

Posterior Cruciate Ligament Conservative Management

Physiotherapy Patient Information

You have injured your posterior cruciate ligament (PCL). In this leaflet you will find all the key information for you to begin your recovery. Your body starts healing straight away, following this advice you will optimise your early rehabilitation.

Important things to know about ...

- **Pain**
 - Pain is part of the normal healing process. This may continue over the next few weeks and may affect your sleep, movement, and walking, so it is very important that you take your painkillers as advised to facilitate good movement.
- **Swelling**
 - Your knee is likely to be very swollen after the injury; this is part of the inflammatory process. This can persist over the next few weeks; this may impact your ability to regain the full movement of your knee and impact your muscle activation which can slow your recovery. It is important to reduce your swelling - elevating your leg above your heart, icing and compression can help with this.
- **Movement and exercise**
 - Movement and exercise is essential to your recovery, in this leaflet are exercises designed to get your knee moving, improving the amount of movement and improving your thigh muscle strength. With these you are

looking to hit the sweet spot of activity, not too much or too little. Most commonly people do too little exercise and too much walking.

- Avoid over straightening your knee until 12 weeks
- Avoid resisted hamstring exercises for 12 weeks
- Avoid kneeling for 12 weeks

- **Crutches**

- You will be partially weight bearing using crutches for the first 2 weeks. You can then gradually progress to full weight bearing as pain tolerable.

- **Braces**

- You may be provided with a Jack Brace depending on the service provider and how your condition is. It provides dynamic anterior force to hold your leg in neutral position, this potentially allows ligament to heal in a better position. You should be wearing the brace **all the time** including sleep and exercise for 12 weeks.
- Brace is initially set at 8-10 anterior force

- **Driving**

- In order to drive safely, you should have regained good muscle control, be able to fully weight bear without crutches and able to complete an emergency stop. You should also contact your insurance company to notify them about your injury and check the validity of your insurance.

- **Work**

- You may have some time off; this depends on the type of job and the level of strength required. Heavy manual workers or patients whose jobs require carrying or lifting may need to initially modify their activities at work, to avoid over pressure on the injured knee and allow a better healing process.



Week 0-6

Goal:

1. PCL protection
2. Reduce inflammation and swelling (rest, ice, compression, and elevation).
3. Gradually increase ROM
4. You are partially weight bearing with elbow crutches for first 2 weeks, then gradually increase weight bear as tolerated

Knee Range of Movement (active knee bent)

1. Active knee bent:

- Start by lying on your tummy with your legs straight; relax your hands by your side or under your forehead. Bent one of your knees and bring your heel towards your hip to the angle you feel a bit stretched or discomfort with less than 4/10 pain level, then return to the starting position. Gradually increase the range of movement from 0 to 90 degrees for the first two weeks, free range of movement from two weeks
- Aim to complete 3 sets with 10 repetitions





2. Knee Cap mobilisations

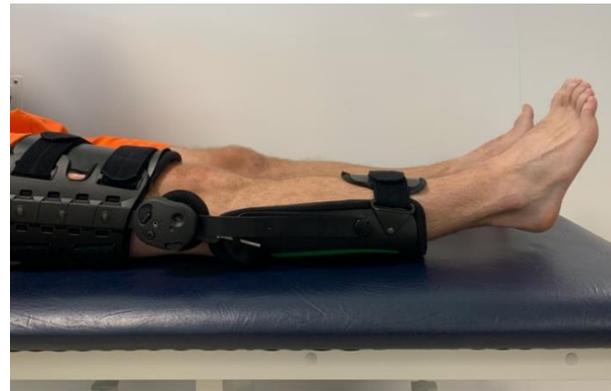
- Lying or sitting on the bed with your legs straight in front of you, slightly bent your knee.
- Use both hands to press on the inside (or outside) of the kneecap to provide a glide outward (inward).
- Use your thumbs to press on the top (or bottom) of the kneecap to provide a downward (upward) glide.
- For each movement, hold it there for 20 sec and repeat 5-10 times
- This exercise is to prevent the restriction in the joint between kneecap and thigh bone, which could lead to pain and reduced overall knee range of movement.

Quadriceps strengthening

1. Static Quadriceps exercise

Your aim is to be able to fully straighten your knee and with good strength.

- Start by lying down or sitting on your bed with your legs straight in front of you. Tense your thigh muscles to straighten your knee and pushing your knee into the bed. Aim to start with 10 reps and progress to 3 sets.



- **Progression:** Place a rolled-up towel or water bottle underneath your knee to make a bend in your knee. Tense your thigh muscles to straighten your knee and lift your heel off the bed, hold it there for 5-10 sec. Start with 5 reps and progress to 10 reps. As you are able to complete 10 reps with 10 sec hold effortlessly, you can then reduce the diameter of the cylinder/ smaller towel to progress this exercise.



2. Straight Leg Raise

- Start by lying or sitting on the bed, with your legs straight in front of you. Tense your thigh muscle to straighten one of your knees at the same time lifting your whole leg up. Then lower down in a slow and controlled pattern.
- Make sure knee is completely straight
- Aim: 3 sets 10 reps per day



Gentle Calf stretches

- Start with sitting on the bed with legs straight out in front, place a towel underneath the foot. Keep your leg straight without bending your knee and provide some pulling force with the towel to get your toes pointing up towards the ceiling. Hold it there for 30sec, 2-3 times per day. You should feel the stretch behind your leg.



Stationary bike when you are able to bring your heels under the chair (ROM 115 degree)





Once fully weight bearing

1. Calf raises

- Standing in front of a worktop or kitchen counter which allows you to hold onto as support. Place your feet slightly apart from each other. Lifting both of your heels slowly off the floor. Complete one repetition in the count of 5 and repeat 10 times. Pace the movement and ensure the quality of movement.
- Progression: reduce the hand support to fingertips only.



2. Balance exercise

- Same as calf raises, standing in front of a worktop with hand support. Stand on one leg, aim to achieve 30-60sec without bending your body to compensate. Then try to reduce the amount of hand support on work top.
- This exercise helps to improve your balance, strength, and coordination.





Week 6-12

Goal:

1. PCL protection – full weight bearing as tolerated in Jack brace
2. Gradually increase to full range of movement
3. Walk without limping

Knee Range of movement

Lie on tummy:

1. **Active Knee Bent** (Please refer to range of movement exercise 1 in week 0-6)
2. **Passively Straighten your Knee**
 - Start by lying on your front, with your feet dangling off the bed, making sure only half of your shins are off the bed. Hold this position for up to 10 minutes and repeats 3-4 times per day



Lie on your back:

1. **Active Knee Bent**
 - Lie on your back with your legs straight in front of you. Bent one of your knees and slide your heel towards your buttock. Slowly straighten your leg back to the starting position and repeat - 10 repetitions, progress to 3 sets.



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Strengthening exercise

1. **Static quadriceps** – Please refer to strengthening exercise in week 0-6
2. **Straight leg raises** – Please refer to strengthening exercise in week 0-6
3. **Double Leg Mini Squat**
 - Start in a standing position, place your feet shoulder width apart. Bend your knee as if you are about to sit on an invisible chair. Do not bent all the way down but halfway only. Make sure your knees do not go further forward than your toes.



4. **Leg press 0-70° (gym)**

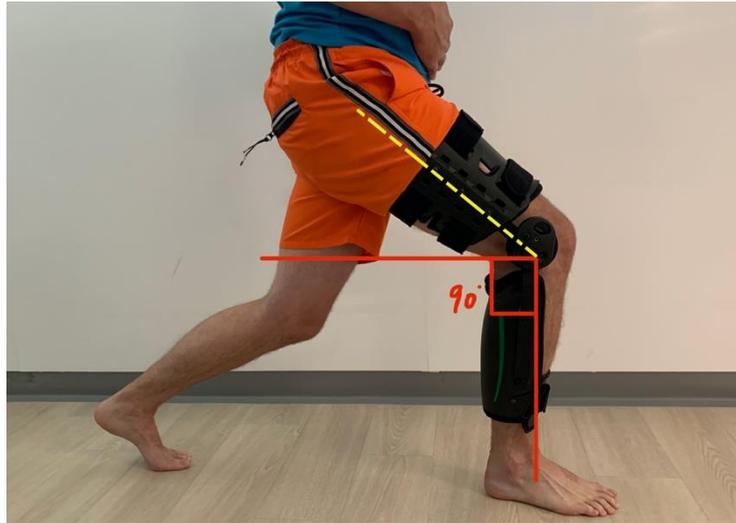
- Load the machine to the desired weight and set the seat at a position where your knee would not be bent for more than 70 degrees. Take a seat and place your feet on the footplate with a shoulder width stance. Take a deep breath then straighten your legs.





5. Reverse lunge

- Start in a standing position, step one of the feet backward, then bend both knees into a mini reverse lunge. Your knees should not be bent more than 70 degrees. Repeat 10 times per day, aim to progress to 3 sets 10 reps.



6. Hamstring bridges on ball (either with knee slightly bent or straight leg)

- Start by lying on your back with your legs straight resting over a gym ball. Relax your back and neck. Press your legs down into the ball as you squeeze your buttock muscle to lift your bottom up. Repeat 10 repetitions in a controlled pattern, aim to progress to 3 sets 10 reps.
- Make sure to keep your knee straight in order to activate the right muscle.



More strengthening exercise are available on the RUH website: www.ruh.nhs.uk/knee



Proprioceptive and balance exercises.

1. **Single leg stand** – please refer to week 0-6

Week 12-18

Goals:

1. Aim to remove brace at 12 weeks
2. Progression of exercise
3. Gradual jogging/ running programme

Progression

1. From mini squat to a **normal squat**
 - Start in a standing position, place your feet in shoulder width. Bend your knee as if you are about to sit on an invisible chair. **Make sure your knees do not go further than your toes**



2. **Single leg exercise** e.g., leg press, step ups

3. Bridging with knee bent



Jogging/ Running programme:

When having sufficient muscle power, stability, and muscle bulk.

Gradual running programme:

1. Start with one minute run, four-minute walk (1:4) for 20 minutes.
2. Increase running time by one minute and subsequent reduction of walking by one minute (2:3), until running for 20 minutes after 5 weeks.
3. Once running programme is completed, progress to multi-plane agility exercises.

More information about Couch to 5K is available [here](#):

Week 19+

- Strength exercises in higher intensity, high load with less repetitions (3 sets of 8 reps).
- Sports specific training.
- Return to contact when > 85 % of good leg on functional testing.

Useful Links:

There are videos available on the RUH website to help you do your exercises at home:
www.ruh.nhs.uk/knee

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If you have any concerns, please contact the ward who cared for you here at the RUH, contact the switchboard and ask for Ward.

Please contact the Patient Advice and Liaison Service (PALS) if you require this leaflet in a different format or would like to feedback your experience of the hospital.

Email ruh-tr.pals@nhs.net or telephone 01225 825656 / 826319.