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Knee Osteoarthritis

Home Based Rehabilitation Programme

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Home Rehabilitation Programme for Knee Osteoarthritis (OA)

The main principles when gradually rehabilitating knee osteoarthritis:

- Control pain and swelling.
- Improve joint range of motion.
- Improve muscle strength and joint stability.
- Improve your balance and co-ordination.
- Improve your general cardiovascular fitness.
- Improved ability to carry out activities of daily living.

Introduction

The purpose of this leaflet is to provide you information about knee osteoarthritis and how to best manage it. There is strong evidence to support the benefits of participation in regular exercise and education in the management of osteoarthritis. The information and exercises here is based on the latest studies. Always remember that there is a lot you can do to help your condition.

What is osteoarthritis of the Knee?

Osteoarthritis is a condition that causes the joints to become painful and stiff. Osteoarthritis is the most common form of arthritis and affects at least 8.75 million people in the UK. The knee joint is a commonly affected joint. The information provided here is to help you best manage your condition. There is no cure, however, research has identified that remaining active and performing daily exercise can make can have a positive impact.

What are the symptoms of Knee osteoarthritis?

These vary from person to person. People may experience:

- Pain
- Stiffness
- Swelling
- Reduced function
- Weakening of the muscles

What are the causes?

Osteoarthritis is sometimes described as degenerative joint disease or “wear and tear” this is a misleading description. A more suitable phrase is “wear and repair” i.e. the cartilage becomes thinner and new bone growth occurs to stabilise the joint.

Age is often the leading cause of osteoarthritis and commonly affects people over the age 50 years old. Women tend to be more affected by knee osteoarthritis than men, however both sexes can experience knee

osteoarthritis. Previous injury such as fractures or surgery can lead to osteoarthritis changes. Other factors that can predispose someone to knee osteoarthritis include: their occupation, genetics and excess body weight, which can contribute to the onset of joint pain.

How can I help manage my condition?

Advice to help improve symptoms:

- Try to remain active and stay at work even if you have to modify your duties.
- Strengthening the muscles which support knee, hip and back.
- Going for walks, cycling or swimming can also help reduce pain and improve mobility and general health.
- Weight loss to decrease the loads across the joint has been shown to significantly reduce pain.
- Applying a hot pack or ice packs can help with pain and swelling for 5 to 10 minutes two to three times a day. Make sure you place a damp towel between the ice and your skin to prevent an ice burn. Further information can be found on the NHS Inform website
- Using painkillers to provide short term relief. Discuss these with your General Practitioner (GP) or pharmacist.

How can physiotherapy help?

It is very important that you have an active role in the management of your condition and work with your physiotherapist to help improve your condition.

Level 1: Early Stage Exercises/Treatment:



The initial goal of early treatment is to gradually introduce you to exercise to improve your range of motion and strengthen the muscles that help support your knee. It is normal to experience some discomfort during and following exercise. The important thing is that the discomfort is acceptable to you. It is also important you do not over do it. Start off easy and build up gradually.




Pain Relieving Medications

As with any medication please speak to your GP, pharmacist or a suitably qualified healthcare professional for advice.

Level 1 Exercises: Start by performing 1 set of 5 to 10 repetitions per exercise. As these become easier increase either the number of sets or repetitions as you feel able to do so. Progress over a 2 to 3 week period then if you find these exercises too easy, progress onto Level 2.

Level 1 Exercises:

Exercise	Diagrams reproduced courtesy of ©PhysioTools	How to do exercise sets and repetitions
1. Knee Slides		Sit with a towel under one foot. Bend and straighten your knee by sliding your foot along the floor. Alternately you can do this in sitting whilst sliding the foot along the floor.
2, Knee Extension		Rest you heel on a rolled towel or cushion. Let the weight of your leg gently straighten your knee. Hold this position for 30 seconds to 1 minute (even up to 5 to 10 minutes), repeat a 3 to 5 times.

<p>3.</p> <p>Inner range quads</p>		<p>Lying on your back. Bend one leg and put your foot on the bed and put a cushion under the other knee.</p> <p>Exercise your straight leg by pulling your foot and toes up, tightening your thigh muscle and straightening the knee (keep knee on the cushion).</p> <p>Hold approximately 10 seconds and slowly relax. To make the exercise harder put a small leg weight around your ankle, if available.</p>
<p>4.</p> <p>Straight Leg Raise</p>		<p>Active Straight Leg Raise</p> <p>Lie on your back with one knee bent. Spine in neutral position.</p> <p>Tighten your front thigh muscles and lift the straight leg. Lower the leg to the starting position in a controlled manner.</p>
<p>5.</p> <p>Side-lying Clam</p>		<p>Lie on your side with your knees bent. Tighten your pelvic floor muscles and gently pull your lower stomach in.</p> <p>Lift your top knee as far as you can, without letting your pelvis rotate forward or back. Keep your feet together during the exercise.</p>

<p>6.</p> <p>Mini-squat with support</p>		<p>Stand and take support if needed.</p> <p>Squat down and at the same time move your pelvis slightly backwards. Straighten your hips and return to the starting position.</p>
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Level 2: Mid Stage Exercises/Treatment:

Criteria for Progression to Level 2:





- Minimal or no pain
- Minimal or no swelling
- Good knee joint range of motion.



Aims

- Help reduce pain and swelling
- Improve muscle strength
- Improve range of motion and flexibility

Level 2 Exercises - Commence these exercises by performing 1 to 3 sets of 10 repetitions. Progression as per Level 1, gradually increase sets or repetitions as you feel you are making progress. If you find these exercise too challenging return to Level 1 exercises. If you find these exercises are too easy, progress to Level 3.

Level 2: Exercises

Exercise	Diagrams reproduced courtesy of ©PhysioTools	How to do exercise sets and repetitions
<p>1</p> <p>Knee Extension in Sitting</p>		<p>Sit up straight on a sturdy chair, so that your feet are supported on the floor.</p> <p>Bend your ankle and straighten your knee using your front thigh muscles.</p> <p>In a controlled manner, return to the starting position.</p>
<p>2</p> <p>Hip Abduction in Standing</p>		<p>Stand tall and take support, if needed.</p> <p>Lift your leg sideways and bring it back, keeping your trunk straight throughout the exercise.</p>
<p>3</p> <p>Bridge</p>		<p>Lie on your back with legs bent.</p> <p>Squeeze your buttock muscles and roll your pelvis off the floor.</p> <p>In a controlled manner, return to the starting position.</p>
<p>4</p> <p>Wall Squat</p>		<p>Stand leaning with your back against a wall and your feet about 20 cm from the wall.</p> <p>Slowly slide down the wall until your hips and knees are at right angles. Return to starting position.</p> <p>Note: Only do this exercise if the knee is pain free with no swelling. If painful or increasing pain stop.</p>

Stretches: Hold each stretch for 20 to 30seconds. Repeat 2 to 3 times.		
<p>5</p> <p>Standing Hamstring Stretch</p>		<p>Stand with the leg to be stretched on a footstool.</p> <p>Flex your ankle and push the heel towards the footstool keeping your knee straight.</p> <p>Then bend your upper body forwards from your hips keeping your back straight. You should feel the stretching behind your knee and thigh.</p>
<p>6</p> <p>Side Lying Quad Stretch</p>		<p>Lie on your side with your knees bent. Put a towel around your top ankle.</p> <p>Hold the towel and pull the ankle towards your buttock.</p> <p>Tighten the buttock muscles and straighten your hip. Do not arch your back.</p>
<p>7</p> <p>Calf Stretch</p>		<p>Stand with your feet hip width apart and take a step forward.</p> <p>Take most of your weight on the leading foot. Gradually take your weight to the back foot stretching your heel to the floor. Keep your upper body in line with your back leg.</p>

Level 3: End Stage Exercises/Treatment:

Continue to perform Level 2 stretches and commence Level 3 exercises. As per Level 1 and Level 2, adjust the repetitions accordingly. Start off with 1 to 3 sets and gradually build up the number sets and/or repetitions as discomfort and fatigue allows. If you find these exercises too challenging return to Level 2 exercises.


Criteria for Progression to Level 3:




- Level 2 exercise becoming easy
- Little or no pain
- Minimal or no swelling
- Very good rang of movement or full

Aims

- Continue to improve strength
- Improve or maintain joint range of motion
- Improve balance and control
- Improve exercise tolerance

Level 3: Exercises

Exercise	Diagrams reproduced courtesy of ©PhysioTools	How to do exercise sets and repetitions
1. Stretches	Perform stretches as detailed in Level 2.	3 x 30 seconds.
2. Step Ups		Stand tall behind a step. Place your whole foot on the step and step up. Note: While stepping up keep hip, knee and toes aligned.

<p>3.</p> <p>Step Downs</p>		<p>Stand on one leg on a step facing down.</p> <p>Slowly lower yourself by bending your knee to 30 degrees.</p> <p>Return to starting position.</p> <p>NOTE: if you find this too difficult perform step ups only.</p>
<p>4.</p> <p>Chair Squat</p>		<p>Stand tall with your feet approximately hip-width apart and weight distributed evenly on both feet.</p> <p>Make sure the chair behind you is at a suitable distance from you.</p> <p>Bend your knees and hips and squat down onto the chair. Knees and toes should be pointing in the same direction.</p> <p>Sit down lightly and push back up to the starting position using your front thighs and buttock muscles.</p>
<p>5.</p> <p>Single-leg Standing</p>		<p>Balance on one leg.</p> <p>Remember to stand tall, with weight evenly on your foot and toes pointing forwards.</p> <p>Perform 2 to 3 repetitions 20 to 30 seconds as able.</p> <p>To increase difficulty, stand on a pillow.</p>

Prognosis

A diagnosis of knee osteoarthritis does not necessarily mean a continued deterioration in the joint or progressive pain. It is also important to note that changes on an x-ray do not correlate with the pain that a person may experience. Other factors may play a role e.g. excessive body weight is a significant factor and/or previous injury/surgery to the region. It will often take around 3 to 6 months of exercise participation to see improvement, but this will depend on the cause.

It is normal to have flare ups during this time. If this happens, then it may be best to reduce the repetitions or rest for a few days before starting again.

Further advice

NHS Inform – How to Apply ICE - Advice

<https://www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/guidelines/price-guidelines>

NHS Inform - <https://www.nhsinform.scot>

Escape Pain - <https://escape-pain.org/>

Arthritis UK- <https://www.versusarthritis.org/about-arthritis/>

Chartered Society of Physiotherapy - www.csp.org.uk/conditions/managing-your-bone-joint-or-muscle-pain