Anterior Cruciate Ligament Reconstruction

Phase 3 Rehabilitation (6-12 weeks)
Phase 3 Rehabilitation (week 6-12)

Whilst the graft is healing to the bone at this time, the graft itself may be at its weakest. Therefore take great care to avoid falls etc. Regular Physiotherapy supervised rehab should be starting at this point. Ideally the patient should be enrolled in an ACL class.

Criteria to progress to phase 3; Full extension

Goals to be achieved before moving to next phase of rehab
Build up on leg strength
Improve balance and coordination

Guidelines
Pace increase in activity
If the patient does a sedentary job they may return to work (week 4-6)

Precautions
At this stage their graft is at its weakest. Progress your activities gradually and continue to avoid any twisting, running, pivoting, jumping and any open chain quads exercises.

ROM and Stretching Programme
Continue as before. Think about introducing the following as needed
- Runners calf stretch
- Soleus Stretch
- Groin stretch
- Hamstring stretch
Runners calf stretch
Stand facing a wall. Put your operated leg behind you with the other leg bent in front of you. Lean your body forwards towards the wall, keeping the heel of the operated leg down and the knee straight. Feel the stretch on the calf of the straight leg.

hold for 30 seconds 3 reps, 2 times a day

Soleus Stretch
Stand with the leg to be stretched behind the other leg. Push your heel down, while bending the knee to stretch your Achilles tendon.

hold for 30 seconds 3 reps, 2 times a day

Groin stretch
Sitting maintain a straight back. Slowly open the legs and lean forward slightly from the waist. Feel the stretch in your groin

hold for 30 seconds 3 reps, 2 times a day

Hamstring stretch
Sitting, maintain a straight body position, with your operated leg out in front of you, reach forward and attempt to grasp your ankle or your toes. Feel a stretch at the back of your leg

hold for 30 seconds 3 reps, 2 times a day
Strengthening Programme exercises

- Static Quads
- Calf raise’s over step
- Squats
- Step ups forward and sideways
- Hamstrings
- Gluteals

Hamstrings
Stand next to a bench and lean over it. Bend the operated knee to 90 degrees and then lift the whole leg behind you a little and lower it again. Keep your buttock tight throughout.

10-15 reps, 2-3 times a day

Hamstrings in sitting using resistance band
Sit on a chair with your knee straight and a rubber exercise band around your ankle. Pull the band by bending your knee.

10-15 reps, 2-3 times a day

Hamstring in prone
Prone lying. With a light ankle weight around your ankle. Move your heel towards your buttocks as far as possible under control and slowly lower to the start position.

10-15 reps, 2-3 times a day
**Sit to stand**
Stand up from sitting and sit down again without using your arms.

**Progression**
- Use a lower chair
- Hold a weight

15-20 reps, 2-3 times a day

---

**Single leg bridge**
Lie on your back with both knees bent, tighten your quads and hamstrings, squeeze your buttocks together and lift your bottom off the floor. Now lift your non-operated leg off the floor and bring your knee to your chest, repeat with the other limb.

10-15 reps, 2-3 times a day

---

**Seated leg press with resistance band**
Sit with resistance band around your foot. Hold the ends in your hands. Push your leg from 90 degrees to an almost straight position. Every fifth repetition hold your leg straight for 15 seconds.

30-40 reps, 2-3 times a day
If you have access to gym equipment:
- Seated hamstring curl
- Leg press
- Multi-hip machine - adduction, flexion, abduction, extension

No open chain quads

Proprioceptive/balance and coordination programme
- Single Leg Stands
- Line walking

Single Leg Stands
Standing on the operated knee, raise the other leg off the floor and try to balance.

2 minutes each, 2-3 times a day

Variations:
- Bounce a ball against the wall
- Standing on the operated knee, raise the other leg off the floor bounce a ball off a wall or throw and catch with a partner.
- Practice dribbling ball around operated leg
- Standing on the operated knee, raise the other leg off the floor dribble a ball around the operated leg clockwise then anti-clockwise
- Sport specific variations
- Rugby passes, Tennis volleys

Progressions:
- Stand on trampette/cushion
- Reduce visual compensation. Close 1 or both eyes.
- Throw and catch a ball.
- Arms folded across your chest.
- Place a beanbag on your head.
Line walking
5-10 metre course.
Walk slowly along a line, placing one foot in front of the other (as if on a tightrope) keeping to the line.

2 minutes each, 2-3 times a day.

Variations:-
Fold your arms across your chest.
Walk backwards.
Walk sideways.
Close 1 or both eyes.
Place small obstacles in your path and step over them
High knees
Tip-toe walking.

General Mobility and cardiovascular Programme
- Static bike
- Aqua jog/walk

From Week 10 you can begin to incorporate the following into your programme
- Treadmill walk with incline
- Swim front crawl and back crawl
- Rowing
- Step machine
- Cross Trainer

Increase Resistance on Static bike
When beginning start with minimal resistance
30mins, 60-80 rpm and increase as tolerated once a day.

Static Bike – Single leg cycling
Take one leg out from the pedal and place it on the frame.
Week 10

**Treadmill walk with incline**
Begin slowly taking normal strides.

Incline no greater than 12 degrees, 20-30mins 2-3 times a week.

**Swim**
Front crawl and back crawl only – **NO BREAST STROKE OR BUTTERLY**
20-30mins, 2-3 times a week

**Rowing**
Begin with low resistance and ease into the stroke by not fully extending the knee or flexing beyond 90 degrees.
15-20mins, 1-2 times a week.

**Stepper**
Begin with low resistance and short step motion maintaining slightly flexed soft knees. Never allow your knees to fully extend, feet come off the pedals or allow the pedals to hit the bottom.
20-30mins, 1-2 times a week

**Cross Trainer**
Ease into training by not fully extending your knees
15-20mins, 1-2 times a week
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.

References & Bibliography


