

RUNNERS' KNEE

# PHYSIO FOCUS

Determining the cause of runners' knee can be tricky, but the prevention and treatment is a lot easier thanks to **Emma Deakin** and her expert advice and exercises...



MEET THE EXPERT

Emma Deakin qualified as a physio in 2002 and has been head physiotherapist and medical lead for the British Triathlon Federation since 2009. She specialises in musculoskeletal physiotherapy and sport.

**R**unners' knee is a term many of you may be familiar with. It's a common condition among runners, but can occur in any athlete who does activities that require putting load through the knee. It's no wonder then that it's a common complaint within the triathlete community.

The technical term for runners' knee is patellofemoral pain syndrome (PFPS). This term is used to describe numerous conditions that result in anterior knee pain and is the irritation of the cartilage on the underside of the patella (kneecap). Around 40% of running injuries are knee injuries, so how would you know if you have runners' knee?

WHO'S AT RISK?

Pinpointing a single cause of runners' knee is difficult. Anyone with biomechanical factors that put extra load on the knee is vulnerable to PFPS, so assessment by a physiotherapist might be needed for specific treatment. Risk factors include: poor foot biomechanics (reduced control of inward foot rolling); the kneecap sitting too high in the femoral groove; and any wear in the cartilage of the knee joint or patella reducing the knees' shock absorbing capacity. There are also muscular causes: weak quads, hips or glutes can cause the kneecap to track out of alignment, while tightness in the hamstrings and calf muscles can put pressure on the knee. Women are thought to be at higher risk as the pelvis tends to be wider, resulting in a greater angling of the thigh to the knee.

SIGNS AND SYMPTOMS

- Pain behind/around the kneecap, this is varied and can be sharp and sudden or dull and chronic.
- Pain when you flex the knee, when walking, squatting, kneeling, running and cycling.
- The pain may be worse when walking downstairs/downhill.
- Swelling around or underneath the kneecap.
- Popping or grinding sensations in the knee, occasionally you may feel the knee gives way.

PREVENTION

- See a podiatrist to analysis foot mechanics and think about using orthotics if you have hypermobile feet or other foot problems that may lead to runners' knee.
- Make sure you regularly change your training shoes.
- Try to vary the surface you run on.
- Never abruptly increase the intensity of your training. Make changes slowly, gradually increasing volume or speed.



Expert tips PRICE is a common acronym when dealing with acute injury before rehabilitation, but what does it stand for?

- **Protection:** Protect the injured area with a splint, crutches, strapping, so it can be offloaded and no weight is put through it.
- **Rest:** All injuries need time to recover (different injuries require different recovery times). With acute injuries often a rest period of 72 hours is necessary to allow the initial inflammation to reduce.
- **Ice:** Ice packs are used immediately on acute injuries; not only to reduce swelling, but also to reduce pain levels. It's always advisable to wrap any ice pack in a cloth to reduce the risk of ice burns.
- **Compression:** Compression of the area using a stretchy bandage or taping is advised. This will limited the amount of swelling and bleeding/bruising to the injured area, therefore reducing the chances of any secondary soft tissue injury.
- **Elevation:** Keeping the injured area elevated, again helps with immediate reduction in swelling. Once the swelling has resolved rehab can begin.



IMAGES ISTOCKPHOTO.COM

# READER SOS

I tore my ACL for the second time while skiing recently. I'm awaiting a physio appointment via the NHS but wanted to know how much I should exercise on it, if at all? Can I do anything other than swimming? It doesn't hurt, and I have almost complete movement.  
**CAROLINE SHENTON, VIA EMAIL**

The ACL or anterior cruciate ligament is one of the main four ligaments that supports the structure of the knee joint. Its job is to stop the tibia translating forwards and medially from the femur.

If the ligament has ruptured/torn completely then an operation is required to repair it. Post-op it's a lengthy process to get the knee back to post-op levels, but it's important not to rush and make sure you have full strength before returning to sport. Without an ACL present, the knee joint is unstable and therefore any exercise can be risky, but there are still things you can do.

Often, better strength and movement of the knee pre-op can result in better results from the surgery. So, training is possible. Swimming is fine, as is any other cardio training that offloads the knee and most importantly keeps the knee in parallel - cross training, static bike etc. It's also possible to do some knee strengthening, and bodyweight exercises for the quads and hamstrings.

Only train if you're totally pain-free during the workout and if swelling occurs, stop immediately. Avoid activities that involve any changing of direction, twisting or change of pace. Always speak to your doctor before you decide to exercise with an ACL injury to check that no other structures have been injured at the same time that could limit training.

**? DO YOU HAVE A QUESTION FOR EMMA?**  
Drop us an email: physio@220triathlon.com

ILLUSTRATIONS WWW.ACUTEGRAPHICS.CO.UK

TREATMENT

It's possible to train through runners' knee - you may just need to reduce running volume or just run every other day while you concentrate on the rehab exercises. To reduce symptoms of runners' knee, alignment is key. Concentrate on exercises that strengthen quads (and control movement of the kneecap) and the lateral hip

muscle (to prevent the knee dropping inwards). These exercises not only help to reduce symptoms, but can also help to prevent a relapse. Some coaches also recommend shortening your stride length and landing with a slightly bent knee, as this could reduce the load transmitted through the knee.

HAMSTRING STRETCHES

**BENEFIT** Allows good muscle balance between the anterior and posterior muscles that support the knee joint.

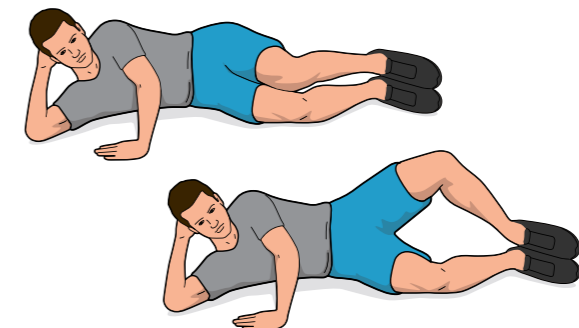
**METHOD** Lie flat on your back and interlock fingers of both hands under the hamstring of one leg. Keep your spine flat to the ground. Maintain a straight leg, slowly lift the leg until tension/stretch is felt in the hamstring. Hold until you feel the tension begin to release.



CLAM

**BENEFIT** Strengthens the glutes to help stabilise the hips and increases control above the knee joint (therefore offloading the knee).

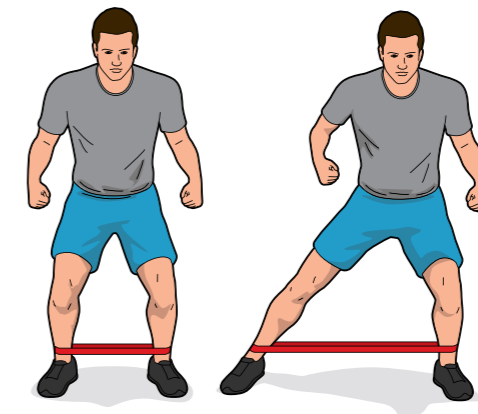
**METHOD** With the heels together, raise the knee to work the glute. The pelvis should stay still throughout, with no rotation. There are many ways to progress the exercise with the leg in different positions, as well as adding the resistance of a band. Try to progress to three sets of 30.



LATERAL SIDE STEP WITH BAND

**BENEFIT** Strengthens the musculature around the outside of the hip, which prevents the knee dropping inwards on foot plant when running.

**METHOD** Pop a piece of band around your ankles. Start in a semi squat position with slight tension on the band. Step the foot out sideways, so you're pushing against the resistance of the band. Try to keep your body facing forwards and shoulders level, avoiding any rocking. Continue for around 10 steps, always maintaining slight tension in the band. Repeat in the other direction. You can progress this exercise by increasing the thickness of the band.



SINGLE LEG SQUAT

**BENEFIT** Strengthens the quads, which helps to support and control the movement of the knee cap.

**METHOD** Keeping the hip, knee and foot aligned simply squat down. Squat down only as far as you can control the movement. Build up to three sets of 25. If you find these difficult, you can start with a normal double leg squat and progress to single leg.

