



SOFT TISSUE INJURY:

QUAD STRAIN

The quadriceps muscles sit on the front of the thigh and help extend the knee and flex the hip.

The quads are made up of four muscles:

Rectus Femoris
Vastus Lateralis
Vastus Medialis
Vastus Intermedius

The rectus femoris crosses both the hip and knee joints and is the most superficial quad muscle, this leaves it more susceptible to strains and injuries.

Three common mechanisms of injury:

- Sudden deceleration of the leg
- Violent contraction of quads
- Rapid deceleration in overstretched leg

Most commonly occur with sprinting, jumping or kicking

Acute injuries due to a single traumatic event causing micro-trauma to the muscle.

Overuse injuries occur over a longer period of time causing repetitive micro-traumas to the muscle

4 types of skeletal muscle injuries can occur

Strain occurs when muscle fibres cannot cope with demands placed on them by exercise

Contusion is a traumatic blow, deep bruise

Cramp is the sudden involuntary muscle contraction

Soreness sore, aching and painful feeling in muscles after unfamiliar or higher intensity exercise.

Muscle strain Grading: dependent on severity of the injury

Grade 1 = mild strain, only a few muscle fibres. A twinge may be felt in the thigh with a general feeling of tightness. Swelling is unlikely, but a lump or area of spasm at injury site may be felt

Grade 2 = moderate strain, more muscle fibres but not a complete rupture. Recovery time is longer and produces significant sharp pain at time of injury and some loss of function. Straightening the knee against resistance is likely to cause pain.

Grade 3 = severe tear, most of the muscle fibres torn or complete rupture. Swelling and significant bruising and sudden pain in the front of the thigh can occur. Unable to walk unaided.

Recovery and Rehabilitation

Initially the goals are to control any inflammation, swelling and pain.

Rest preventing any further injury and allowing the healing processes to begin. Reduce the amount of walking and stressful activity.

Ice can help to reduce pain around the quad muscle. Apply for 10-15 mins a day every couple of hours for the first few days after the injury.

Compression can be useful at the acute stage of injury to provide support and reduce swelling initially.

The rehabilitation goals then shift towards regaining full pain-free ROM and resuming normal weightbearing and walking before strengthening and maintenance of aerobic fitness and functional training.

Full ROM, movement, strength, balance and proprioception should be restored as you return back to sport / activity fully.

During the stages of rehab **massage** can be beneficial alongside **foam rolling** and regular strength work and stretching. A guided rehabilitation program can be key in helping you successfully return to sport and prevent further injury from occurring.

