

Musculoskeletal Physiotherapy Outpatient Department

Information about Your Knee Pain

This information leaflet has been provided by the Physiotherapy department to assist you in returning back to normal following your knee injury. The following information will give you some advice and exercises to do while you wait to start your physiotherapy sessions.

There are many structures in the knee that can cause pain or discomfort.

The knee joint itself, is a hinge joint where the thigh bone (the femur) joins with the top of the shin bone (the tibia). There is a second joint called the patellofemoral joint where your patella (your kneecap) sits in a groove on the front of your femur (thigh bone). As you bend and straighten your knee, your kneecap slides up and down within this groove.



There is a layer of **cartilage** covering the joint surfaces at the top of the tibia, the bottom of the femur and the back of the kneecap. There are two shock absorbers: the medial and lateral **meniscus** in the inner and outer aspect of the knee joint, and there are lots of **ligaments** providing stability to the knee, connecting bone to bone. **Tendons** connect our muscles to the bones and often pain at the front of the knee can be caused by changes in the patella or quadriceps tendon for example.

Why is my knee painful?

All of the structures listed above are prone to degenerative changes as we grow older as a normal part of the aging process. These changes start to take place at the age of around 30 years old. Sprains or strains can occur when the muscles, tendons or ligaments get overstretched, and overuse injuries are common when we suddenly increase our activity levels beyond what our body is used to.

How long will it take to get better?

Your recovery time will depend on what is most likely causing your pain. For some people there will be a combination of factors; it is individual to you and your physiotherapist will discuss this with you on an individual basis.

It will also depend on how you manage your pain; for example, some people may be advised to modify their activity for a period of a time to let their knee settle down. But this does not mean stopping activity or exercise all together, in fact exercise and loading the knee will help but it will be important to find the right balance for you to get your knee moving normally and to strengthen the muscles supporting the knee joint.

Overleaf is some advice on how to help manage your pain and some exercises to get started with to help you improve your movement and strength.

Pain Relief

Sometimes it is necessary to take pain relief to help you to move your knee more comfortably. You may have been prescribed some by a doctor or you may wish to discuss your needs with a pharmacist. You may also wish to try heat as described below to help reduce your pain.

Application of Heat: Use a microwaveable wheat bag or wrap a hot water bottle in a towel and place over the area. Keep it on for 15 – 20 minutes, checking your skin regularly. Repeat up to three times a day.

Soaking your knee in warm water can help to reduce your pain and can make movement feel easier. Therefore, doing some of the exercises below after a bath/shower may be a more comfortable way of doing the exercises.

Straightening your knee

It is vital that you are able to get the knee completely straight and whilst this may feel uncomfortable, it will not be causing any harm. Do not be tempted to rest/sleep with a pillow under your knee. A good way of straightening the knee, is to elevate the ankle so that there is nothing underneath the knee, with your kneecap and toes pointing towards the ceiling. This will allow gravity to help the stretch. You may only wish to hold the stretch for 30 seconds – a minute, to avoid discomfort. After that you can bend the knee.



Driving

You may return to driving once you feel confident that you can safely control your vehicle and perform an emergency stop. It is advisable to inform the DVLA and your insurance company that you are returning to driving.

Smoking Cessation

Evidence has shown that smoking prolongs healing time. Stopping smoking during the healing phase will help ensure optimal recovery from this injury. For advice on smoking cessation and local support available, please refer to the following website: <http://smokefree.nhs.uk> or discuss this with your GP.

Exercises

The exercises overleaf are aimed at helping you to regain range of movement in your knee and to prevent your knee from becoming stiff. We would advise that you complete your exercises 3-4 times a day. It is important that you do not push through pain that you would describe as being more than a 5/10. Any pain or discomfort after you have stopped exercising should settle down within 1 hour of you stopping the exercises. If your pain is still worse as a result of the exercises, you could be overdoing them, try moving your knee more gently and slowly and consider doing fewer repetitions.

Walking, swimming and cycling are good forms of exercise that can help to improve the strength in your knee. It is important to start gradually and slowly increase your activity levels.

For further information please contact: Musculoskeletal Physiotherapy Outpatient Department Telephone: 01603 286990 Monday to Friday between 09.00 - 16.00.

Stage One Knee Exercises

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Knee Extension Stretch



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Rest the ankle of the affected leg on a foot stool / coffee table / chair in front of you with your knee as straight as you can get it. Toes, and kneecap pointing towards the ceiling. Make sure there is nothing underneath your knee, allowing gravity to help you to get the knee straight.

Hold for approximately 30-60 seconds making sure you can feel the stretch.

Gently lower the knee back down into a flexed position. Repeat 3 times hourly.

Walking



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Try to walk as normally as possible even if you need to use a crutch/crutches to enable you to do this. It is better to walk well with a crutch than limp without support. Unless you have been specifically told otherwise, try to walk in a normal heel - toe rhythm with your heel touching the ground first

Static Quads



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Lie or sit on the bed/floor with the affected leg straight. Bend your ankle and push your knee down firmly against the bed/floor. Feeling your thigh muscles tighten as you do this.

Hold 5 - 10 secs. - relax. Repeat 5 – 10 times.

Inner Range Quads



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Lying/sitting with your legs out straight. Put a firm rolled up towel/pillow under the affected knee. Keeping your knee touching the towel/pillow lift your foot and toes up, tightening your thigh muscle.

Hold approx. 5 - 10 secs. and slowly relax.

Repeat 5 - 10 times.

Seated Knee Extension



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Sitting on a chair. Pull your toes up, tighten your thigh muscle and straighten your knee. Hold approx. 5 - 10 secs. and slowly relax your leg.

Repeat 5 - 10 times.

Stage One Knee Exercises continued...

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Laying Straight Leg Raise

Lie on your back with your unaffected leg bent and foot on the floor, the affected leg is straight.

Bend the ankle of the straight leg, contract the muscles of your front thigh and lift the leg off the floor keeping it straight. In a controlled manner, return to the starting position.

Repeat 5 - 10 times.



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Knee Flexion in Sitting

Sit up straight on a sturdy chair, so that your feet are supported on the floor. Slide your foot backwards on the floor and bend your knee as much as possible.

You may wish to use a plastic bag under your foot to reduce the friction of the floor and help you slide your foot back more easily.

Hold the stretch for 20 seconds when you have got your knee as far as you can comfortably go.

Repeat 3 times.



Assisted Knee Flexion in Sitting

Sit up straight on a sturdy chair. Cross your ankles, with the assisting leg on top of the stiff leg.

Slide the foot of the affected leg backwards under the chair using your other leg to help you push it further.

Push until you can feel a stretch but do not push through pain. Hold the stretch for 20 seconds.

You may wish to gently pulse your foot backwards and forwards in the position that it feels most stiff to gain more movement.

Repeat 3 times

Stage 2 Knee Exercises

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Before moving onto further strengthening exercises, it is important that you are completing stage 1 exercises with ease, and that you feel comfortable and confident with normal daily activities, such as walking and completing the stairs unaided (if this was your baseline). See below for some tips on how to progress with these tasks.

Walking Practice

Try to walk as normally as possible even if you need to use a crutch/crutches to enable you to do this. It is better to walk well with crutches than to limp without.



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Unless you have been specifically told otherwise, try to walk in a normal heel - toe rhythm with your heel touching the ground first.

As you start to feel more comfortable, and less dependent on the crutches for support/balance, you try first using one crutch in your opposite arm – placing the crutch out in front of you at the same as your injured leg, before progressing to using no aid if you feel that you no longer need the support.

Stairs

Initially, you would have been advised to ascend the stairs using your uninjured leg to go up first, and to descend the stairs using your injured leg to go down first.



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To build strength and return to doing the stairs normally, try on the bottom stair, going up with your injured leg – just doing one stair/step at a time with both feet on the same step. Use the banister rail/wall for support.

Again, on the bottom stair, try stepping down with your uninjured leg first. This will help you to improve your confidence to complete the stairs as you did before.

Cycling/Swimming

At this point, you can start gentle cardiovascular exercise such as cycling or swimming to help build your fitness and your strength in a way that does not put too much strain through your knee. It is important that you start this gradually, e.g. cycling for 5 – 10 minutes initially, not pushing through pain and gradually increasing if you experience no adverse effects/increase in pain afterwards.



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Stage 3 Knee Exercises

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The exercises on this sheet are in order of difficulty. Only progress to the next exercise if the one before has felt comfortable and well controlled. Do not push through pain or through any movement restriction you may have been given by your consultant/physiotherapist e.g. deep squats. Complete these exercises once every other day or every couple of days to allow a rest/recover period in between.



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Bridge

Lie on your back with legs bent and your arms by your side. Squeeze your buttocks, roll your pelvis to lift your bottom off the floor/bed.

Try to keep your pelvis level so that your pelvis isn't tilting to either side. Hold the position and in a controlled manner return to the starting position. Repeat 5 - 10 times.



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Weighted Knee Extension

Sit up straight on a chair, with a 1kg weight attached to your ankle. (This could be in the form of a bag of sand or an ankle weight if you have one).

Keep the back of your thigh touching the chair and slowly lift your lower leg off the ground until your knee is straight. Hold for 5 – 10 seconds, then slowly return to the starting position in a controlled manner.

Repeat 5 – 10 times as pain allows.



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Wall Squat

Stand tall and lean your back against a wall and move your feet forwards, so that when you squat down, your knees stay over your ankles.

Squat down to a level that you can comfortably go to keeping your feet flat on the floor and the weight evenly spread between both legs. To start with, it is best not to squat lower than a 90 degree angle at your knee joint. Hold the position for a moment then push back up to starting position. Repeat 5 - 10 times as comfort allows.



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Slow Step Ups

Stand in front of a step / your bottom stair.

Put the foot of the affected leg on to the step.

Slowly push yourself up onto the step so that both feet are on the same step.

Lower yourself down and repeat 5-10 times.

Stage 4 Knee Exercises

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The exercises on this sheet are in order of difficulty. Only progress on to the next exercise if the one before has felt comfortable and well controlled. Do not push through pain or through any movement restriction you may have been given by your consultant/physiotherapist. E.g. deep squats/lunges. Complete these exercises once every other day or every couple of days to allow a rest/recover period in between.



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Forward Step Downs

Stand on your affected leg on a step/bottom stair facing down. You may wish to use the wall/banister rail for support. Slowly lower yourself by bending your knee and keeping your heel down for as long as possible. Return to starting position.

Repeat 5 - 10 times.



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Lateral Step Downs

Stand on the edge of a step/your bottom stair, with your unaffected leg hanging over the edge. You may wish to hold on to a banister rail/wall for support.

Keeping your pelvis horizontal, and your knees hip width apart, bend the knee on the step to lower your other foot almost to the floor. Straighten the knee to push back up without putting the foot back on the step. Repeat 5 - 10 times.



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Single Leg Squat

Stand tall and lean your back against a wall and move your feet forwards, so that when you squat down, your knee stays over your ankle.

Extend one leg out in front of you. Squat down to however far you can comfortably go keeping your feet flat on the floor. Do not push through pain. Push back up to starting position.

Repeat 5 - 10 times



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Forward Lunges

Stand tall with feet hip-width apart. Take one long step forward and squat down to bend both knees as far as you feel you comfortably can. Keep hips, knees and toes pointing forwards in both legs. Do not push through pain. Stand back up pushing through your heel, bringing your front foot back to the starting position. Repeat 5 - 10 times.