Quadriceps Contusion.
(‘Dead Leg’ or damage to a muscle through impact)

What is a contusion?

This type of injury is a regular occurrence in football where collision and impact are common. An impact to the muscles (from another player's knee or foot) can cause damage to the muscle, resulting in bleeding and swelling (See Figure 1). In football the most common place to receive a contusion is on the thigh muscle. It is often called a ‘dead leg’, ‘corked thigh’ or haematoma. This type of injury is important to get assessed and treated as soon as possible.

There are two types of contusion:

**Intramuscular:** This is a tearing of the muscle within the sheath that surrounds it. The initial bleeding that occurs may stop early (within hours) because of increased pressure within the muscle. The fluid is unable to escape as the muscle sheath prevents it from changing location. The result is considerable loss of function and pain, which can take days or weeks to recover. The player will not notice any bruising occurring with this type of injury, especially in the early stages.

**Intermuscular:** This is a tearing of the muscle and part of the sheath surrounding it. This means that the initial bleeding will take longer to stop. However, the player’s recovery is often faster than intramuscular as the blood and fluids can flow away from the site of injury. The player will notice a lot of bruising around the muscle.

It is important that a sports injury professional assess the severity of the contusion to determine diagnosis and prepare a management plan (The time off football could vary from several days to weeks). For best treatment and accurate monitoring of progress, it is important that the identity of the exact muscle involved is determined.

What are the symptoms?

A player will usually remember a specific incident during training, when they have been kicked or ‘kneed’ in the thigh - it is usually very painful. Sometimes the player is unable to play on and they may have restricted movement or stiffness in their thigh muscle or knee joint. A player will notice this especially after training or playing as they warm down. Often there is swelling or bruising on the thigh or knee.
What can the player do?

The most important period in the treatment of a thigh contusion is in the first 24 hours following the injury. Upon suffering a thigh contusion, the player should be removed from the field of play and the R.I.C.E. treatment (Rest, Ice, Compression and Elevation) started immediately. The importance of rest and elevation of the affected leg must be emphasized. A compression bandage should be applied firmly to the thigh muscle until you feel no pain (See Figure 2). The player must be careful not to aggravate the bleeding by excessive activity, alcohol ingestion or the application of heat.

The player can begin gentle pain-free quadriceps stretching, after 2 days. They should hold the stretches for 30 seconds and repeat up to 10 times daily (See Figure 3).

The player can check after 3 days whether the swelling has gone. If it has not disappeared then they probably have an intramuscular injury. If the bleeding has spread and caused bruising away from the site of the injury, then the player probably has an intermuscular injury. If a player is more able to contract the muscle, they probably have an intermuscular injury.

It is important that the correct diagnosis is made because if the player tries to exercise on a complete rupture or a bad intramuscular injury they will inhibit healing, thus making things worse and delaying their return to football. If things have not improved or the player is concerned they should see a sports injury professional (sports doctor or physiotherapist).

What can a sports injury professional do?

A physiotherapist can use a number of different techniques to help the recovery after a contusion. Sports massage techniques are useful to facilitate the removal of swelling and bruising, as well as breaking up adhesions and tight muscles (See Figure 4). After a moderate to severe contusion there is a considerable risk of a re-bleed in the first week. Massage therapy is not recommended for 48 hours following contusion. After this, massage therapy may be used but great care must be taken not to aggravate the condition. Treatment must be light and produce absolutely no pain. Therefore, care must also be taken with stretching, electrotherapy, heat and massage. The player must be careful not to overstretch – stretching should be pain-free. A physiotherapist will be able to advise the player on when and how ‘far’ to stretch. Some physiotherapists will use ultrasound and/or electrical stimulation (See Figure 5). A rehabilitation program will be given, including stretching and strengthening exercises and most importantly advise on when the player will return to running, training and playing. This will depend on the diagnosis.