Patellofemoral Pain Syndrome (PFPS)

Understanding kneecap pain, symptoms and recovery

Patellofemoral Pain Syndrome

A guide to causes, treatment and recovery

Patellofemoral Pain Syndrome (PFPS) – Exercise Examples

Gentle exercises to improve knee strength, control and function

1 Quadriceps sets



- Lie on your back with one leg straight and the other bent.
- Gently push the back of your knee down into the towel, tightening your thigh muscle.
- Hold for 5–10 seconds, then relax.
- Repeat 10–15 times, each leg.

2 Straight leg raises



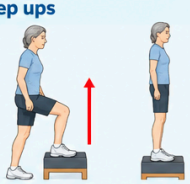
- Lie on your back with one knee bent and the other straight.
- Keep your knee straight and slowly lift your leg to the height of the bent knee.
- Hold for 3–5 seconds, then lower slowly.
- Repeat 10–15 times, each leg.

3 Short arc knee extension



- Lie on your back with a rolled towel under your knee.
- Slowly straighten your knee, lifting your foot up.
- Hold for 5 seconds, then lower slowly.
- Repeat 10–15 times, each leg.

4 Step ups



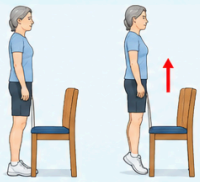
- Use a sturdy step with a handrail if needed.
- Step up with the affected leg, keeping your knee aligned over your toes.
- Step back down slowly.
- Repeat 8–12 times, each leg.

5 Wall squats (small range)



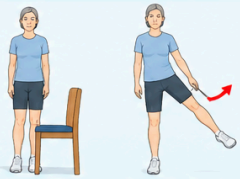
- Stand with your back against a wall and feet shoulder width apart.
- Slowly slide down a small distance (no deeper than 30–45°).
- Keep your knees in line with your toes.
- Hold for 5–10 seconds, then stand up.
- Repeat 8–12 times.

6 Heel raises



- Stand behind a chair or support.
- Rise up onto your tiptoes, lifting your heels.
- Hold for 3–5 seconds, then lower slowly.
- Repeat 10–15 times.

7 Hip abduction (standing)



- Stand tall holding on to a chair for balance.
- Keep your knee straight and slowly move your leg out to the side.
- Hold for 3–5 seconds, then return slowly.
- Repeat 10–15 times, each leg.

8 Hamstring stretch



- Sit on a chair with one leg straight and the other bent.
- Keep your back straight and gently lean forward from your hips until you feel a stretch at the back of your thigh.
- Hold for 20–30 seconds, each leg.

Important information

- Start with gentle, pain-free movements.
- Keep exercises within a comfortable range.
- Stop if pain increases or you feel unwell.
- Aim for good knee alignment, keeping your knees in line with your toes.
- Ask your physiotherapist which exercises are most suitable for you.

Progression tips

- Do these exercises regularly, e.g. 3–5 times per week.
- Gradually increase the number of repetitions as your strength improves.
- Combine with other recommended exercises, such as hip and gluteal strengthening.
- Aim to return to your usual activities gradually and safely.

What is patellofemoral pain syndrome?

Patellofemoral Pain Syndrome, also called runner's knee, causes pain around or behind the kneecap. The original leaflet describes irritation of tissues around the patella when it does not move smoothly in its groove.

Common causes

Repetitive running, jumping or squatting; weakness or imbalance in thigh and hip muscles; kneecap or lower-limb alignment; sudden increases in activity; and footwear or foot mechanics.

Symptoms and diagnosis

Recognising kneecap pain and understanding assessment

Common symptoms

- Pain around or behind the kneecap
- Pain during running, jumping, squatting or climbing stairs
- Discomfort after sitting for long periods
- Mild swelling, clicking or grinding when bending the knee

Contributing factors

- Repetitive stress and rapid changes in activity
- Thigh or hip muscle weakness or imbalance
- Lower-limb alignment, flat feet or unsuitable footwear

How is it diagnosed?

Assessment usually involves your symptoms, medical history, physical examination, movement patterns and muscle strength. X-ray or MRI may be considered to exclude other knee problems.

Managing symptoms early

Reduce or adapt activities that aggravate pain, then return gradually. Ice for 10–15 minutes after activity may help soreness. Ask your GP or pharmacist whether pain relief or anti-inflammatory medication is appropriate.

Exercises and rehabilitation

Strengthening and flexibility with physiotherapy guidance

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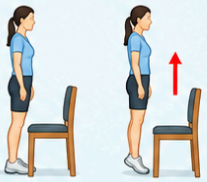
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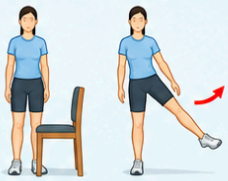
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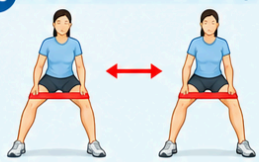
- Sit on a chair with one leg straight and the other bent.
- Keep your back straight and gently lean forward from your hips until you feel a stretch at the back of your thigh.
- Hold for 20–30 seconds, each leg.

9 Calf stretch



- Stand facing a wall with one leg behind.
- Keep your back straight and heel on the floor.
- Gently lean towards the wall until you feel a stretch in your calf.
- Hold for 20–30 seconds, each leg.

10 Knee stabilisation (side steps)



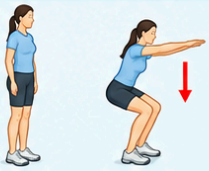
- Place a resistance band around your legs (above the knees).
- Keep your knees slightly bent.
- Take small steps to the side, keeping your knees in line with your toes.
- Repeat 10–15 steps each way.

11 Single leg balance



- Stand on one leg, keeping your knee slightly bent.
- Keep your hips level and your knee aligned over your toes.
- Hold for 10–30 seconds.
- Repeat 3–5 times, each leg.

12 Knee control (mini squat)



- Stand with your feet shoulder width apart.
- Slowly bend your knees a small amount (no deeper than 30–45°).
- Keep your knees in line with your toes.
- Hold for 5–10 seconds, then stand up.
- Repeat 8–12 times.

Exercise safely

- Start with gentle, pain-free movements and build strength gradually.
- Keep exercises within a comfortable range.
- Stop if pain increases or you feel unwell.
- Ask your physiotherapist which exercises are most suitable for you.

Exercise safely

Start with comfortable movements and increase difficulty gradually. Focus on good knee and hip control, avoid forcing painful exercises and ask your physiotherapist when to progress.

Treatment, recovery and self-management

Practical steps for reducing pain and returning to activity

Activity modification and pain relief

Avoid or modify activities that aggravate symptoms, then increase activity gradually. Ice packs for 10–15 minutes after activity may help. Ask a healthcare professional about suitable medication.

Physiotherapy and rehabilitation

Strengthen quadriceps, glutes and hip stabilisers; stretch tight hamstrings, calves and hip flexors; and improve knee and hip alignment. Taping or bracing may sometimes help.

Footwear and other treatments

Supportive shoes or insoles may reduce knee stress. Surgery is rarely needed and is considered only when symptoms persist despite appropriate conservative treatment.

Self-management and outlook

Avoid prolonged kneeling or squatting, keep exercise gradual and consistent, and follow the exercises recommended by your physiotherapist. Many people improve over weeks to months.

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