Knee pain in cycling and how to avoid it

Most cyclists will experience some form of knee pain during their riding career. In fact studies have shown that up to 20% of professional cyclists will experience some form of knee pain over the year of riding. Whilst often thought of as a safer form of exercise due to the lack of impact, the high volume of repetition in cycling, can result in significant overload and injury to joints and tissue with even minor biomechanical faults.

It is important to know that the knee is simply one part of the whole kinetic chain involved in cycling. Often pain in the knee is a symptom of poor strength, movement, or control elsewhere in the leg. The knee is essentially a hinge and is designed to move in such a way. When poor movement or control of the hip occurs.

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Anterior knee pain or patellofemoral pain is very common in cycling. This has traditionally been described as poor 'tracking' of the patella (knee cap), with the common sequence being weak glute muscles (butt), resulting in tightness on the outside of the thigh which then does not allow the kneecap to track well, resulting in pain. While this is certainly a common presentation and can be remedied quite well with some foam rolling on the outside of the thigh in conjunction with a program of glute strength exercises, it is only one of the causes of patella pain.

Often anterior knee pain can result from weakness of the quadriceps themselves. If the quads (thigh muscles) are not strong enough to cope with the volume or intensity of the riding that you are doing, this will result in poor loading of the patella, wear and pain. Often this can also result in very tight quads muscles as they are struggling with training load and this further compresses the kneecap onto the thigh, increasing forces on the back of the joint. A simple program of quadriceps strength exercises such as lunges can remedy this situation, plus or minus some stretches of the quads if they are too tight.

Bike set up is another important factor to consider. Commonly a set up which results in the knee coming too far forward through the pedal stroke will again place excessive compression and load on the patella and often result in pain and injury. Some of the common problems seen are a frame that is too small or a seat that is set too far forward on the bike.

Pain on the medial or lateral (inside or outside) of the knee during cycling is another common complaint. Generally, this will occur as a result of one of a number of issues. Weak gluteal muscles may result in the knee rolling in while pedalling and this can provide a torsion on the knee joint which can place excessive strain on either the medial or lateral meniscus. The meniscus are 2 'C' shaped pieces of cartilage that sit inside the knee and provide a cup for the knuckles of the femur to sit in. As previously stated, the knee is basically a hinge and is designed to move this way. Then the knee rolls in, the rotation of the knee can drag the knuckles of the femur over either the medial or lateral meniscus, resulting in pain and injury. There are a number of exercises such as a Bulgarian lunge, which can help with glute strength.

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Compression of the attachment of the ITB band on the bone on the outside of the knee, commonly described as ‘ITB friction syndrome’ will also give lateral knee pain. This will generally be a result of the ITB band being too tight, or poor motion control of the knee, in both cases often as a result of weak glutes. While rolling or stretching the ITB may provide some relief, fixing the issue will generally require a program of glute strength work such as regular or Bulgarian lunges.

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Poor cleat set up is an often overlooked cause of issues when it comes to medial or lateral knee pain. Basically unless recovering from an injury, your cleats should be set up straight. If the cleats turn in or out, so will the rest of the leg, placing torsional forces on the structures of the knee.

There are many factors to consider when it comes to knee pain in cycling, but often some simple things which can be addressed to get you back out there on the road, pain and injury free. If you are struggling to overcome knee pain with riding, consider an assessment or bike fit with one of our experienced physios.

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