



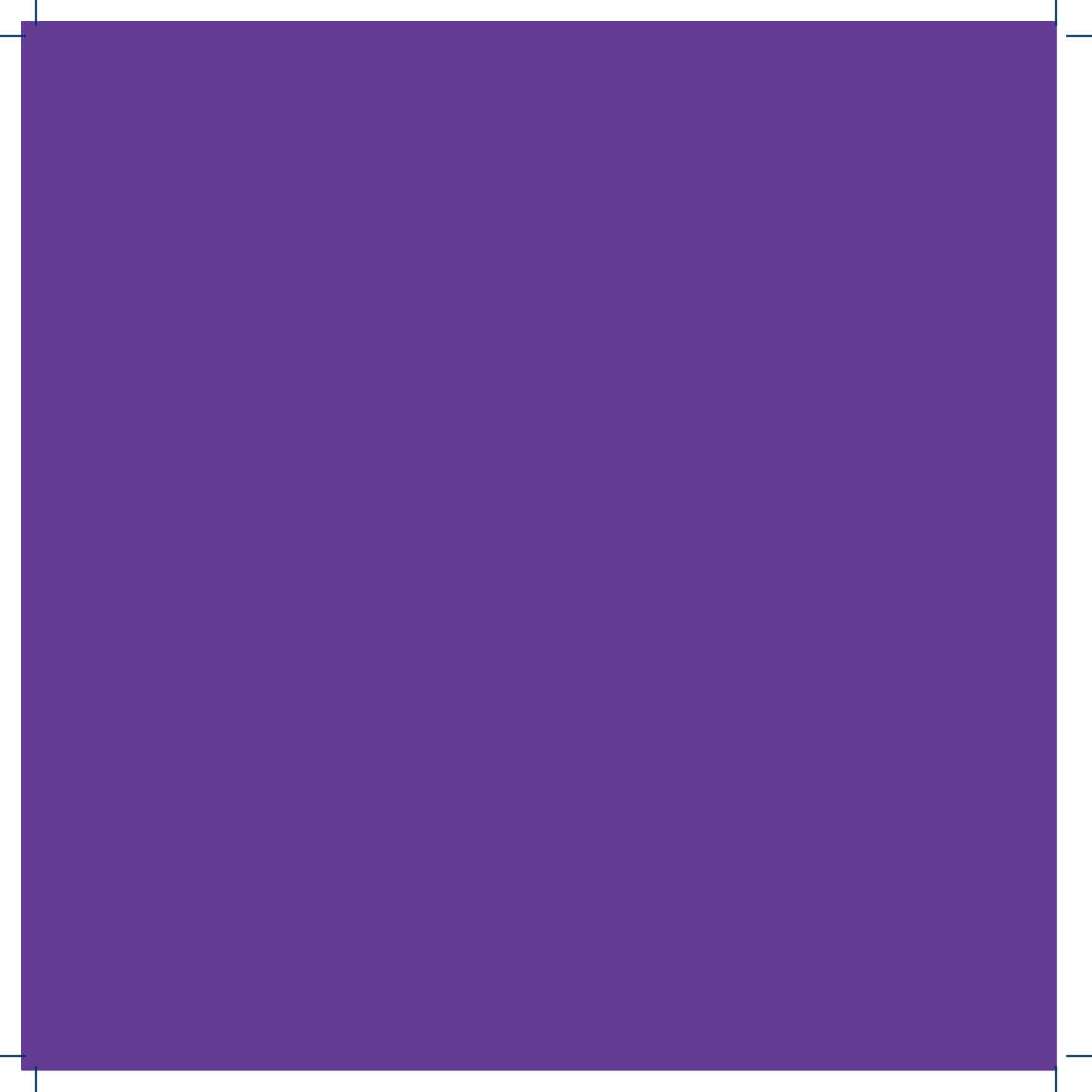
**Practice
Plus
Group**

Patient information

Physiotherapy exercises for Anterior Cruciate Ligament (ACL) reconstruction

Weeks 0-20





We are committed to making sure that
your time with us is as pleasant and
comfortable as possible

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Physiotherapy exercises for Anterior Cruciate Ligament (ACL) reconstruction

The knee joint is dependant on ligaments to provide stability. The anterior cruciate ligament (ACL) is one of those ligaments and it is frequently injured.

ACL injury:

This can be either a tear or complete rupture and can be associated with damage to other structures such as cartilage and other ligaments. It is often a sports related injury, common in football, rugby, basketball and skiing. Surprisingly, most people damage their ACL without direct contact but due to a twisting injury.

People with ACL injuries are susceptible to instability and episodes of giving way, which can make activities of daily living and sports difficult to carry out. If it is untreated and continues to give way, more damage can be caused to the other ligaments and cartilage.

ACL reconstruction:

Many people can manage without an ACL and find that a course of physiotherapy to improve muscle strength is sufficient to carry out activities of daily living.

However, those that live a more active lifestyle and wish to return to sports often require an ACL reconstruction, due to instability and lack of confidence when twisting or turning.

The procedure involves using the patient's own tendon to replace the ligament and there are two options:

- Hamstring tendon
- Patella tendon

Your surgeon will decide which is the most appropriate for you and will perform the procedure by arthroscopy (key-hole) technique.

After the ACL reconstruction:

You can expect to go home on the same day as the surgery. If your return to the ward from surgery has been delayed then you must be prepared to remain in the treatment centre for one night and be discharged home the day after your surgery.

Initially, you will have heavy bandaging around the knee, but this will be reduced the day after your operation to allow more movement. Your surgeon will decide what is appropriate for you and you may or may not be provided with a post-operative knee brace. Alternatively you may have a compression bandage to wear for five days following the surgery to help reduce swelling.

You may feel some discomfort following the surgery, but we aim to minimise this with pain relief medication and ice packs. We recommend that you continue to use ice packs and elevate your operated leg when you get home, as this will help reduce swelling.

If you have a nerve block your leg may feel numb for a few hours and this will gradually wear off.

Rehabilitation:

Everyone will recover at slightly different rates and your progress will be monitored by the physiotherapy team. There are restrictions on certain activities which are in place until the new ligament is strong enough to cope with these stresses. Therefore it is important to stick closely to the rehabilitation guidelines.

Rehabilitation will start on the day of your surgery. A member of the physiotherapy team will go through your initial exercises with you and help you walk with crutches. You will then be able to move around your bed-space and to the bathroom with the nursing staff.

On the same day following your surgery or the following day the physiotherapist will ensure you can walk safely and independently with the crutches. You will also do a stair assessment to ensure you can climb stairs safely before discharge. The physiotherapist will also provide you with advice and exercises in order for you to continue your rehab at home.

Whilst the physiotherapists will provide this information and give you support, you must remember that it is your responsibility to carry on with the rehab programme at home.

You can expect follow up appointments for review post-operatively at the treatment centre or at your local physiotherapy department. These will occur as needed during your rehabilitation programme and will be arranged by the physiotherapist at the treatment centre.

The rehabilitation process lasts for 9-12 months and it is vital you comply with this in order to get the best possible function from your knee. After this point you will be able to return to full function including contact sports.

Everyone will recover at slightly different rates
and your progress will be monitored by the
physiotherapy team.

Returning to work and sport:

Returning to work depends on your occupation.
Below are general guidelines, however it is important
that you discuss this with your
surgeon before you start working again.

Office based work	1-2 weeks
Driving	2 weeks
Light manual labour	6-8 weeks
Heavy manual labour	3 months

It is important not to return to sport too soon as you
do not want to stress the new ligament before it is
fully healed.

If you return to sport too quickly you may have
serious problems in the future, even if it does not hurt
at the time.

Physiotherapy exercises	Immediately
Gym exercises (static bike, rower)	6 weeks
Jogging (straight line only)	3 months
Running (all directions and speeds)	4 months
Sport specific training	6 months
Contact sports	9 months

Post operative protocols following ACL reconstruction

The stages of ACL reconstruction rehabilitation:

- | | |
|---------------------|--|
| 1. Weeks 0-2 | Immediate |
| 2. Weeks 2-6 | Hamstring and quadriceps strengthening |
| 3. Weeks 6-12 | Proprioception |
| 4. Weeks 12-16 | Sports specific |
| 5. Weeks 26 onwards | Return to normal |

Stage one

You may full weight bear on crutches. The aim is to restore as full as possible an active range of movements. Only resistance exercises are allowed.

It is important to monitor for infection, hamstring tears (which may be felt as a pop or a snap behind the thigh) and also for deep vein thrombosis.

Stage two

It is important to regain a full range of movement, but forced passive movements are necessary.

A stationary bike for hamstring and quadriceps co-contractions is useful.

**You may fully weight bear
on crutches.**

Stage three

This period entails the highest risk of graft rupture or loosening. Three kilogram (maximum) quadricep and hamstring resistance exercises are allowed. You should be able to cycle on a normal bike by the end of this period. You may start jogging in a straight line by three months after surgery.

**A wobble board may be used during
this period.**

Stage four

At this stage an increasing number of exercises, including free movement (or open chain) exercises and sports specific exercises may be allowed. You may be allowed to hop, jump, swim and do low impact aerobics. You may start gentle kicks.

Stage five

You may begin to return to contact sports. It's important to note that some 10% of patients will have graft failure in the form of a re-rupture or laxity of your ligament.

**If you have any concerns about your progress, or
about persistent swelling or pain, please contact
your hospital or surgical centre immediately.**

Pre-operative and 0-2 weeks post-op (immediate stage)

General advice:

- You should perform these exercises every hour
 - If the knee is swollen rest with the leg elevated and supported. Use ice to help decrease the swelling, be sure not to get the knee wounds wet whilst using the ice
 - Avoid limping, use walking aids to avoid this. Your physiotherapist will issue you with crutches if you need them
 - Go home with compression bandage support (e.g. Tubigrip). Wear it for five days. If the swelling persists keep the bandage on for longer
 - Keep the wounds clean and dry; do not soak in a bath until the wounds are fully healed and wear a waterproof dressing to take a shower
- You will receive physiotherapy until six weeks after your operation, when your physiotherapist will refer you onto your local physiotherapy department for your continued rehabilitation
 - **In the event of the knee becoming hot, red and uncomfortably swollen please contact your hospital or surgical centre immediately.**

NB: a small amount of swelling is expected for the first few days after your operation

**Keep the wounds clean and dry;
do not soak in a bath until the
wounds are fully healed.**

Static quads:

Sit on the floor or bed with your operated leg straight out in front of you. Tighten your thigh muscle, pushing your knee down into the bed.

Hold for ten seconds and repeat five to ten times.



Knee flexion:

Lying with your operated leg out straight, slide your heel towards your bottom, bending your knee. Return to the starting position.

Repeat five to ten times.



Knee flexion:

While sitting down, place your operated leg on a tray or plastic bag. Slide your foot back, bending your knee.

Repeat five to ten times.



Apply ice regularly to help reduce the swelling.
Do not apply ice directly to the skin, use a cloth or tea towel between the ice and your skin.
Use ice for 20 minutes at a time.



Static hamstrings:

Lying down, bend your knees so your feet are flat on the floor/bed. Push your heels into the floor/bed, the muscles at the back of your thigh should tighten.

Hold for ten seconds. Repeat five to ten times.



Patellar (knee cap) mobilisations:

With your leg out straight and muscles relaxed, push your knee cap outwards then inwards.

Hold for ten seconds. Repeat five to ten times.



Elevation:

Elevate your operated leg to reduce swelling.

Encourage full extension and do not put pillows under your knee.

Weeks 2-6 (pre-gym phase)

General advice:

- If the knee is swollen rest with the leg supported and elevated. Use ice to help reduce the swelling, be sure not to get the knee wounds wet whilst using the ice
- Avoid limping – use a walking aid to prevent this. Your physiotherapist will issue you with crutches if you need them
- If swelling persists keep your compression bandage (e.g. Tubigrip) on for longer
- Keep the wounds clean and dry; do not soak in a bath until the wounds are fully healed. Wear a waterproof dressing to take a shower
- **In the event of the knee becoming hot, red and uncomfortably swollen please contact your hospital or surgical centre immediately.**



Prone knee bends:

Lying on your stomach using a strap or towel around the ankle, bend your knee as far as comfortable.

Hold for 20 seconds. Repeat five times.



Bridging:

Lying on your back, bend both knees to 45°, push your heels into the floor, and tighten your thigh muscles, (quads and hamstrings).

Now lift your bottom off the floor and hold.

Work up to 30 repetitions.



Quadriceps dips:

Whilst standing with your back to a wall, with your feet nine inches from the wall and apart, keep your knees aligned and gently slide down the wall until your knees are at 45° bend.

Work up to 30 repetitions.



Hamstring curls:

Lying prone. Bend the affected knee and then lift the whole leg behind you.

Work up to 30 repetitions.

Use ice to help reduce the swelling, **be sure not to get the knee wounds wet whilst using the ice.**



Sit to stand:

From a seated position with feet and knees in a parallel position, stand up slowly, keeping your trunk as still as possible, return to a seated position slowly lowering down.

Start with exercise one, with your arms folded across your chest. Work up to 15 repetitions. When you can do this easily, add exercise two with your arms stretched out in front of you. Continue both, up to 15 repetitions each.



Calf stretches:

Keeping your feet aligned and your weight on the outside of your foot, keep your back knee straight and bend your front leg. Ensure you feel a stretch on the back of your calf.

Hold for 30 seconds. Repeat two to four times.



Calf raises:

Standing with your feet approximately shoulder width apart, slowly push up onto tip toes and then lower down to the floor.

Work up to 30 repetitions.



Seated flexion:

Sitting on a chair, pull your foot underneath the chair stretching the front of the knee. Hold for five seconds and then straighten fully.

Repeat ten times.

Weeks 6-12

Between 6 and 12 weeks after your operation you can start specific gym work. This is a programme with definite do's and don'ts.

Dos

- Attempt to do these exercises regularly
- Work within the limits of pain and swelling
- Ice the knee after exercise as needed
- Work with control and smoothly
- Always warm up well before exercise and cool down afterwards with gentle muscle stretches

Don'ts

- Do not do leg extensions, running or jumping exercises until three months post-op
- Do not work through pain

Exercises

The following exercises are recommended but should be initially supervised by your physiotherapist.

- Leg press
- Leg curl
- Calf raises
- Hip extension
- Wobble board
- Stair climber
- Rower and stepper
- Cycling only when you have quadricep control and a good range of motion (normally at three months)

No

Forced knee extension until **after 10–12 weeks**.



Prone knee bends:

Lying on your stomach using a strap or towel around the ankle, bend your knee as far as comfortable.

Hold for 20 seconds.



Bridging:

Lying on your back, bend both knees to 45°, push your heels into the floor, and tighten your thigh muscles (quads and hamstrings).

Now lift your bottom off the floor and hold.



Quadricep dips:

Stand with your back to a wall and with your feet nine inches from the wall and apart. Keeping your knees aligned, gently slide down the wall until your knees are at 45° bend.



Hamstring curls:

Lying prone, bend the affected knee to 90° and then lift the whole leg behind you.

Work up to 30 repetitions.

Do work within the limits of pain and swelling and **ice your knee as needed.**



Sit to stand:

From a seated position with feet and knees in a parallel position, stand up slowly, keeping your trunk as still as possible. Return to a seated position slowly lowering down.



Calf stretches:

Keeping your feet aligned, your weight slightly on the outside of your foot, and your back knee straight, bend your front leg ensuring that you feel a stretch on the back of your calf.



Calf raises:

Standing with your feet approximately shoulder width apart, slowly push up onto tip toes and then lower down to the floor.



Seated flexion:

Sitting on a chair, pull your foot underneath the chair stretching the front of the knee. Hold for five seconds and then straighten fully.

Physiotherapy Department

ACL function phase: weeks 12-20

Your surgeon will review your knee in the outpatient clinic approximately 12 weeks after your operation.

He will test the stability, range of motion and the control of your muscles. If these are satisfactory then he will ask the physiotherapist to start the following programme.

Functional programme

- Light running initially in a straight line
- As confidence grows then running in all directions
- Skipping
- Circle work
- Change of direction
- Curves / Zig Zag
- Hop
- Jump
- Vertical jump
- Sprint

At the same time you will also be increasing your gym work to include leg extensions, endurance training on a bike, a rower or in the pool.



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