fish, chicken and eggs will do better than those who eat lots of sweet foods and breakfast cereals and white bread and pasta.