

# KNEE PAIN AND CYCLING

## THE INJURY

One of the most common cycling complaints is knee pain. This is most likely to be patellofemoral pain syndrome (PFPS). PFPS is often worse when walking up and down hills/stairs or sitting for long periods of time. It may include wasting of the quadriceps (thigh) muscles if the injury is an old one, and tight muscles around the knee joint. PFPS is a condition which affects the cartilage on the underside of the knee cap (patella) and the structures which support it, as it moves up and down over the groove on the femur (thigh bone) when you bend and straighten your knee. Due to the repetitive nature of cycling it's no wonder that knee pain is the most common complaint – upwards of 45% of overuse injuries are to the knee. PFPS is also the injury that results in the most time off your bike, even in elite cyclists, and therefore the sooner you seek help, the quicker you'll be back on your bike.

## THE CAUSE

Remember that the knee is effectively a hinge between the hip and the ankle. It's very rare that the problem actually originates with the knee itself. Injury occurs when there is 'mal-tracking' of the patella in the femoral groove and a chronic stimulation of the pain nerves in the surrounding area. The 'mal-tracking' may be due to a number of factors such as the alignment of your leg, and abnormal muscle forces. Poor strength and flexibility in the

hips, hamstrings and quadriceps have all been shown to contribute to this problem. However, training errors are the primary culprit. This can include an accelerated build-up of mileage, as well as excessive high-intensity cycling or hill work. A seat that is too low, riding for too long in big gears and cleats that are angled inwards can overload the knee and result in injury.

## MANAGEMENT AND REHABILITATION

The first line of treatment for PFPS is rest, along with the use of ice and non-steroidal anti-inflammatories (NSAIDs), which may help reduce pain and swelling in the short term. Taping can also facilitate better patella movement and reduce pain, again in the short term.

Physical therapy is also an important component for reducing pain around the knee and mobilising the joints and soft tissue structures. Remember that cutting back on mileage, or even taking a complete break from cycling, will be important. A graduated progression back into training can be discussed with your therapist as you work through your rehab programme. You may need to cross train with some treadmill walking, especially uphill walking as this may be less painful and is excellent in strengthening your gluteus muscles. Elliptical training and swimming are other 'knee-friendly' activities for cross-training.

## PREVENTION

### BODY CONDITIONING TIPS

- Research shows that strengthening the hip/buttock muscles, specifically the hip abductors and the gluteus muscles, can reduce pain in PFPS. Exercises that help include squats, lunges, crab walking and bridging. Improving flexibility in the leg, especially the hip flexors is essential. Use a foam roller and get regular massages to maintain good flexibility in your legs and hips.
- Cyclists have a tendency to focus on strengthening the quads and calves – the areas that present themselves in rippling superiority when you look at pro cyclists. But don't forget that the legs work from the core – the lower back, abdominals and glutes all work together.

### BIKE SET UP TIPS

- Try variation in your pedal cadence – breaking up your training by pedalling in a high cadence (90 – 120 revs per minute) can help prevent injury. Raising the seat will reduce the amount of knee flexion and utilise more of the hamstring and gluteal (buttock) muscles thereby off-loading the quadriceps muscle and patellar tendon. Your seat may also be too far forward, which may help you feel more powerful, however sitting forwards puts you 'on top' of your knee, pushing a lot of force through it. If your foot rocks from side to side, use an insert to stabilise the rear of your foot, thereby reducing strain on the knee and increasing efficiency
- Listen to your body and respond at the first sign of discomfort. PFPS is an injury that worsens if you continue to load it. Building mileage slowly will help ensure you remain healthy. There is only so much you can learn from the internet – and it's important to understand that lack of strength, flexibility and bike fit are all intertwined and each individual's body is different. It's a good idea to check yourself in with a physical therapist (injured or not) to be assessed and get a specific strengthening and stretching programme to work from.

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