



YOUR GUIDE TO CHONDROMALACIA PATELLA

Contents

What is Chondromalacia Patella?	3
What Causes Chondromalacia Patella?	4
What Treatment can I receive?	5
What can I do to prevent it?	7
What Exercises can I do?	8
Phase 1	8
Phase 2	12

Introduction

Please take note of the following before starting any of the exercises in this guide:

- The information contained in this guide is intended to assist in managing your recovery.
- This guide is based on the latest medical research in the field and contains the best advice available to the best of our knowledge.
- This guide is complimentary to other medical services and is not intended as a substitute for a health care provider's consultation. Never disregard medical advice or delay in seeking advice because of something you have read in this guide.

● Many people have found quick and lasting relief from their knee pain by acting upon the information provided, but everyone decides for themselves what to do with this information. Should you doubt a particular exercise in your situation, please consult your health professional.

When consulting your health professional, it is wise to take this guide with you to show them.

What is Chondromalacia Patella?

The cartilage that lines your kneecap (patella) is a natural shock absorber. Under normal circumstances it is smooth and shiny, allowing the kneecap to glide smoothly along the groove at the end of the thigh bone (femur). When this cartilage becomes irritated or starts to break down, it can cause irregularities along the undersurface of the kneecap.

Chondromalacia patella can be defined as a degenerative condition of the cartilage surface of the back of the

kneecap. This condition may result from acute injury to the patella or from chronic friction between the patella and the groove in the femur through which it passes during movement of the knee. Chondromalacia patella specifically refers to a knee that has been structurally damaged, while the more generic term patello-femoral pain syndrome refers to the earlier stages in the condition, where symptoms may still be fully reversible.

What Causes Chondromalacia patella?

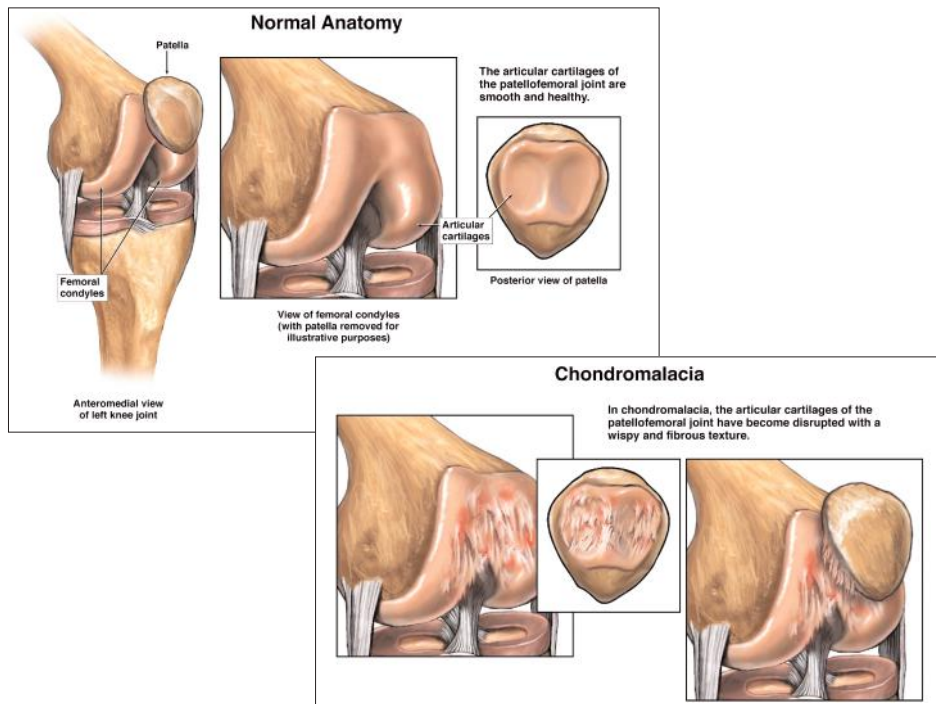
Since the terms **chondromalacia patella** and **patellofemoral pain syndrome** both encompass a large group of medical conditions that can cause pain at the front of the knee, including a tight iliotibial band, overuse, malalignment, core instability etc, there is no one known 'cause' of chondromalacia patella. **It is therefore essential that you have a full assessment of your knee to determine the cause of your pain so that you can prevent future problems from occurring.**

In adolescents and young adults, patellofemoral pain and chondromalacia patella are often caused by overuse or injury. The patella is normally pulled over the end of the femur in a straight line by the quadriceps (thigh) muscles. Patients with chondromalacia patella frequently have abnormal patella 'tracking' (movement) towards the outer (lateral) side of the femur. This slightly off centre pathway allows the undersurface of the patella to grate along the femur causing chronic inflammation and pain. Certain individuals are said to be predisposed to develop chondromalacia patella due to gender and biomechanical differences. These include females; knock kneed or flat footed individuals, or those with unusually shaped patella undersurfaces. People who've had a trauma to the kneecap – such as a dislocation or fracture – may be more

likely to develop patellofemoral pain. In older adults chondromalacia patella can occur when the articular cartilage breaks down as part of the wear and tear process that can occur with age. The patella is one of the earliest places where cartilage breakdown occurs and is slowly progressive, leading to arthritic changes in the knee joint. Biomechanical differences and muscle weaknesses around the knee joint can facilitate this process of wear and tear, therefore making some people more susceptible than others for developing chondromalacia patella.

SYMPTOMS

The main symptom is a vague discomfort of the inner knee area, which may radiate (refer) to the back of the knee. This discomfort/pain is aggravated by activity (running, jumping, climbing or going down stairs) or by prolonged sitting with the knees in a bent position. You will also notice a grating or grinding sensation when you straighten your knee, which will often be accompanied by pain. Occasionally, if chronic symptoms are ignored, the associated loss of quadriceps muscle strength may cause the leg to 'give out', and mild swelling may also occur.



What Treatment can I receive?

Chondromalacia patella can be the result of a number of factors, and it is therefore important that you consult your doctor or allied health professional so that a full examination of your knee can be done. This will help to determine the cause of your pain so that the appropriate treatment and rehabilitation can follow. The following is therefore a list of treatments that one can receive, but may differ slightly depending on the cause of your pain.

NON-SURGICAL TREATMENT

- **Relative Rest** It is important to try and avoid activities that cause your pain. This does not mean stop activity all together, as it is important to maintain strength and cardiovascular fitness as much as possible. Activities such as cycling and swimming are often good substitutes to running.
- **Ice** This can be applied to the knee and will help to decrease both pain and inflammation. Apply ice for 10-15 minutes a few times a day. It is important when applying ice that you are aware of the risk of a burn, and therefore never apply ice directly to the skin. It is also a good idea to check the skin occasionally throughout the application. Be aware of the contradiction before using this treatment.

PRECAUTIONS WHEN USING ICE THERAPY.

- **Ice treatment must be used carefully otherwise it may cause a skin burn.**
- **Never put an ice pack directly onto the skin, always use a damp towel or cloth to prevent an ice burn.**
- **Only apply an ice pack to areas of skin with normal sensation i.e. you must be able to feel hot and cold.**
- **Never put an ice pack over an open wound or graze.**
- **Do not apply an ice pack to an area with poor circulation.**
- **Never leave an ice pack on the skin longer than the time stated in this advice sheet.**
- **Adults should always supervise young children when using ice packs. Application may be reduced and extra care should be taken when checking the skin.**
- **Remember to check the skin underneath every 5 minutes for:**
 - Whiteness of the skin
 - Blueness of the skin
 - Blotchy and painful skin
 - Excessive numbness

If you get any of these symptoms remove the ice pack immediately.

- **Non-steroidal Anti-inflammatory medications** Many anti-inflammatory medications can be acquired over the counter and again help to decrease inflammation and pain in the joint. It is often a good idea to consult with your doctor before taking anti-inflammatory medications so that the right one can be prescribed for you.
- **Physical therapy** Consulting with a physiotherapist, osteopath or chiropractor is advised if you are experiencing pain in your knee. They will perform a full assessment on your knee to determine the cause of your pain and the treatment prescribed will then be based on their findings. Treatment for chondromalacia patella usually involves improving the strength and biomechanics of the joint. This may involve a full rehabilitation programme, taping, soft tissue techniques, shoe assessments etc. You may also be referred to a podiatrist who will assess you walking and running, and may provide you with inner soles for your shoes that will help to correct your foot position.

- **X-rays** Your doctor may recommend X-rays or other imaging tests to help determine the cause of your knee pain.
- **Surgery** If your symptoms are severe, and/or the above measures have not been effective, a minor surgical procedure may be needed to confirm the diagnosis and/or treat the condition.
- **Arthroscopy** During this procedure, the doctor inserts an arthroscope – a pencil-thin device equipped with a camera lens and light – into your knee through a tiny incision. Surgical instruments are passed through the arthroscope to remove fragments of damaged cartilage.
- **Realignment** In more severe cases, a surgeon may need to open your knee to realign the angle of the kneecap or relieve pressure on the cartilage.

What can I do to try and prevent it?

As has already been said, **chondromalacia patella** is a degenerative disease and the final phase of patello femoral pain syndrome. It is therefore important if you are experiencing anterior knee pain that you consult with your doctor or allied health professional before degeneration occurs. There are some basic principles that you can follow that can help to protect your knees from injury.

- **Lose excess pounds** If you're overweight, losing the extra weight relieves stress on your knees.
- **Warm up** Before running or any other exercise, warm up with 5 to 10 minutes of light activity.
- **Stretch** Promote flexibility with gentle stretching exercises. These are often not possible before the activity e.g. running, but a good cool down stretching routine is essential to prevent injury.

- **Increase intensity gradually** Avoid sudden changes in the intensity of your workouts.
- **Practice shoe smarts** Make sure your shoes fit well and provide good shock absorption and support. If you have flat feet or any other foot problems it may be important for you to consult with a podiatrist who can properly assess your walking and running biomechanics as well as your foot position and suggest the right shoes for your foot type.
- **Think alignment and technique** Ask your allied health professional (physiotherapist, chiropractor or osteopath) about flexibility and strength exercises to optimize your technique for jumping, running and pivoting – and to help the patella track properly in its groove. It is also important to listen to your body. If your knee hurts, stop what you are doing. Pushing yourself may only lead to injury.

What Exercise Can I do?

It is important that you are aware that this is a general exercise programme for **chondromalacia patella** that can be adjusted depending on advice given by your health care provider on assessment. The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon, you may worsen your injury which will delay your

recovery. **It is important that you work in a pain free range of movement throughout the exercise programme.** Working into pain will have no benefit and may even delay your recovery. Technique is also essential and these exercises should be performed in a controlled manner concentrating on the movement in both directions.

Exercises phase 1

STRETCHING EXERCISES

- **Repeat each of these stretches 3 times (on both sides if necessary).**
- **Hold each stretch for at least 30 seconds.**
- **Hold a steady stretch, do not bounce.**



QUADRICEPS

Lying on your right side, your right arm extended up to cushion your head, use your left hand to grasp your left ankle as you bend your left knee backwards. You should feel the stretch along the front of your thigh. It is important to keep the other leg bent at both the hip and the knee, so as not to hyperextend your back. You can use a towel to aid you in this exercise if you are unable to reach your ankle or bend your knee too far.



HAMSTRING

Lying on back with one leg straight, raise the bent knee towards you and hold behind your knee. Now slowly straighten your knee until a stretch is felt in the back of the thigh. A towel can be used to aid you in this exercise if you are unable to reach your leg

Exercises phase 1 (continued)



CALF

Keeping back leg straight, with heel on floor and turned slightly outward, lean into wall until a stretch is felt in calf.



BUTTOCKS

Lying on your back, rest your right ankle on your left knee. Using your hands lift your left leg into the air, bending the knee at 90°. Pull your left leg gently towards your body. You should feel a stretch in your buttocks on the right side. A towel can be used to aid you in this exercise if you are unable to reach your leg



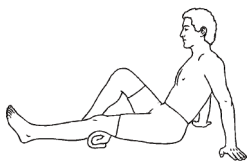
TENSOR FASCIA LATAE

Stand with your left leg crossing over in front of your right leg. Now bend from your trunk towards your left side. You should feel the stretch along the side of your right leg. Repeat with your legs crossed over the other way and bending to the other side.

STRENGTHENING EXERCISES

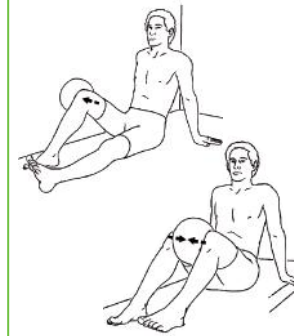
● Repeat 2 sets of 10-15 repetitions on each side (unless otherwise stated in the exercise)

● Perform each exercise in a controlled manner and within a pain free range of movement



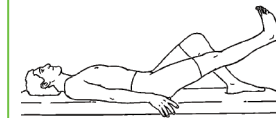
TERMINAL LEG EXTENSIONS:

Sitting on the floor with one leg outstretched in front of you with a rolled up towel/pillow (or a bolster) under your knee. Lift the heel off the floor straightening the leg, hold for 5 sec. (contract the VMO muscle group), and then relax.



BALL SQUEEZING AND PUSHING (a pillow can be used)

Lying on your back with your knees bent, first place the ball between your knees and squeeze. Hold for 10 seconds and repeat 5 times. Now place the ball between your knee and the wall, push out for 10 seconds and repeat 5 times on each leg.



STRAIGHT LEG RAISES

Lying on your back with both legs straight out in front of you. Now bend one knee so that your foot is flat on the floor, and keeping the opposite knee straight, raise it into the air to the height of the bent knee. Repeat this 10-15 times with your foot in the positions described below

1. Pointing up towards the ceiling
2. Slightly turned outwards



BRIDGING

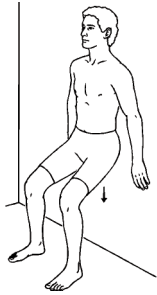
With your pelvis in neutral (hip bones facing towards the ceiling) and TA contracted (pull belly button to spine), slowly raise buttocks from floor, keeping your pelvis stable and body in a straight line. Hold for 10 seconds and repeat 10 times.



STEP-UPS

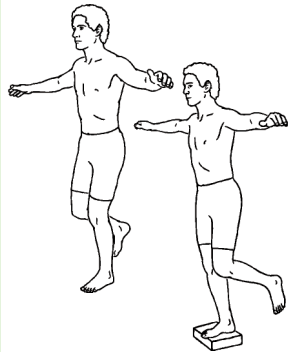
Stand on one leg on a step facing up the stairs. Slowly lower yourself by bending your knee. Return to starting position without pushing off with the opposite leg. Have your weight on your heel more than your toe, but foot flat, and your knee should be in line with your second toe when bending it i.e. be aware that your knee and foot do not roll inwards. Perform 2 sets of 10 reps per leg.

Exercises phase 1 (continued)



WALL SLIDES

Stand leaning up against a wall, your feet a little away from the wall with your toes pointing forwards. Push your back against the wall. Slowly lower your body into a seated position and hold this position for 10 seconds. Complete 10 repetitions. Make sure that you work in a pain free range of movement, that you don't go down further than 90° in your knees, and that your feet are far enough forwards that your knees do not go over your toes.



STORK STANDING

- Balance on one leg for 30 seconds and repeat with the other leg.
- Repeat the above with your eyes closed.

Progress the above to standing on an unsteady surface, e.g. a cushion or a narrow piece of wood.

Exercises phase 2

Phase 2 exercises can be started when you are able to do all the Stretching and Strengthening exercises in Phase 1 with no adverse effects and good

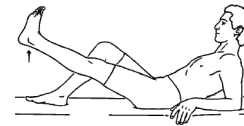
control. Continue to work in a pain free range of motion, and continue to do the stretching exercises of phase 1 with each exercise session.

Exercises phase 2

STRENGTHENING EXERCISES

- Repeat 2 sets of 10-15 reps on each side (unless otherwise stated in the exercise)

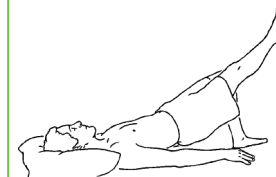
- Maintain good control and form throughout the exercise i.e. in both directions of movement



STRAIGHT LEG RAISE

Rest on your forearms, and lift your leg to the height of your bent knee. Keep your leg straight and don't let it rest on the floor on the return down. Repeat 10-15 times with your foot in the positions below

1. Pointing up towards the ceiling
2. Slightly turned outwards from the ankle



BRIDGING WITH ONE LEG EXTENDED

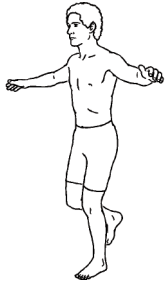
Lying on your back, bend both knees to 90° with your feet flat on the floor. Tighten T.A. and lift your pelvis and lower back off the floor. Now lift one foot off the floor, hold for 5-10 sec, put it back down, repeat with the other foot, and then relax completely. Begin again. Keep the T.A. and Glutes tight throughout the movement to keep the pelvis stable and without dropping to the one side. Repeat 5 times per leg.



STEP-DOWNS

Stand on one leg on a step facing down the stairs. Slowly lower yourself by bending your knee. Return to starting position without pushing off with the opposite leg. Be aware that your knee and foot do not roll inwards, that your weight is mostly on your heel with your foot flat, and that your knee goes down in line with your second toe.

Exercises phase 2 (continued)



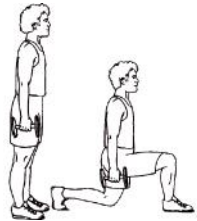
STORK STAND PICK-UP

Standing on one leg, with your weight on your heel, bend down to pick up a weight with the opposite hand ensuring that your weight stays on your heel, and that your knee goes down in line with your second toe. Also ensure that your knee and not your back does the bending work. Start by picking the weight up off a chair and gradually progress to picking up off the floor. Repeat 10 times on each leg (up and down is one repetition).

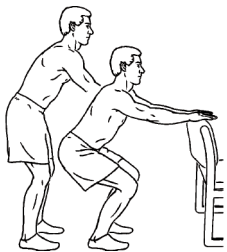


STATIC LUNGES:

Place one foot in front of the other. Bend both knees together until you have a 90° bend in both. Ensure that your front knee does not go over your front foot when bending to 90°. Return to the starting position. Perform 1 set of 10 reps per leg (complete all 10 reps with the one foot forward before changing and starting with the other leg in front).

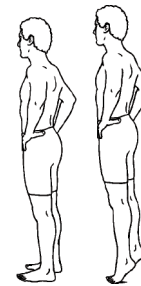


Progress this exercise to stepping lunges (i.e. start with feet together and step into a lunge position) once you are pain free with the above. Again when you lunge down, make sure that both knees are at a 90° angle and then return to the starting position.



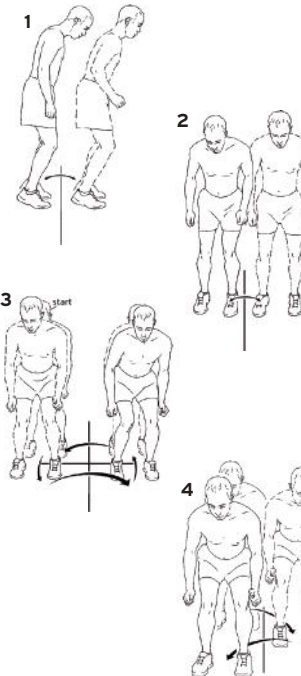
MINI SQUATS:

Stand with your feet hip width apart and hold your hands out in front of you. Now bend the knees keeping your feet flat on the floor, and ensure that your knees do not go past a 90° angle. Return to the starting position. Make sure that both movements are slow and controlled and that your knee goes down straight (no rolling inwards).



CALF RAISES

Supporting yourself against a wall, raise up onto your toes in the following manner: First onto your big toe, then onto the middle of your foot and then onto your little toe. Repeat this sequence 10 times. This exercise can also be performed on a step to allow a greater range of movement. You can progress to performing this exercise on one leg when you are able to perform with no problems on two.



HOPPING SEQUENCE

Hop from one point to another in the following sequences

1. Forward and backward
2. Side to side
3. Jump in a square
4. Jump diagonally forwards and backwards across a central imaginary line

Start by hopping with both legs and as you feel strong enough, progress to one legged hopping. Repeat the sequence 10 times on each foot. These exercises are important to improve functional proprioception (awareness of the body in space), and are essential for effective return to sport. You can also include shuttle running exercises, including zig-zag running, forward backward running, fast and slow interval running etc.

Contact us

This guide is designed to assist you in the self-management of your injury/condition.

We are here to assist your recovery in the shortest but safest possible time. If you have any uncertainties or queries regarding the information, please do not hesitate to contact us on:

Phone 017890400999 / 07870166861
www.mdphysiotherapy.co.uk