The game of netball is a thriving sport in Australia and it’s no wonder! In fact, netball is ranked number 6 in the top ten sports and physical recreation activities in Australia. But like any sport, it takes its toll on the player’s body and opens the door for a wide range of massage therapy treatments.
In this article we will discuss how the fast and dynamic nature of netball affects muscles, the main injuries involved and the preventative techniques adopted in association with netball landings.

According to the Australian Injury Report by Dr Gary Egger, 58% of injury costs in netball relate to ankle and knee injuries. The physical demands of netball require "rapid changes in direction, combined with twisting, turning, running and jumping." (Patsy Rochester)

Many muscles are used during the mechanics of landing; however, it is those structures that provide support and stability which are most vital. "To safely arrest their own motion, athletes apply a stopping force to their bodies over as large a distance and time frame as possible, and try to spread the impact over as big an area as possible. In this way pressure applied at any one spot of the athlete's body is reduced." (Gary Carr)

If we consider a netball landing in which we have a very small amount of time, distance and area to reduce motion and the rules which state that only one-and-a-half steps are allowed while in possession of the ball, it is not hard to understand how this places large forces on the body, particularly on ligaments, muscles and other supporting structures of joints, especially the knee joint.

Studies have shown horizontal or braking forces to be 3.0-3.8 times the body weight, and forces in a vertical direction to be 3.9 - 4.3 times the player’s weight. The body is suited biomechanically to take more vertical forces than braking forces in the landing action.

Research has been conducted and guidelines have been devised to help reduce these common injuries in landings. They involve a higher ball pass, which requires the player to jump and catch the ball in a vertical manner, thus decreasing the braking forces, which are transferred through the body. However, it must be noted that injuries can occur (although less frequently) as a result of vertical forces. The player should also be encouraged to adopt a neutral foot position when landing, also ensuring adequate hip, knee and ankle flexion.

Injury to the knee and ankle may be due to either onset; the result of a single incident or gradual onset; or a repeated trauma over an extended period of time. In this case we will focus on muscular strains, their prevention and rehabilitation.

There are four main types of muscular injury.

They are:
- Exercise induced muscle soreness also known as DOMS (Delayed Onset Muscle Soreness)
- Muscle strains
- Muscle contusions or bruises
- Muscle avulsions or tears

The Three Most Common Muscular Injuries in Netball

1. Exercise induced muscle soreness / DOMS

Often experienced early in the season, due to a training break. Eccentric muscle work generally causes an increase in muscle...
soreness through minor tears of the muscle fibres.

2. Muscle strain

There are three grades of muscle strain:
- Grade 1 – Mild;
- Grade 2 – Moderate;
- Grade 3 – Severe.

Causes of a strain include a sudden stretch to catch or intercept a ball; an inefficient warm-up; or due to the introduction of a new training program or skill.

3. Muscle contusion or bruise

This is the result of contact with another player (although netball is a non-contact sport), or contact with stationary objects.

Appropriate Massage Treatments

Treatments for these conditions will vary, and must be done with caution. Massage in the early stages of muscular injury is unwise, as it may cause an increase of bleeding in the tissues and will therefore delay healing.

Muscle actions can be of varying types – isotonic, isokinetic or isometric. Our focus is on isotonic, and in the instance of a netball landing, eccentric contraction, controlled lengthening under tension.

The self-massage techniques that have been developed are for the prime movers and stabilisers of the knee and ankle, where the majority of injuries occur. All of the massage techniques are done in a seated fashion, either on the edge of a chair or while seated on the floor. Lubrication is optional.

Initially it is advisable to begin with lighter strokes, assessing the area for particular areas of tenderness. In a pre-match massage the purpose is to warm up body tissues, through an increase of blood flow to the region, thus preparing it for the dynamics of the game. We are also trying to decrease abnormal muscle contraction, and residual hypertonicity. In this case a more vigorous stroke technique would be used rather than the flowing technique used for a post-match recovery massage.

Use of a tennis or golf ball is also beneficial when massaging areas, which are hard to reach such as the gluteals. Place the ball in areas of tenderness, and use increasing pressure. Partner massage is also beneficial which can be done using a netball. Lying prone and then supine, the entire body can be massaged by rolling the ball across the muscle bellies.

In conclusion, to maintain the normal integrity of the musculoskeletal system, netballers should be encouraged to carry out an efficient warm-up, including stretching. This is most vital in a tournament situation. Consideration should also be given to strengthening work of the muscles involved in landing. This would be most beneficial if carried out in an eccentric manner, to replicate the forces applied to the muscles and other structures during landing.

Adopting a self-massage and stretching regime holds many benefits in a warm-up or cool-down scenario, or as part of a daily routine.
SELF-MASSAGE TECHNIQUES

Quadriceps

Palmar compressions, shake and squeeze along the extent of the thigh. Knuckling along the ilio-tibial band, and fascia superior to the knee, and the tenser fascia lata, is advantageous as much of the tightness is located there. Use of the elbow and forearm is also useful. Digital ischaemic pressure to the muscle bellies, focusing in on areas of excess tone and tenderness.

Hamstrings

Shaking, squeezing, gliding with knuckles and rolling of the forearm to the muscle bellies to the Gastrocnemius, soleus and tibialis anterior and posterior.

Working down the muscle belly, gliding strokes, using increased digital pressure. Work all the regions from anterior to posterior, using ischaemic compressions to areas of increased tone or tenderness. Shake and squeeze the gastrocnemius and soleus.

The following lower body stretches for netball players are important in raising the heart rate and muscle temperature prior to stretching. Exercises using large muscle groups are most appropriate aiming especially at muscles that are used during the game. An example includes running, jumping, lunging and squatting.

When stretching specific muscle groups it is important to emphasise that the other areas of the body need to be stabilised. For example, the stomach muscles should be tightened and lower back flattened before stretching quadriceps and hamstrings.

**Hip Flexor**

Take a large step forward with right leg, lower, lower left knee to the floor. Keep both hands on right knee, tuck buttocks under and keep torso upright. Gently bend right knee to increase stretch — repeat on other side.

**Long Adductors**

Keep hands on hips. Take a step sideways with left leg. Keep both feet flat on the floor, slowly bend right knee until stretch is felt in left adductors — Repeat on other side.

**Hamstring Stretch**

Lying on back raise left leg to 90 deg with knee straight. Interlock fingers behind left leg and ease leg towards chest — Repeat on other side.

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THE HISTORY OF NETBALL

The game of netball was originally an offshoot of basketball, which began in both the USA and England in the 1890s. Women quickly adapted this original version of basketball to suit their social and dress restrictions of the time and thus netball was born.

Although the first set of rules was not published until 1901, the Chambers Encyclopedia of Sports Records shows that the first game of Netball was played on grass in England in 1892, with clothes props for goal posts and paper bags for baskets.

History records reveal that netball was introduced to Australia by English school teachers around 1912.

In 1927 the All Australian Women’s BasketBall Association (AAWBB) was formed and promoted seven-a-side netball. There were no standard rules at this time and there was a nine-a-side and a five-a-side version of the game. On an Australian tour of England in 1957, discussion about the standardisation of the playing rules lead to the formation in 1960 of the International Federation of Basketball and Netball Federations (IFNA). It was recommended at this meeting that international tournaments be held every four years. The first of these World Championships was in 1963.

In 1970 the title “All Australia Netball Association” was adopted and the game was officially named “Netball”. Recent rule changes have meant that the modern international game is extremely fast and exciting. Netball at the international level is controlled by the International Federation of Netball Associations (IFNA), which was formed in 1960. It is estimated that over two million players are active in the game all over the world, including Barbados, Bahamas and Jamaica (West Indies), Sri Lanka, India, Fiji and Vanuatu (in the Pacific), Hong Kong and Singapore (in South-East Asia) and Kenya, Tanzania, South Africa and Namibia(n in Africa). The top netball nations are Australia, South Africa, New Zealand, England, Jamaica and Trinidad & Tobago. Australia has won the World Championships a record seven times in 1963, 1971, 1979, 1983, 1991 and 1995.
Quadriceps Stretch

Face wall and reach behind with left arm to secure right foot (over laces). Gently draw heel towards buttocks. Use right hand to balance against wall — repeat on other side.

Gastrocnemius Stretch

Stand a metre from wall with toes pointing forward. Step towards wall with right leg and lean on wall. Slowly straighten back leg and keep heel on floor and ease hips towards wall — repeat on other side.

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