

East Sussex MSK Community Partnership

Patient Information - Exercising with Hip and Knee Osteoarthritis

Is it safe to exercise if I have pain?

- It is normal to experience some pain/discomfort during exercise. In fact, feeling some pain during exercise may help reduce your joint pain in the long term.
- Joint pain often relates to it not being used to movement and the muscles being weaker and deconditioned. Pain is NOT a sign that the exercises are causing tissue damage. You need to exercise so you become stronger and able to get on with day-to-day life more easily.
- Remember it is normal to feel some soreness in the muscles for a few days when you start to exercise or increase the intensity of your exercise. This is actually a good sign as it means you have worked your muscles and they will get stronger.

How can exercise help pain?

- Doing painful exercises may change the way your brain processes pain and the way you think about pain, helping you to re-start movements that you were previously fearful of.
- Exercise triggers the brain to release chemicals (endorphins) that have an analgesic (pain relieving) effect – exercising at an intensity that causes some pain may release more endorphins than pain-free exercise!

What types of exercise are good for joint pain?

Joints need a combination of the following types of exercise:

- Movement and stretching (examples on pages 9 and 10)
- Strengthening of the surrounding muscles (examples on pages 4-6)
- Cardiovascular exercise – the kind that increases your heart rate and breathing rate (examples on page 7)

The accompanying sheets show a range of exercises mainly aimed at increasing strength. You should start by choosing between 3 and 6 exercises. There are ideas on how you can adapt the exercise to suit you by making it easier and harder.

How can I do cardiovascular exercise?

Examples of cardiovascular exercise include walking, cycling and swimming. You can also repeat exercises like sit to stand, step ups or marching for cardiovascular exercise. When doing cardiovascular exercise, you should aim to keep working for at least 10minutes at a time.

How much cardiovascular exercise should I do?

- Health experts tell us we should all do at least 150minutes of cardiovascular exercise every week. Some people might choose to complete this as doing a 30minute brisk walk 5 days each week.
- A lot of people are not doing anywhere like these amounts so don't panic if this includes you, start gently and gradually increase your daily activity.
- Activity tracking using an App on your mobile phone or a wrist worn device can be a useful way of monitoring your physical activity levels.

Did you Know?

People who do at least 6,000 steps a day have been shown to be at lower risk of worsening joint pain.

How often should I do strengthening exercises?

To get the most benefit strengthening exercises should be done 2-3 times every week. Rest days between strength training are an important part of the strengthening process.

How hard should I be working during exercise?

- To get stronger you will need to feel like the exercise is 'hard' or 'very hard' when you do it. If it feels easy you will probably not gain any strength.
- When you first start exercising, pain may limit your exercise intensity. Try to find a balance between an acceptable pain level and sufficient intensity. With time you should be able to tolerate working harder.
- As you get stronger, it is important you change and progress your exercise programme over time to make it challenging enough.
- You can use the following scale to check if you are working hard enough:

Rating	Descriptor
0	Rest
1	Very, Very Easy
2	Easy
3	Moderate
4	Somewhat Hard
5	Hard
6	
7	Very Hard
8	
9	
10	Maximal

How many times should I repeat a strength exercise?

- The number of times you do an exercise in one go is normally referred to as repetitions. When doing strength exercises you would normally then have a rest of 60-90seconds before repeating the exercise – each group of repetitions is referred to as a set.
- The number of repetitions and sets you use will depend on how much resistance you are using, how used to exercise you are and how strong you are.
- You will get the most strength gain if you use enough resistance that you feel tired by the time you have done 5-6 repetitions but working this hard is likely to make your muscles sore so may not be the best place to start if you have never done strengthening exercises.
- If you are new to strength exercises find a level where you can manage 8-12 repetitions.
- You should aim to do 3-5 sets of each exercise.
- Examples of adjusting exercises to ability:

Ability	Exercise description	Resistance	Repetitions	Sets
Beginner	Squat	None	X 12	X 3
Regular exercise participant	Squat	10kg weight	X 5	X 5

My pain is worse today, what should I do?

- It is normal for people with joint pain to find their pain levels fluctuate. An increase in pain is often referred to as a flare up.
- Flare ups DO NOT indicate that your joint condition is worse but can make it difficult to get on with day-to-day life.
Adjusting your exercises to make them easier is a sensible way to cope. It is best to try NOT to stop exercising altogether.
- If you feel that exercise has caused a flare up of your pain, you should adjust your exercises to make them easier.
- Complete rest is unlikely to resolve the problem so try to keep doing some exercise however gentle.

When will things start to improve?

- Changes in strength take 6-8 weeks of regular exercise so you may not notice significant changes very quickly.
- Setting goals can be a useful way to monitor your progress and keep motivated by focusing on what is important to you.
- It is important not to set too harder goal, so you don't become disheartened, but at the same time make sure it is something that is important to you.
- Try to make your goal measurable e.g. Not "I want to walk more" but "I want to be able to walk for 15 minutes before I need to rest". Or "I want to be able to walk to my local shop and back home again".
- Writing down how you are doing with your exercises in an exercise diary is another way you will be able to measure your improvement. We have included an exercise diary in your pack for this purpose. It is useful to plan ahead what days and times you will exercise – start each week by mapping this out on your diary. Often people find it is easier to remember their exercise by doing it at the same time. You can set a reminder on your phone to help you whilst you are getting used to it.

Example planner:

Planner and exercise diary.							
Week 1							
Weight: 12 Stone							
Goal: To do my exercises 3 days this week and manage 5,000 steps every day							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time:	9am		9am			9am	
Exc 2	1min		1min			1min	
Exc 5	30secs x 3		30secs x 3			30secs x 3	
Exc 8	No weight x 10 x 3		No weight x 10 x 2			No weight x 10 x 3	
Exc __							
Exc __							
Exc __							
Physical activity:	5200 steps	Cycled 10mins	5600 steps	Cycled 10mins	5250 steps	3020 steps	4500 steps

Strengthening Exercises:

- ✓ The following exercises are designed to build up your strength.
- ✓ Aim to complete 8 – 12 repetitions of the exercise (one set)
- ✓ Rest for 60 – 90 seconds and then repeat the set 2 – 3 times.
- ✓ Remember as you improve you can gradually progress by increasing the number of sets you complete, increasing the load you use, reducing the rest time between sets or choosing one of the other options described in “Ways to make the exercise harder” for each exercise.



Do not attempt all exercises at once

1. Inner range quadriceps in sitting



Sit on your bed and place a rolled-up towel under your knee. Tighten your thigh (quadriceps) muscle to lift your heel whilst pressing your knee against the towel. As your leg straightens, it does not fully lift off the bed (only your foot lifts off). Slowly return to the start position.

Ways to make the exercise harder:

- Put weights on to your ankle (you can use a shopping bag or double oven glove with objects in to make it heavier). Make sure you can still fully straighten your knee against the weight.
- Try holding the knee straight for a few seconds each time.

Video:

<https://www.youtube.com/watch?v=ZPt0HPDgNDw&t=1s>

2. Knee extension in sitting



Sit upright with good posture. Slowly straighten your left leg out in front of you as far as feels comfortable. Slowly lower back to the floor and then repeat with the right leg. If you suffer any cramp in your upper thigh, do not straighten your leg fully and keep a small bend. This exercise will help mobilise your knee and improve strength in your leg.

Ways to make the exercise harder:

- Putting weights on your ankle or using a resistance exercise band around your ankle. Make sure that you can still fully straighten your knee against the resistance / weight.
- Try holding your leg straight for a few seconds at the end of each movement

Video:

<https://www.youtube.com/watch?v=EfYV4ztjsQI&t=10s>

3. Sit to stand



Sit upright with good posture. Place your arms across your chest. Gently lean forwards and push through your legs to stand up. Once upright, stand up straight. When you feel comfortable, slowly sit back down, ideally with your arms across your chest.

Tip: Start with your feet hip distance apart and do not let your knees touch during the movement.

Try counting how many you can do in a minute. Practice regularly and see if you can beat it next week!

Ways to make this exercise easier:

- Use a higher chair
- Use your hands to support

Ways to make this exercise harder:

- Use a lower chair
- Hold a weight
- Put 1 leg forwards, the leg that is underneath you will have to work harder!

Video:

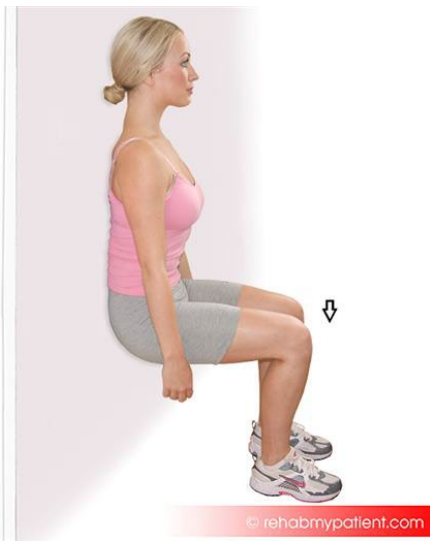
https://youtu.be/2rVOvOU_vmE



Test yourself!

How many can you do in a minute. Set a timer each week and see how you improve!

4. Wall squat



Open your legs slightly wider than shoulder width, stand with your back resting against a wall - a smooth surface works best, sometimes people find the back of a door works well. Slowly slide down the wall bending your knees and keeping them apart, so they are over your feet. Only go as far as you feel safe and comfortable, the furthest you should go is so your knees are at right angles. Always keep your feet flat on the ground, do not let your heels raise from the floor.

This exercise will help to strengthen your quadricep muscles, knee joints and legs.

Ways to make this exercise easier:

- Don't go so far.
- Instead of leaning against the wall stand where you can hold onto something sturdy like a kitchen work surface or back of a chair and use your arms for support.

Ways to make this exercise harder:

- Try to hold the squat at the bottom for a few seconds each time.
- Hold a weight.

Video:

<https://www.youtube.com/watch?v=dXkL0muKCLo&t=2s>

5. Hip extension



Stand upright with good posture. Hold on to a wall or table for support. Extend your leg behind you and return to neutral. You should feel a pull in your buttock (gluteal) muscles on the leg you are moving, and some mild pressure on the leg you are standing on. Try to keep straight and stop your back from arching so the movement is from your hip.

Tip: Looking at yourself in a mirror whilst doing the exercise can help you keep straighter and work the right muscles. *Continued...*

Ways to make this exercise harder:

- Don't hold on to the support.
- Add a weight to your ankle or resist the movement with an exercise band.

Video:

<https://www.youtube.com/watch?v=DS9WZdBFOE&t=1s>

6. Hip abduction



Stand upright with good posture. Hold on to a wall or table for support. Put your weight through one leg and take the other leg out to the side, and back to neutral. Repeat as required. You can also hold the leg out to the side and maintain this position. This exercise predominantly strengthens your outer hip and gluteal (buttock) muscles, but also mobilises a stiff hip joint. Try to keep straight and not tip to the side.

Tip: Looking at yourself in a mirror whilst doing the exercise can help you keep straighter and work the right muscles.

Ways to make the exercise harder:

- Don't hold on to the support.
- Add a weight to your ankle or resist the movement with an exercise band.

Video:

<https://www.youtube.com/watch?v=swgVaPM5B2Q&t=1s>

7. Bridge

LEVEL 1



© rehabmypatient.com

Video:

http://youtu.be/fK_xUE3OKIE

LEVEL 2



© rehabmypatient.com

Video:

<http://youtu.be/IDLlyM9nzj8>

Lie flat on your back, with your knees bent, squeeze your bottom muscles and lift your body upwards. Keep your arms by your side and use them to help you balance. Make sure you maintain good posture (do not over-arch your lower back) and contract the deep abdominal muscles by squeezing your tummy towards your spine. This exercise helps to strengthen the abdominal, lower back, gluteal and hamstring muscles.

Tip: This exercise can be done on a bed if you do not feel safe or able to get on and off the floor.

Ways to make the exercise harder:

1. Cross your arms on your chest so they are not supporting you.
2. Put 1 leg further away from your bottom so the leg closest to your bottom has to work harder. Make it even harder by lifting 1 leg off the bed
3. Hold a weight on your pelvis.

8. Calf raises

LEVEL 1



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Video:

<https://www.youtube.com/watch?v=cqDMYUaIXvw&t=1s>

Stand upright and hold onto a wall/table for balance if required. Slowly raise up onto your toes, and control the movement back down, during the exercise keep your knees straight. This exercise will strengthen the calf muscles and ankle joints.

Tip: Try to stop yourself from leaning forwards - think of yourself as a rocket taking off straight up into the air.

LEVEL 2



© rehabmypatient.com

Video:

<https://www.youtube.com/watch?v=Ovzq9hIKOSk&t=3s>

Ways to make this exercise harder:

- Don't use your hands for support or only use your fingertips very gently to help with balance.
- Hold a weight.
- Complete the exercise on 1 leg.

Harder still:

- Increase the range of movement your muscles are working through by doing the exercise on a step as shown in the second image.

Remember you can combine these options to find the level that works best for you!

Cardiovascular Exercises

- ✓ These exercises are designed to build up your cardiovascular endurance.
- ✓ Aim to complete for one minute or until you need to rest.
- ✓ Rest for 60 – 90 seconds and then repeat 2 – 3 times.
- ✓ Aim to keep working for at least 10 minutes for optimal benefit.



1. High knees marching



Stand up straight with good posture, and with your right hand touch your left knee. Repeat to the opposite side. You can make the exercise more challenging by lifting your knee higher to meet your hand.

Only do this if you feel safe. Make sure you have a chair nearby and something to hold on to if you need it.

- The faster you go the more you will get your heart rate up.

Video:

<https://www.youtube.com/watch?v=ZPt0HPDgNDw&t=1s>

2. Step ups



Stand upright in front of the bottom step of your staircase. Step up onto the first step with one leg, try to ensure your knee stays over your second toe area, and bring the other leg to the step to meet it. With control, lower this same foot back to the floor, followed by the other.

Keep thinking about aligning your knee over your foot - most people find it wants to drift inwards, and they need to use their bottom muscles to prevent it!

Repeat for 1 minute, or until you need a rest.

Ways to make this exercise easier:

- Hold the handrail for support.
- Use a shallower step.

Ways to make this exercise harder:

- Use a higher step.
- Hold a weight.

Video:

<https://www.youtube.com/watch?v=EfYV4ztjsQI&t=10s>

Other ways to get cardio exercise:

Walking



Cycling



Swimming



housework



Dancing



Gardening



Balance Exercises

- ✓ These exercises are designed to improve your balance and avoid falls.
- ✓ It is normal to feel wobbly as this is a sign you are challenging your balance; make sure you are somewhere safe with something steady to hold onto like the kitchen worktop.
- ✓ Aim to hold each exercise for up to 60 seconds.
- ✓ Rest and then repeat the exercise 2 – 3 times.



1. Tightrope standing



This is a useful co-ordination and balance exercise. Stand upright with good posture, next to a wall or table just in case you need support. Place one foot in front of the other, with the heel of one foot against the toes of the opposite foot – as though you are balancing on a tightrope. Stand here, and maintain good balance.

Tip: Try to look straight ahead of you, and not down at your feet.

Ways to make this exercise easier:

- Hold on to support.
- Place your feet together (easiest) or 1 half way in front of the other with the inside borders touching instead of heel to toe.

Ways to make this exercise harder:

- Try walking like you are on a tightrope.
- Try shutting your eyes (CAUTION - this is surprisingly difficult so make sure you have something to grab hold of).

2. Single leg balance



Stand on one leg, and try to keep your balance. Be careful and hold on to a wall or table for support when you first start this exercise, but as you feel more confident you can reduce contact and support from the wall or table. A single leg balance exercise such as this is an enormously valuable exercise, and its benefits including strengthening the muscles and ligaments around the ankles and knees, and improving balance.

Continued...

Make sure you have a chair nearby and something to hold on to should you need it.

Tip: Try to pull up tall and keep your hips level – it's useful to do this in front of a mirror - tighten your bottom muscles if your hip is dropping down on 1 side.

Stretches

- ✓ These exercises are designed to improve your mobility and flexibility.
- ✓ Aim to hold each stretch for up to 45 seconds.
- ✓ Repeat several times so that the stretch is held for a total of 2 minutes



1. Quadriceps stretch



ALTERNATIVE



Stand with a chair or stool behind you and something you can hold on to for support. Put 1 foot up on to the chair. Straighten your back; tuck your bottom underneath you and push your hips forwards whilst keeping your knees together. You should feel a stretch in the front of your thigh.

Tip: This stretch is often painful to start off with but with repetition can often reduce knee pain. Start with holding for a short time and build it up gently.

Alternatively you can stretch the same area when lying on your tummy pulling your foot towards your bottom.

Tip: If you can't reach your foot try using a band, belt, dressing gown cord, scarf or old pair of tights to loop over your ankle.

2. Hamstrings stretch



ALTERNATIVE



Standing up straight, place your foot on a chair or step (make sure that you are safe balancing and have something to grab hold of). Keep your leg straight and straighten your back. You should feel a stretch down the back of your thigh. To increase the stretch lean forwards reaching towards your toes – don't let your back round though!

Alternatively, you can stretch the same muscles group in a sitting position with your legs out straight. Make sure you are keeping your back straight to get the best stretch – lots of people can't reach their toes – just go as far as you need to feel the stretch.

3. Calf stretch



Stand facing a wall. Step one leg towards the wall keeping both feet pointing forwards and both heels on the ground. Bend your front knee till you feel a pull in the rear calf.

Please note you do not have to have your arms up in the air – they can rest forwards on to the wall.

Tip: Make sure the toes on your back foot don't point out to the side!

4. Hip extension



Perch on the end of your bed. As you lie back on to the bed hug 1 knee up to your chest. Let the other leg stretch down towards the floor.

You should feel a stretch in the front of the lower thigh.

Tip: The tighter you hug the top leg to your chest the more you will focus the stretch.

5. Stretch for inner thigh



Lie on your back with your knees bent. Let 1 knee fall out to the side till you feel a stretch in your inner thigh.

Remember to relax and breath through the stretch.

To increase the stretch you can drop both knees out at the same time!

Exercise Success Tips

- ✓ Writing down how you are doing with your exercises in an exercise diary can help to measure your improvement. We have included an exercise diary for this purpose.
- ✓ It is useful to plan what days and times you will exercise – start each week by mapping this out on your diary.
- ✓ Often people find it is easier to remember their exercise by doing it at the same time. You can set a reminder on your phone to help you whilst you are getting used to it.

Planner and Exercise Diary

Week:

Weight:

Goal:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time:							
Exc __							
Exc __							
Exc __							
Exc __							
Exc __							
Exc __							
Physical activity:							

Planner and Exercise Diary

Week:

Weight:

Goal:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time:							
Exc __							
Exc __							
Exc __							
Exc __							
Exc __							
Exc __							
Physical activity:							

Sources of information

World Health Organisation recommendations for exercise:

<https://www.who.int/dietphysicalactivity/physical-activity-recommendations-18-64years.pdf?ua=1>

PEAK programme training, University of Melbourne, Australia.

Important information

This patient information is for guidance purposes only and is not provided to replace professional clinical advice from a qualified practitioner.

Reference

The following clinicians have been consulted and agreed this patient information:

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MSK Physiotherapy

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