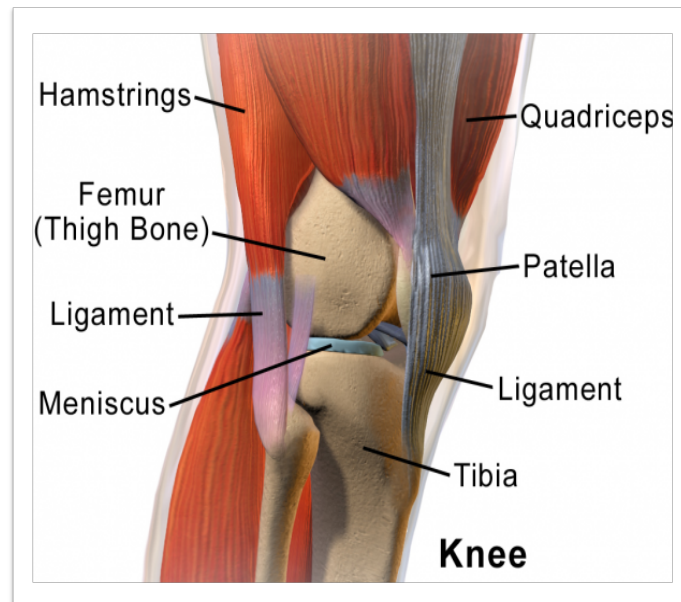


Patello-femoral Joint Dysfunction

Your consultant or physiotherapist has diagnosed you with Patello-femoral Joint Dysfunction. This booklet should provide you with useful information, tips and exercises to help you manage your symptoms.

If you have any concerns or questions, you should contact your Physiotherapist or consultant to discuss in more detail.



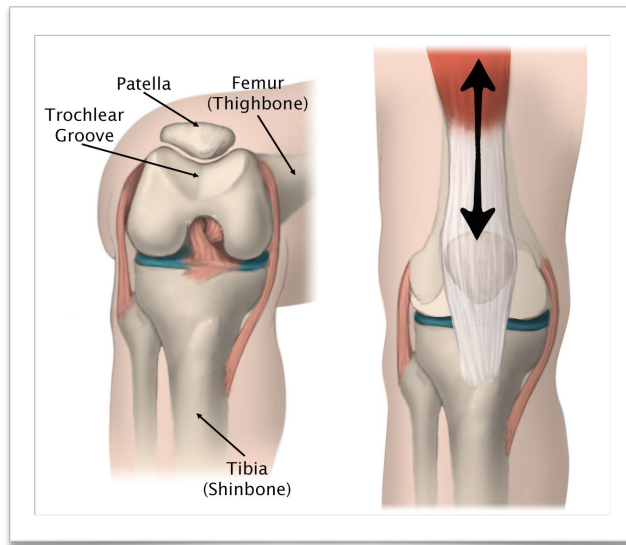
What is the Patello-Femoral Joint (PFJ)?

The PFJ forms part of the knee joint. It is the component formed by the knee cap (patella) and the groove of the thigh bone (trochlea groove of the femur).

It acts a pulley to allow the knee to bend and straighten using the muscles surrounding the knee. Significant forces go through it in day to day life.

The patella is attached to the quadriceps muscle at the top of the knee, and connected to the lower leg via the patella tendon.

The contact areas of the PFJ are reduced when the knee is straight, but increase when the knee is bent.



What is Patellofemoral Joint Dysfunction (PFJD)?

PFJD is defined as pain around or behind the patella (knee cap), which is aggravated by an activity that loads the patello-femoral joint (PFJ), usually during weight bearing on a bent knee. It is most commonly known as 'anterior knee pain'.

PFJD is often aggravated by weight bearing activities including bending, squatting, kneeling, walking, climbing stairs, running and jumping as significant forces go through the joint with these activities.

The symptoms include pain (inside or behind the patella), clicking, grinding, locking and some may experience instability (knee giving way).

PATELLOFEMORAL JOINT LOAD WITH ACTIVITY	
Activity	Patellofemoral Joint reaction force
Level walking	0.5 x Body weight
Cycling (stationary bike)	1.5 x Body weight
Ascending & descending stairs	3-4 x Body weight
Running	4.5-7.6 x Body weight
Squatting	7-8 x Body weight
Jumping	20 x Body weight

Approximations based on Lenhart et al. (2014) & Sanchis-Alfonso et al. (2016)

The knee is commonly investigated with X-rays and a MRI scan. Occasionally a CT may also be requested to assess bony geometry and lower leg rotation and alignment.

There can be a number of factors that contribute to the development of pain.

1. Weak muscles including the Quadriceps (muscle on the front of your thigh) and Glutei (Buttock Muscles)
2. Tight tissues/muscles - Quadriceps, Hamstring (muscles at the back of your thigh), Iliotibial band (ITB) (a band of thick tissue on the outside of the thigh) and calf muscles.
3. Being Overweight (see table above)
4. If you are bow legged or knocked kneed, this can affect how the kneecap tracks in its groove and increase contact pressures in the joint causing pain (You can't change this but you can change the first 3 things!).



Treatment Options

- 1.** If you are overweight, losing weight is one of the most effective things you can do. You can contact your GP for information for help with this if you feel it would be beneficial. They may be able to refer you onto community services to support you with healthy weight loss.

E.g. if you lose 1 stone then 6 less stone will go through your knee when you walk up and down stairs.

2. Physiotherapy

This is extremely powerful. This does not mean manipulation of your joint or massage but you doing a specific programme of exercises and stretches over weeks/several months to improve muscle function in your leg and core. You must remember the majority of patients with PFJD will have a normal MRI scan. The reason they have pain is because of poor muscle function and being overweight.

3. Surgery

It is very RARE that surgery will help in the absence of any significant structural abnormality.

The vast majority of patients benefit from rehab exercises. This often takes place over a protracted period of time (6 – 12 months)

See exercises attached.

Calf stretch in standing



Instructions

Position yourself standing with one leg in front of the other and your hands resting on a wall. Lunge forwards while keeping your back leg (painful leg) straight. Ensure that both feet point forwards and your back heel remains on the ground.

Hold for 20 seconds, repeat 3-5 times.

Hamstring stretch



Instructions

Position yourself so you are sitting on the edge of the chair. Place your affected leg straight in front of you, resting your heel on the floor. Sit up tall, resting your hand on your other knee. Gently hinge forward keeping your back and knee straight until you feel a stretch behind your leg.

Hold for 20 seconds, repeat 3-5 times.

Progressions

To increase the stretch, you can have your toes facing up towards the ceiling.

Quadriceps stretch



Instructions

Position yourself in standing with one knee (affected knee) bent. Hold onto the ankle of your bent knee and pull it towards your bottom. Ensure to keep your knee under your hip and your shoulders over the hips.

Hold for 20 seconds, repeat 3-5 times.

Squatting



Instructions

Position yourself standing holding onto the back of a chair or table. Start with your knees straight. Bend your knees and move your bottom back. Ensure to keep your back straight and your heels on the floor and your weight is equally borne through both legs. You should feel this is in your thigh and bottom muscles. Return to standing.

Repeat 10 times.

Wall squat with a ball

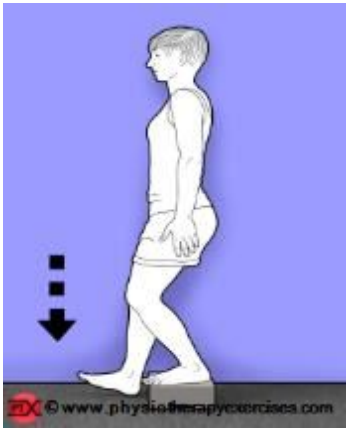


Instructions

Position yourself so you are facing away from a wall with a large ball placed between the lower portion of your back and the wall. Gently lean your weight on the ball. Walk your feet forward so your toes are positioned further away than your knees. Practice slowly bending your knees to lower your body keeping your knees facing forward and then straighten your knees to rise. You should feel the muscles on the front of your thighs tightening. You can use hand support on a chair for balance or reduce how far your knees bend as a slightly less advanced exercise.

Repeat 10 times. (You can hold the knee bend position for 10-20 seconds if able).

Stepping forwards off a step



Instructions

Position yourself in standing on a step. Lower your unaffected heel to the floor in front of you and then return back to the step. Ensure that your shoulders remain over your hips and your affected knee remains in line with your foot pointing forward. You should feel this in the thigh of your affected leg (remaining on the step).

Repeat 10 times.

Lunges



Instructions

Position yourself in standing with one leg comfortably in front. Ensure that your back knee drops towards the floor and that your front knee does not come beyond your toes.

Repeat this 5-10 times on each leg.

Bridging to end of range



Instructions

Position yourself lying on your back with your knees bent. Tighten the muscles in your bottom and lift your bottom off the bed.

Hold for 5 seconds and return to the bed.

Repeat 10 times.

Single leg bridge



Instructions

Position yourself lying on your back with your knees bent. Lift your bottom off the bed. Shift your weight onto one leg and straighten the other leg.

This is a progression of the previous exercise, completing on a single leg only. Your affected leg should be the one to remain on the bed. Be careful not to allow your hips to 'drop' towards the bed.

Repeat 5-10 times on each leg.

Hip abduction in side-lying



Instructions

Position yourself lying on your side. Start with your top leg resting on the bed. Lift your leg away from the bed leading with your heel. Finish with your leg away from the bed. Ensure that your hip and knee are kept straight and your foot points forwards.

Repeat 5-10 times on each leg.

To progress, you can use a weight or a resistance band.

Clam



Instructions

Position yourself lying on your side with your hips and knees bent. Practice lifting your top knee upwards while keeping your ankles together. Ensure that your knees remain bent and your hips stay forwards. Your affected leg should be the top leg.

Repeat 10 times. You can complete this on both sides.

To progress, you can use a resistance band between the knees.

Hip abductor strengthening in standing using theraband



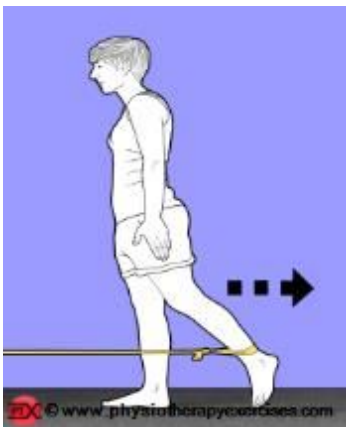
Instructions

Position the resistance band around your ankle and attach to a stable/static surface. Position the leg with resistance band attached furthest away from surface. Start with your leg beside your body. Finish with your leg away from your body.

You should complete this with your affected leg but can do this on both. Ensure you control the movement as your leg comes down by your side.

Repeat 10 times.

Hip extension with theraband



Instructions

Position the resistance band around your ankle, and attach to a supportive/stable surface. Position yourself standing facing towards the resistance band. Adjust the band so that the direction of pull is from in front of you at the level of your ankle. Start with your foot in front of your body. Finish with your foot behind your body and knee straight. Ensure to keep your back straight.

Repeat 10 times each side.











Crab walk sideways with theraband








Instructions

Position yourself standing with your feet apart and a resistance band around your thighs or ankles. Practice walking sideways while maintaining tension in the band. Ensure that both feet point forwards.

Repeat for 30 seconds.

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Please note that this information is true for most patients. Sometimes you may have different instructions – if this is the case, your surgeon or physiotherapist will explain these to you.