



CYCLING INJURIES

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In June this year I joined a team of 40 cyclists for a 1200km ride through the Alps, Geneva to Cannes. In 9 days riding they climbed no less than 18 mountains often spending 12 hours in the saddle! My role as Physiotherapist was to keep them fit enough so they could reach their goal of cycling all the way to Cannes, and raise their target of £100 000 for the Leukaemia charity, Leuka.

With increasing popularity in cycling thanks to Ken Livingston's congestion charge and over-crowded tubes, participation in both commuter and mountain biking has grown over the past few years. Cycling is an excellent alternative for those seeking low impact exercise, however at Physio4Life we have seen a growth in the number of cycling related injuries.

Injuries may be related to improper bicycle fit, poor technique or training patterns. Cycling is very repetitive, during one hour of cycling, a rider may average up to 5000 pedal revolutions, that's over 20 000 in a day's bike ride!

The smallest amount of malalignment can lead to poor muscle recruitment, pain, and decreased performance.

Overuse injuries occur when a tissue accumulates damage by repetitive loading. Without adequate recovery or correction, this damage can cause an inflammatory response, eventually leading to a specific injury, for example tendonitis or cartilage breakdown. Often this can be made worse by sudden changes in training intensity or duration, or equipment, for example cycle set-up.

Over-use injuries, especially knee pain, are commonly seen in cyclists, whilst we may also see ligament strains, fractures or dislocations following a fall.

If the bicycle is not set-up correctly, it is hard for the cyclist to engage the core muscles, or the more powerful muscles such as the gluteal muscles. Whilst this leads to early fatigue and poor mechanical efficiency, this would also increase tension in muscles around the knee or leg, for example, potentially leading to knee pain, or ITB syndrome.

Commonly cyclists experience low back pain, particularly after a prolonged ride. This is usually a result of tight hamstrings, or the handlebars being too far forward, which over-rotates the pelvis as the rider reaches forward. If the bars are too low and too far away, the rider must reach forward, transferring weight onto the upper trapezius and arm

muscles, away from strong supportive muscles of Latissimus Dorsi. This will not engage strong trunk muscles and could lead to poor stability at the pelvis whilst riding.

Strong core muscles are associated with greater efficiency and power. The trunk works like a stable anchor. A weak core will mean smaller limb muscles have to work harder leading to reduced power output and higher fatigue.

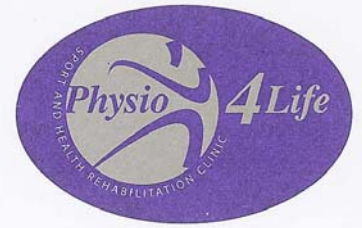
The feet may often be over-looked by riders as the sport is considered non weight-bearing. However, when using cleats, the biomechanical chain both starts and finishes at the feet. If the rider has dropped arches, the lower leg will naturally inwardly rotate, and this will put pressure around the knee and hip, increasing chances of ilio-tibial band syndrome, anterior knee pain, back pain. Customised orthoses (such as can be made at Physio4Life) may be necessary for correction. Shims under cleats may be used to correct any leg length difference.

Due to the repetitive nature of cycling, a small problem can become a bigger problem very quickly.



If the saddle is too high or too far back, the rider may experience back pain as excessive lateral movement at the back and sacro-iliac joint will occur to increase leg reach. If the rider is having to fully straighten the knee on the downstroke, the ITB can become irritated due to friction on the outside of the knee.

Prolonged training without stretching will pre-dispose riders to muscular-related injury. Inflexible hamstrings or tight quadriceps will alter the leverage around the knee, causing



the patella to incorrectly track, or lead to early wear and tear of the joint cartilage. With excessive hill-work or pushing a high gear ratio this is intensified.

All training should be undertaken slowly and gradually, for example increase distance and intensity by 10% each week during build-up periods. It is also important to combine cycle training with resistance work to improve general strength, core stability programs to improve performance, and stretching to maintain flexibility. At Physio4Life we assess and treat biomechanics so that the above injuries are minimised. Our rehabilitation programs are focused at looking at the whole picture, including cycle set-up, so that we may keep you all cycling!