

Plymouth Hospitals



NHS Trust

Anterior Cruciate Ligament Reconstruction

Phase 4 Rehabilitation (week 12-24)

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Physiotherapy Department/LB/AJ

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Phase 4 Rehabilitation (week 12-24)

Criteria to progress on to phase 4;

Full ROM of the knee
Excellent unsupported single leg stand
Good strength

Goals to be achieved before moving to next phase of rehab

Build up power and aerobic capacity
Encourage functional retraining
Comfortable sitting on back of heels (week 16)
Able to jog 30 minutes (active patients only) by 24 weeks

Guideline

If the patient displays full ROM, good muscle control and no swelling, you may return to light, uncompetitive sport (light aerobics)
Heavy manual job, they may return to work (3 months +) as agreed with your consultant

Precautions

no twisting/pivoting for 6 months

Strengthening Programme

- Deep squats with resistance as needed
- Single leg squats
- Eccentric Hamstrings
- Open chain quads (at 4 months)



Deep squats with resistance as needed

Stand straight with your feet hip width apart and facing forwards. Slowly bend your knees as far as is comfortable and then return to the starting position.

10-15 reps, 2-3 times a day

Progression:-

Hold a weight (weighted ball, barbell, dumbbell in each hand) whilst performing the same exercise.

Single leg squats (Crossley et al 2011)

Support your un-operated leg behind you on a chair/bench. Squat with your operated leg to 70 degrees. Count one second to squat down and one second to come up. Do not fully extend your knee try to keep it slightly flexed/soft.

10-15 reps, 2-3 times a day

Progression

Squat without the un-operated leg on a chair
Hold a weight (weighted ball, barbell, dumbbell in each hand) whilst performing the same exercise.



Eccentric Hamstrings

Kneel on a soft surface/mat. Have a partner hold onto your ankles. Slowly lean forwards as far as you can whilst controlling your body weight with your hamstring muscles without losing your balance or control. Return to the start position and repeat.

5-10 reps, 2-3 times a day

At **4 months** you can start open chain quads if needed such as kicking a football. You must have full hamstring and quads control.

Open chain quads

Sitting on a chair/bench with a small ankle weight attached to your operated leg at the ankle. Pull your toes up, tighten your quadriceps (thigh) and straighten your knee. Hold for 3 seconds then slowly lower.

10-25 reps 2-3 times a day



The same exercise can be performed on an extension machine with low weight.

Proprioceptive/Balance and Coordination Programme

- Arabesque
- Lateral Lunge
- Lunges
- Resisted jog forward/back

Arabesque

Stand on your operated leg with a soft knee (slightly flexed). Maintaining a straight back slowly flex (bend) at the waist extending your un-operated leg back. Your shoulder and heel should move simultaneously forming a straight line.

5-10 reps, 2-3 times a day





Lateral Lunge

Stand with feet wide apart and toes pointing forward. Step out to the left, keeping your toes pointing straight ahead and your feet flat. Squat by bending the left knee. Keep your right leg straight and the weight on the left foot. Squat as low as possible, keep your right leg straight and hold this position for 2 seconds. Return to the starting position and repeat.

Then alternate with your opposite leg.

10-15 reps, 2-3 times a day

Lunges

Stand with erect posture and your legs hip width apart. Take a step forward with the operated leg and squat down. Return to the starting position and repeat.

Then alternate with your opposite leg.

10-15 reps, 2-3 times a day

Progression:-

Put a Resistance band around your waist or hold a small weight in your hands. Multidirectional lunges.



Resisted jog forward/back

With a Resistance band tied around your waist and the other end attached to a door, crouch down slightly to create tension in the Resistance band by walking forward 1 step after another, then repeat as if walking on the spot. Repeat for 60 seconds. Then turn to face the door for the backwards walking, repeating the same motion (low and slow)

10 minutes, in 60 second intervals, daily.

General Mobility and Cardiovascular Programme

Once it has been established that you have adequate muscle strength, endurance and control a running program can be commenced. Initially you would start by running in a straight line, then in a circle and finally a figure of eight.

Be sure to have good running shoes.

Start with a 5 minute jog/walk program as pain and discomfort allow. Pace increase in distance as able.

Progress by building up your pace from half to three-quarters to full.

When you are able to run for 30 minutes pain free and can manage 2km's in under 12 minutes you can commence sprint drills if required.

DO NOT progress with running if experiencing pain, swelling or other symptoms. Remember the programme is just a guideline and not everybody is expected to be at this level.

The reference list below was used to develop this protocol. If you are interested in learning more these resources may be a good place to begin.

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