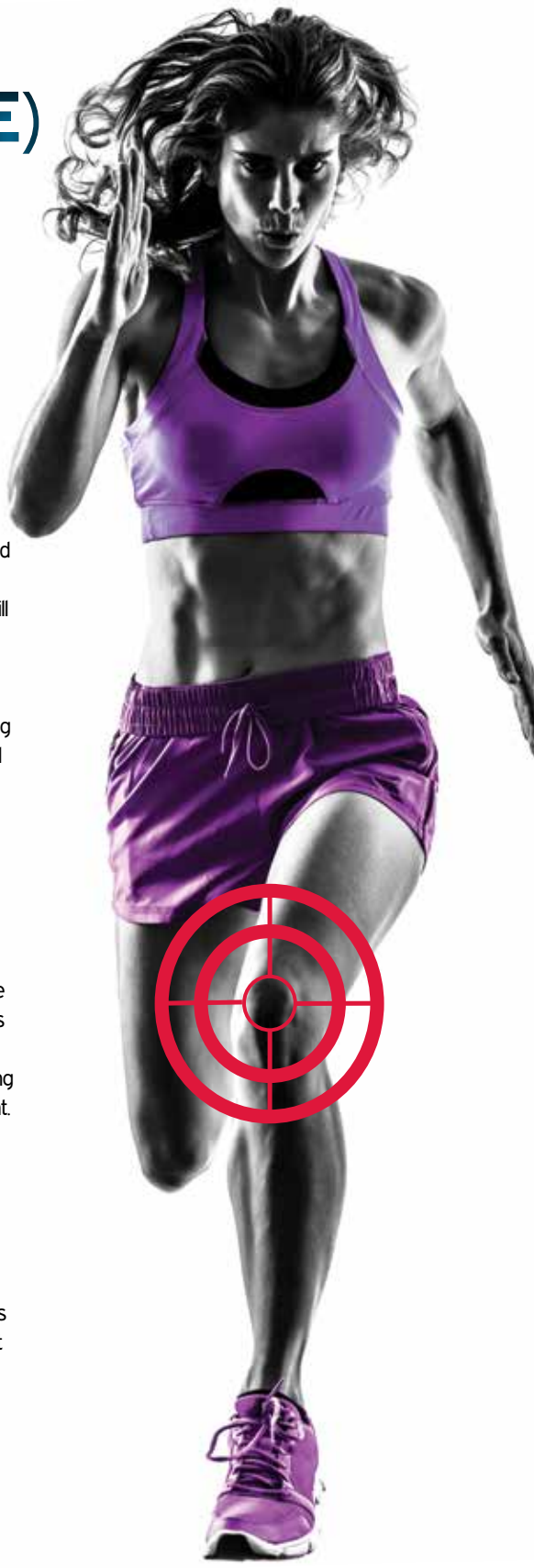
PATELLOFEMORAL PAIN SYNDROME (RUNNER'S KNEE)



THE INJURY

Runner's knee, more scientifically called patellofemoral pain syndrome (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. The injury happens to both top runners and amateurs alike, with some statistics showing it accounts for nearly 50% of all running injuries.

THE SYMPTOMS

- Tenderness around or behind your knee cap
- Pain that is aggravated by downhill running
- Dull pain when running on uneven terrain
- Pain when you push on the patella bone.

THE CAUSE

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 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 running or hill work. Worn out or inappropriate footwear is also cited as a possible cause.

THE FIX

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.

Research shows that strengthening the hip/buttock muscles, specifically the hip abductors and the gluteus muscles, can reduce pain in PFPS. Exercises for this may include squats, lunges, crab walking and bridging. Improving flexibility in the leg, especially the hip flexors is essential. 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 running, will be important. A graduated progression back into training can be discussed with your therapist as you work through your rehab programme. Some runners find that uphill running or simulating hills on a treadmill is less painful. Uphill running has the added value of working your glutes. Strong gluteal muscles help control hip and thigh movement, preventing the knee from turning inwards. Cycling, elliptical training and swimming are other 'knee-friendly' activities for cross-training.

THE PREVENTION

It is important to be proactive with prevention measures, especially if you've suffered from runner's knee in the past. Implementing a regular strength and flexibility routine should be the focus. Strengthening the hips, glutes, quads and hamstrings improves overall stability and helps the kinetic chain function better - reducing load on the knee and aiding support of the joint. Listen to your body and respond at the first sign of discomfort. Runner's knee is an injury that worsens if you continue to run on it. Building mileage slowly will help ensure you remain healthy. Do not increase your mileage by more than 5-10 percent from one week to the next. Avoiding excessive downhill running is also a good thing to do if you're hoping to skirt injury.

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PATELLOFEMORAL PAIN SYNDROME REHABILITATION

YOUR REHABILITATION PROGRAMME

This programme has specific exercises for patellofemoral pain syndrome (Runner's Knee). You want to focus your strengthening on the quadriceps working together with the gluteus and hip muscles. Strong quads will support the knee and hip and gluteal strength will ensure good alignment of the leg. Remember to stretch your hip flexors. It is important to ensure the exercises are performed with good technique and good postural control. Make sure to repeat the same number of exercises on both legs. Make sure you are always pain-free and take care not to progress too quickly. We have given suggested sets and repetitions, and the exercise routine should be performed twice a day.

Remember everyone is different so your therapist may give guidance that is more specific to you.

WARM UP AND COOL DOWN

If muscles are tight, weak or injured, it is particularly important to warm up (unless advised otherwise by your practitioner) with a brisk walk or a gentle jog at a pain-free pace for 5 minutes before you start your exercises. This increases your circulation and helps prepare the muscles for the activity to come. When you have finished your exercises, end the session with a 5 minute gentle walk or slow jog to allow your heart rate to slow down gradually.

1/4 SQUAT



Open your legs slightly wider than shoulder width, and bend your knees to the 1/4 squat position. Make sure you keep the middle of your knee-cap in line with the middle toes of your foot. As pain allows you can squat lower/deeper until you get to a full squat where your knee is bent to 90 degrees.

Repeat 6 times

Video:
http://youtu.be/NpKJwz27-JU

CLAM



Lie on your side, with both knees bent. Keeping your feet together, and squeeze your deep abdominal muscles by drawing the belly button inwards. Open your knees, like a clam, hold, and return to the start position. This is a good strengthening exercise for your gluteal (buttock) and outer thigh/hip muscles.

Repeat 12 times | Perform both sides

Video:
http://youtu.be/1ECrWm-3SKo

SPLIT SQUAT WITH VMO AND GLUTE CONTRACTION



Take a step forwards (as if you were going into a lunge). Make sure your knee is directly over the second toe of your foot and in good alignment (your knee should never drop inwards). Contract your VMO (the inside of the front of your thigh muscle group) and your gluteal (buttock) muscles of your front leg and slowly drop your back knee towards the ground. Your front knee stays at 90 degrees, but does not go forwards of that point. Return to the start position. If you feel any pain, don't squat so far down, instead just bend the knee a few degrees within pain limits.

Repeat 6 times | Perform both sides

Video:
http://youtu.be/LBfYKQyf-i8

LATERAL WALK WITH EXERCISE BAND



Place an exercise band around your knees or ankles, and go into a squat position (as far down as feels comfortable). Walk one leg to the side, and then follow with the other leg. Repeat to one side for five steps, then return to the start position.

Repeat 5 times

Video:
http://youtu.be/i0w7KczRvkk

HIP FLEXOR STRETCH 2



In a kneeling lunge position, move your body forwards to create a stretch to the front of your thigh and slightly into your groin. Place your foot on a stool to create an extra stretch. Use a pillow under your knee if you find you need the padding. If you need to make the stretch stronger, tilt your pelvis backwards as shown.

Repeat 3 times | Hold for 30 seconds | Perform both sides

Video:
http://youtu.be/4jv_IYFgbTg

1/4 SQUAT SINGLE LEG



Stand on one leg, and bend your knee to the 1/4 squat position. Make sure when you squat you keep the middle of your knee cap in line with the middle toes of your foot. Do not let your knee drift off to one side. Also keep your hips and pelvis level as you squat, so you go down in a straight line. Be careful not to slump forwards as you squat, maintain good posture. As pain allows you can progress into a deeper squat, bending the knee further to a maximum of 90 degrees.

Repeat 6 times | Perform both sides

Video:
http://youtu.be/Rn3qU2xMYv4

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