



## Injuries & Swelling

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Most people only relate the word lymph to breast cancer however the lymphatic system is an integral part of every healthy body. This system is involved in the day-to-day management of our fluids, it's part of our immune system; and it is one of the causes of swelling in musculoskeletal injuries.

The lymph system is most similar in design to our veins. Throughout the day, fluid (plasma) from the arterial capillaries leaks into the tissue spaces to an area called the interstitial space. Most of this fluid is absorbed by the tissue cells or reabsorbed by the veins. The small amount that is left behind is primarily made up of protein molecules that are too large to re-enter the veins. These proteins are returned by the lymphatics.

Each day about 50% of your total blood proteins leak out of the capillaries into tissue fluid and are returned to the blood via the lymphatic system. If anything blocks the lymphatic return such as fascial\* restrictions in the tissue, tight muscular structures due to injury or overuse, infection, disease, (or if blood osmotic pressure falls below normal) then fluid imbalances will occur and there will be swelling.

The swelling that comes from the impairment of the lymphatic system can be massive as these protein molecules are hydrophilic - meaning that they attract water. The longer they remain the more fluid will be drawn into the tissues. Any abnormal fluid accumulation, whether it is caused from an acute or chronic injury or from disease can prolong tissue healing time and cause tissue death.

Most of us are aware that the surgical removal of lymph glands can cause a permanent impairment of lymphatic drainage, however, lymph mediated swelling is often a temporary and unrecognized part of musculoskeletal injuries. Trauma to these vessels will impair the efficiency of the system and results in excessive swelling.

The use of a massage technique called manual lymph drainage can be helpful in reducing this type of swelling. It is different from other types of massage as it redirects the lymph to other areas where the lymph system is still working efficiently. It is also much gentler than other forms of massage treatment.

Manual lymph drainage can often be used immediately post-injury. It can dramatically decrease the pain as the pressure is relieved off the nerve endings. It is much easier to regain your range of motion as the reduction in pain and tissue distention allows you to move more freely. It also improves the quality of healing as the rapid improvement in circulation reduces the formation of fibrinogen and prevents the formation of adhesions and scarring.

A registered massage therapist or physiotherapist can help determine whether you are a candidate for this technique as well as advice on how to avoid re-traumatizing the tissues. This approach for early injury management will help ensure the most rapid recovery to full activity.

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\* fascia - a fibrous membrane that sheaths the muscle