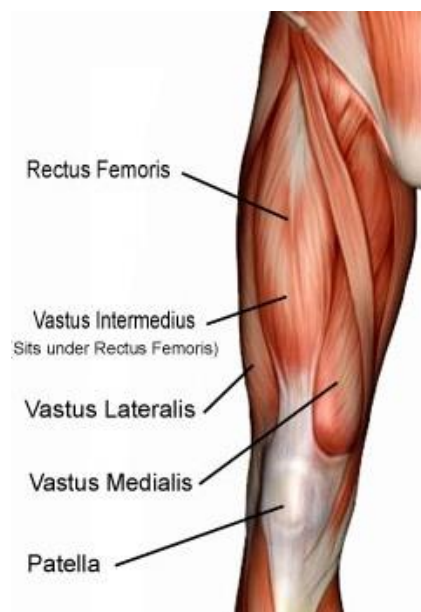


## Quadriceps Injuries

The quadriceps muscle is a group of four muscles on the front of the thigh. All four of these muscles join together to form the patella tendon which crosses over the knee joint to insert onto the front of the tibia, making them powerful extensors of the knee joint. The quadriceps are therefore crucial in walking, running, jumping, squatting and almost any other activity involving the leg. Three of these muscles (Vastus medialis, Vastus lateralis and Vastus intermedius) act on the knee joint alone. However the fourth muscle, Rectus Femoris, attaches higher up on the pelvis and so not only extends the knee but also flexes the hip. Because Rectus Femoris is a two-joint muscle, it is the muscle that is most susceptible to injury, ranging from a mild strain of the muscle fibres (Grade I injury) to a complete tear of the muscle (Grade II injury).



Quadriceps injuries must be managed carefully as the muscle plays such an important role in day-to-day activity. Regardless of severity, in the first 3-5 days the injury should be treated with the RICE regimen (Rest, Ice, Compression, and Elevation). Following this, treatment to restore range of motion and later to strengthen the healed muscle is required.

When returning from a quadriceps injury, a lack of pain is a poor indicator of when it is safe to return to sport. A recent study found that while the muscle quickly regains its ability to generate force after it is injured; its ability to withstand this force is decreased for a significantly longer time. This means that the muscle may in fact be strong enough to re-tear itself.

A carefully managed strengthening program as well as a graded return to sport is the safest way of managing a quadriceps strain. Specific exercises to strengthen the muscle in the positions that it must work in while running and jumping have been shown to decrease the risk of re-injury, and a slow build-up of running intensity and distance allows the muscles to return to pre-injury workload.

Other factors that can influence your susceptibility to quadriceps injuries can include tight muscles, poor motor control, weakness and poor technique. Your physio is able to check these factors and address them if need be, as well as customise a program to return you to sport with a minimal chance of re-injury.