Chester Knee Clinic

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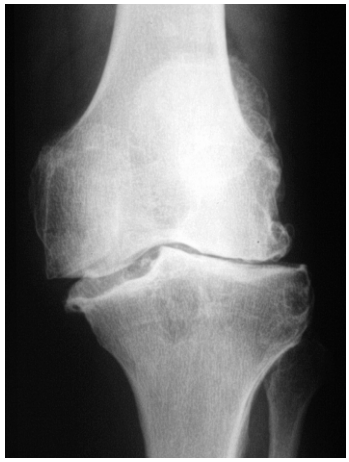
GUIDELINES FOR REHABILITATION OF TOTAL KNEE REPLACEMENTS

What is a total knee replacement?



A total knee replacement is a surgical operation aiming to replace a worn-out joint. The most common form of damage seen is osteoarthritis. When arthritis occurs, the articular cartilage is worn away and this results in roughening and distortion of the joint surfaces, with progressive loss of joint height. This process is painful, especially while bearing weight and walking distances, and gradually leads to restricted knee movement and limited mobility. The knee may swell and appear inflamed.

The total knee replacement (TKR) will replace the damaged surfaces of the femur (thigh bone) and the tibia (shin bone). These components are usually attached to the bone using bone cement. We do not replace patellae routinely.

The knee replacement aims to relieve pain and increase mobility. To achieve good function from your knee it is essential to do your exercises to improve the strength and flexibility of the joint post-op. The following guide will help you to understand your postoperative exercise program. Most exercises can be carried out at home. This program will be supervised by a physiotherapist initially or for several weeks, depending on your progress.

For a start try to lose weight

People who are overweight are six times more likely to end up with arthritis in both of their knees than average weight individuals. Overweight people are more than eight times more likely to develop osteoarthritis in both knees than their thinner counterparts. Therefore, losing weight is one of the best ways to improve the condition of your knee and optimise surgical results. Remember to seek your doctor's advice before beginning your weight loss program.

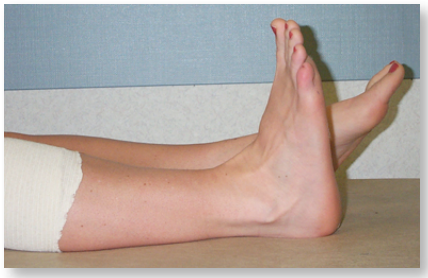
For more information on arthritis and knee replacements please see:
www.allaboutarthritis.com and www.jointreplacement.com

The first 24 hours after the operation

During the first 24 hours after your knee replacement you will rest in bed. You will have a large compression bandage and drain. During this period your physiotherapist will visit you and go through some 'bed exercises' for breathing and circulation. Once your are a little more mobile you should continue with these exercises periodically throughout the day. You should assist the nursing staff to move you in the bed using the overhead bar and your **un-operated** limbs.

Initial Exercises

Perform all the exercises, as shown, regularly throughout this period (approximately 10 times each exercise at least 6 times per day).

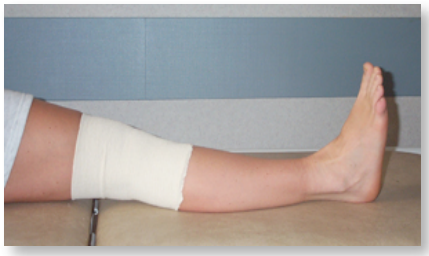


CIRCULATION EXERCISES

Sit or lie with your leg elevated, to allow your foot to be higher than your hip, and practise pedalling your feet up and down at regular intervals throughout the day.

BUTTOCK TUCKS

Whilst lying down tighten your buttock muscles. Hold for 5 seconds and relax.

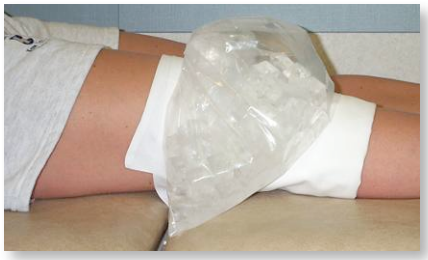


QUADRICEPS EXERCISE

Lying on your back with your knee straight push your knee firmly down against the bed to tense your Quads (thigh) muscle. Hold for 5 seconds. Relax.

Day 1

Your bandage will be reduced and your drain removed. Once this has been done the physiotherapist or nurse may apply an ice pack or Cryo/Cuff to help with the swelling and pain.



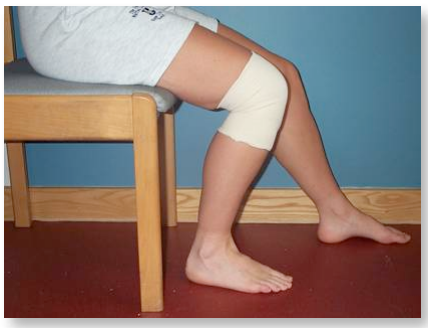
Ice is a natural anaesthetic that helps relieve pain. Ice also controls swelling by slowing the circulation in your knee. Never apply ice directly onto skin, or leave on for longer than 20 minutes. Use a bag of frozen peas or a plastic bag filled with crushed ice. Then wrap the ice bag with a small moist towel to protect your skin, or cover your knee with a damp tea-towel.

If you are given a **Cryo/Cuff** device to use in hospital you should take it home and continue to use it at home in the early weeks after the operation. Cryo/Cuff combines the therapeutic benefits of controlled compression to minimize haemarthrosis and swelling, and cold to minimize pain.

The leg muscles on the affected side are often weak and tight so exercises will aid your recovery. The physiotherapists will show you these exercises:

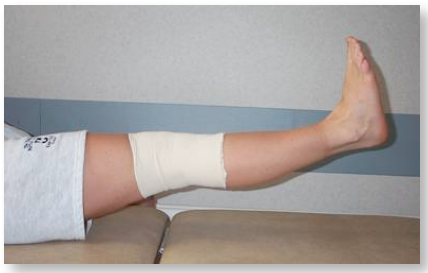
KNEE FLEXION AND EXTENSION EXERCISES

Lie on your back, place a sliding board on the bed under your heel. Bend your knee by sliding your foot up and down the board or plastic sheet. Aim to increase your range of movement gradually as you do the exercise. If you find bending difficult, try putting a strap around your foot and, as you slide up, assist the movement by pulling on the strap.



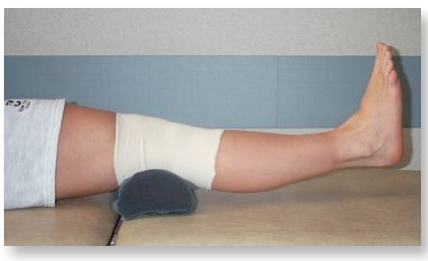
KNEE FLEXION EXERCISES IN A CHAIR

Sit in a chair and bend your knee to allow your foot to rest on the floor. Practice bending knee sliding your foot on the floor pulling your foot underneath you. Repeat 15-20 times. At least 3 times a day.



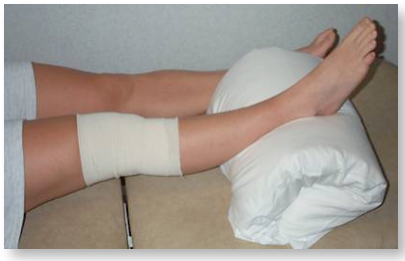
STRAIGHT LEG RAISE (SLR)

With your knee straight, push it down to tense the Quads, as above, pull your toes up towards you and slowly raise your straight leg 5 cm off the bed. Hold for 5 seconds and lower. Repeat 10 times at least 3 times a day.



TERMINAL KNEE EXTENSION (INNER RANGE QUADS)

Lying or sitting on the bed, place a rolled up towel under your knee with your heel on the bed. Tighten your knee to straighten it, keeping the back of your knee on the towel and raising your heel off the bed. Hold for 5 seconds. Repeat 10 times at least 3 times a day.



EXTENSION

To make sure your knee is straightening fully, try lying or sitting on the bed with your heel only supported on a pillow or rolled up towel, to allow your knee to relax into a straight position.

Getting in and out of bed:

The physiotherapist will help you to get out of bed and if you feel up to it you will be allowed to sit out in the chair for a short while. You will be shown how to use a Zimmer frame to help you mobilise.

When getting out of bed:

- Sit up in bed and lift your legs out one at a time pivoting on your bottom as you do so.
- Then, put yourself in a sitting position on the side of the bed with the foot of the **un-operated** leg on the floor, knee bent. Allow the knee of the **un-operated** leg to bend until the foot is on the floor.
- Place your hands on the bed either side of you, push down on the bed with your hands as you stand up, drawing your operated leg back as you do so.
- When you are on your feet and well balanced, take hold of your frame/crutches/sticks.
- **Getting back into bed is the reverse procedure.**

Points to Remember:

- Ensure that the backs of your legs are touching the side of the bed before you sit down and that, as you start to lower yourself, you slide the operated leg in front of you.
- Always go back far enough to give full support to the operated leg before pivoting yourself back in to bed.

Walking with the physiotherapist:

The sequence is always:

- Walking aid moved forward first,
- then the operated leg,
- finally the **un-operated** leg

As your confidence and leg control improves, you will progress to crutches or sticks. Most people will manage with 2 sticks by the time they are discharged from hospital, unless there are associated problems with other joints.

It is important that you are measured correctly by your physiotherapist for the walking aid you are using.

Return to a normal walking pattern is extremely important. It will take time and effort to achieve a normal walking pattern but your physiotherapist will help you.

Getting in and out of a chair:

Sitting down on chairs with arms

- Position yourself so that the backs of your legs are right up against the chair.
- Reach back for the arms of the chair, one hand at a time.
- Slide the operated leg out in front as you lower yourself to sit down on the chair.
- Sit down on the front of the seat, then move backwards until comfortable.

Stairs

You will be taught to negotiate steps and the stairs by your **physiotherapist** before discharge – always using aids to support the operated leg.

The sequence is as follows:

- Going up stairs you should place the **un-operated** leg first, followed by the operated leg, and finally the sticks or crutches. Use the banister with the free hand if possible.
- Going down the stairs you should place the sticks or crutches first followed by the operated leg, and finally the **un-operated** leg.

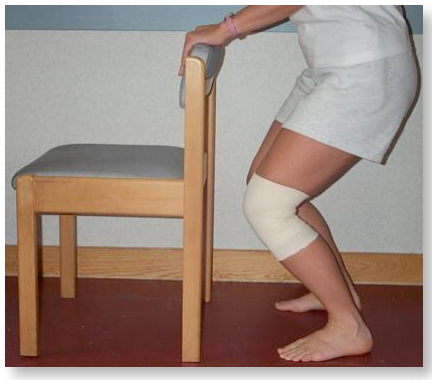
Day 2 to discharge

Your physiotherapist will work with you to improve your knee flexion, strength and your mobility. You will need to exercise independently in order to get the most out of your joint replacement and your motivation and commitment to the exercise program will speed up your recovery and return to your normal activities. Once your consultant and physiotherapist are happy with your progress you will be allowed home – this is usually 5-7 days after your surgery.

After discharge

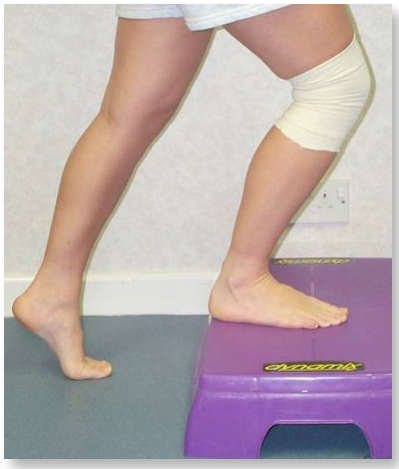
You must continue to do your exercises regularly at home, however your rehabilitation will be supervised by the out patient physiotherapists. The following exercises may be shown to you when you attend the out patient physiotherapy department. **You should only try them with the permission of your physiotherapist.**

Intermediate Exercises



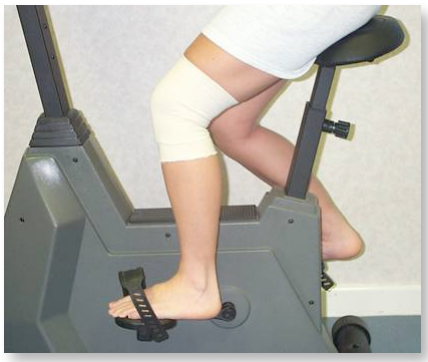
PARTIAL SQUAT WITH A CHAIR

Hold onto a sturdy chair or counter with your feet slightly apart. Bend both of your knees gently, making sure you maintain a straight posture, to keep your leg alignment correct. Do not bend any lower than 90 degrees. Hold for 5 – 10 seconds, then slowly return to standing.



STEP UPS: FORWARDS

Stand in front of a 20 – 40 cm step. Step up leading with your operated leg followed by the other leg. Step down with the good leg first. Return to start position. Repeat 10-15 times.



CYCLING

Once you have sufficient bend your physio will allow you to start to use a static bike. Start on a low resistance for a short time (5 to 10 minutes). Set the saddle to a comfortable height to allow a full revolution. Progress resistance and time as your knee improves.

WALL SLIDE

Stand leaning with you back against a wall, feet about 20 cm away from the wall. Slowly slide down the wall allowing your hips and knees to bend gently. As your knee regains strength, aim to slide further down until your hips and knees are at right angles. Return to starting position.

DRIVING: you may be able to drive 2 to 4 weeks after your operation, or even earlier, depending on your general health, mobility, the range of movement of your replaced knee and muscle strength. It is a good idea to practice moving your feet on the pedals while the car is stationary. This will give you a good idea of how you will be able to manage. **You should be able to do an emergency stop before attempting to drive.** You should also discuss the timing of going back to driving with your surgeon and your physiotherapist. For further information please visit DVLA's website (www.dvla.gov.uk).

This recent clinical study adds further scientific information on this issue: "Clinical studies of brake response time have suggested that patients should be advised to wait 30 days postoperatively before resuming driving if they had a right TKA and 10 days if they had a left TKA, as long as they drive a car with automatic transmission and not under the influence of narcotics. In our study, we allowed patients to self-determine when to resume driving by suggesting that they wait to drive until they felt safe behind the wheel, so that if they got in an accident it was not because they had difficulties driving the car but because of a judgment error. We observed that by 4 weeks, 48% of patients (85 of 177) with a right TKA and 57% of patients (74 of 129) with a left TKA resumed driving. When patients considering TKA ask when they can expect to drive, we remind them that they should only drive when they feel safe behind the wheel and that they will drive sooner if they have their left knee replaced and drive a car with an automatic transmission than if they have their right knee replaced or drive a car with a manual transmission." Source: Stephen M. Howell and Stephanie L. Rogers. *Method for Quantifying Patient Expectations and Early Recovery After Total Knee Arthroplasty*. ORTHOPEDICS 2009; 32:884.

FLYING: there is no universal agreement as to when it is safe to travel by plane after a knee replacement. Most orthopaedic surgeons advise their patients not to fly for 4 to 6 weeks following a knee replacement. Short flights do not seem to be a problem. However, long intercontinental flights are a potential problem as there is an increased incidence of spontaneous DVT (deep venous thrombosis), even in the young and healthy passengers. It is possible that sitting for long period of time, in a confined space and with very little leg room in economy class, could predispose to the development of deep venous blood clots, even in healthy individuals, and especially in people following recent knee surgery. If you have to travel by plane, between 2 and 4 weeks after a knee replacement, it would be wise to contact your airline's Medical Department and ask them for advice. Also, please discuss this issue with your GP, as you may have to take prophylactic measures (flight socks) and medication such as Aspirin or other anticoagulants for several weeks.

COMPLICATIONS, although not very frequent, can occur after a knee replacement, as with all major surgical procedures. They include postoperative bleeding, excessive and persisting knee and leg swelling, blood clots (DVT or deep vein thrombosis), pulmonary emboli (PE), leg phlebitis, skin and joint infection, limited range of movement (flexion and/or extension), joint stiffness (arthrofibrosis), etc. There are also anaesthetic risks, both during and after the procedure. **Please discuss all of your concerns with your nurse, anaesthetist and surgeon, before you sign the consent form.**

QUESTIONS? If you have any questions or problems with your rehabilitation please contact our **Physiotherapy Department** on **01244 684 314**.

PROBLEMS? Please contact **us** if your knee bleeds or discharges blood-stained fluid continuously, or if the skin scar is inflamed or looks infected. Also, contact us or your **GP** if you have a fever, severe nausea, increased pain unrelieved by medication and rest, increased painful swelling unrelieved by elevation and ice, pain in the calf, shortness of breath, chest pain or abnormal coughing.

NOTES:

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Design and Editing: Vladimir Bobic, Chester Knee Clinic, Chester
Updated on: 110111