

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION REHAB

✚ OVERVIEW

The following is a guide to your ACL rehabilitation. This program should be done in conjunction with a physiotherapist to guide you and monitor your progress. If you or your physiotherapist have questions please contact me in the rooms on 5438 8900.

Major Goals of Surgery and Rehabilitation

1. restore stability
2. restore muscle conditioning
3. restore proprioception
4. restore normal gait pattern
5. maintain cardiovascular fitness
6. return to work and sports as soon as possible

Phases of rehabilitation

Phase 1: Immediate post-op

Phase 2: Regaining hamstrings and Quadriceps Control

Phase 3: Early proprioception

Phase 4: Advanced proprioception

Phase 5: Sports specific Rehab

Phase 6: Returning to training and competition

Considerations

1. between 10 - 45° quadriceps contraction causes maximal stress on graft
2. the graft is weakest between 6 and 12 weeks post-op – care required!
3. early motion maintains bone mineralization and cartilage nutrition
4. closed chain exercises minimize stress on the ACL graft
5. due to loss of brain feedback from your ACL, proprioception is a focus

What is a closed chain exercise?

This is an exercise where the **foot is placed on a surface** (floor, step, pedal) so that the entire limb is taking the load. They place functional stress on the joint in ways that are similar to normal weight bearing activities. In this scenario the quadriceps and hamstrings are contracting together (**co-contraction**) which reduces anterior shear forces, therefore decreasing the strain on the ACL.

Open chain exercises, where the foot is free, create larger shear stresses on the joint and reconstructed ligament.

The joint compression that occurs when the extremity is loaded by body weight provides inherent stability and allows more strenuous strengthening exercises without the degree of shearing forces that occur with conventional open kinetic chain exercises. Shelbourne

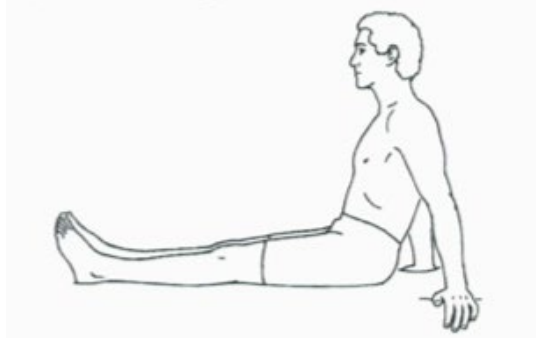
✚ PHASE ONE

From surgery to 12 day follow-up – GOALS:

1. minimize swelling: ice, elevation, anti-inflammatories
2. regain full extension: see below
3. mobilise full weight bearing: crutches are used for support and stability

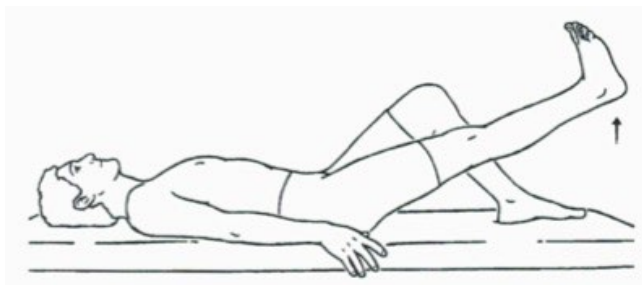
CO-CONTRACTION OF HAMSTRINGS AND QUADRICEPS

Lying with your leg straight, tighten the front and back thigh muscles at the same time by pushing your knee down.



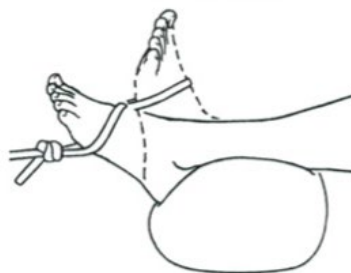
STRAIGHT LEG RAISES WITH CO-CONTRACTION

Lying flat on bed, perform co-contraction and raise your leg 30cm from the bed. Hold for 3 seconds. Repeat 10 times.



ANKLE EXERCISES

Place an elastic band or towel around the foot and press your foot down, then pull your foot back.



ANKLE STRETCHES

With a towel around the foot, gently pull back until a stretch is felt. Hold for 5 seconds. Repeat 10 times.

HEEL SLIDES

Slide the heel of the operated leg towards the buttocks until a gentle stretch is felt. Repeat 10 times.

KNEE FLEXION

Feet flat, slide the foot back until a gentle stretch is felt.



CO-CONTRACTION OF HAMSTRINGS AND QUADRICEPS

Lying with your leg straight, tighten the front and back thigh muscles at the same time by pushing your knee down.



HIP EXTENSION

Lying on your stomach, tighten the muscles on the front of the thigh, then lift the leg 10cm from the surface, keeping the knee locked. Hold for 2 seconds. Repeat 10 times.

HIP ABDUCTION

Tighten the muscles on the front of the thigh then lift the leg 40cm from the floor, keeping the knee locked. Hold for 3 seconds. Repeat 10 times.

✚ PHASE TWO

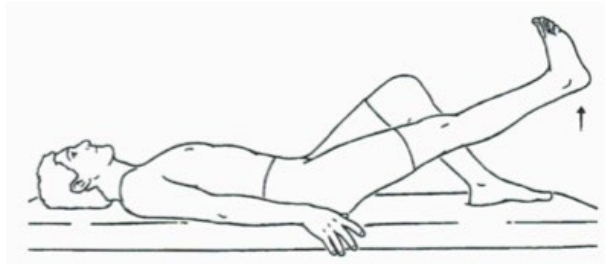
From weeks 2-6 – GOALS:

1. regaining quadriceps and hamstrings control: isometric digs, mini squats
2. regaining range of motion: flexion and extension
3. balance and proprioception training: wobble board, single leg stance
4. cardiovascular conditioning on stationary bike

You can now discard the crutches all together provided you feel stable on your feet. Avoid resisted hamstrings loading for approximately 6 weeks to reduce load on the graft. During this period you should still continue with ice, elevation and anti-inflammatories to reduce swelling. You should do these exercises 2-3 times a day with the supervision of your physiotherapist.

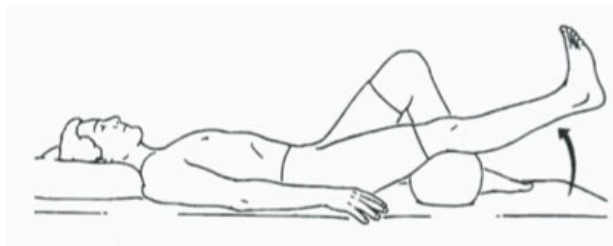
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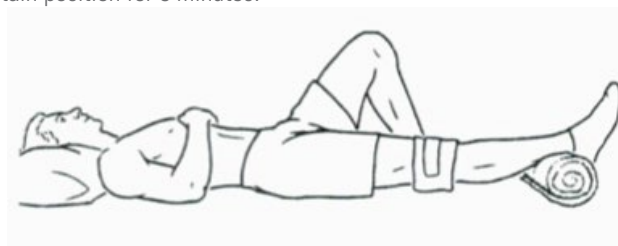
INNER RANGE QUADRICEPS

With operated knee resting on rolled up towel, tighten the muscles on the top of the thigh and straighten your knee. Repeat 10 times. Do two sets per session.



KNEE EXTENSION

With a rolled up towel under the ankle of the operated knee, allow gravity to straighten your knee. Apply ice pack to top of knee and maintain position for 5 minutes.



ISOMETRIC DIGS WITH CO-CONTRACTION (SEE PREVIOUS)

With the foot of the operated knee turned in, tighten muscles on the back of the thigh and dig your heel into the bed. Hold for 5 seconds. Repeat 10 times. Perform sets with the knee at 30, 60, 90 and 120°.

PATELLA MOBILISATION

With the thumbs on the kneecap of the operated knee, gently move the kneecap in all directions. Do for approximately 3 minutes.



ANKLE STRETCHES

With a towel around the foot, gently pull back until a stretch is felt. Hold for 5 seconds. Repeat 10 times.

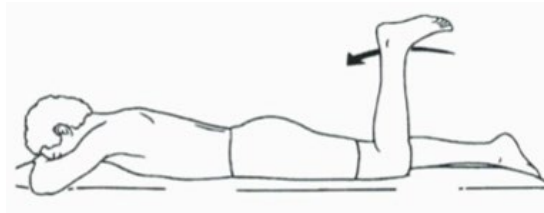
PRONE KNEE FLEXION

Using unoperated leg, gently push operated leg backwards and slowly control the lowering of your operated leg back to the bed. Repeat 10 times.



ACTIVE KNEE FLEXION IN PRONE

Bring heel of operated leg toward buttocks as close as you can then slowly lower your leg. Repeat 10 times.



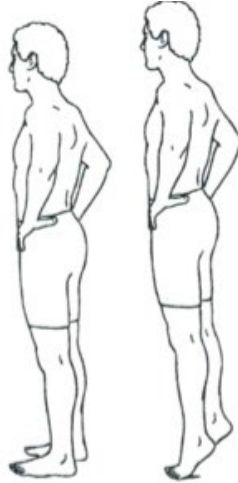
CHAIR KNEE FLEXION

Keeping foot on floor, slide foot of operated leg backwards as far as possible, hold for 5 seconds. Slowly straighten leg out. Repeat 10 times.



BILATERAL HEEL RAISE

Holding onto a wall if required, slowly rise onto the toes, lifting the balls of your feet from the ground. Hold for 2 seconds, slowly lower back down. Repeat 10 times.



GLUTEUS MEDIUS STRENGTHENING

Bend non-operated knee up and press against wall. Now slightly flex operated knee and then squeeze your buttock. Hold for 5 seconds. Repeat 10 times.



MINI SQUATS

Leaning on wall with your feet pointing forwards, slowly flex your knees to 45 degrees, hold for 3 seconds then return. Repeat 10 times and do 2 sets of 10.



BALANCE

Attempt to balance on operated leg, eyes open and arms out. Hold for 30 seconds if possible. Repeat 5 times.



CALF STRETCHING

Stand with foot of operated leg backwards, and lean forwards onto bent front leg. Keep heels on the floor. Lean until stretch is felt in the calf. Hold 10 seconds. Repeat 3 times.



AEROBIC CONDITIONING

With seat high so that your leg is almost straight on the down stroke. Ride for 10-15 minutes, twice a day.



✚ PHASE THREE

From weeks 6-12 – Early Proprioception – GOALS:

1. full range of motion in both flexion and extension
2. continue to regain strength
3. improve proprioception: dura disk/wobble board
4. continue patella mobilization
5. continue aerobic conditioning: bike, elliptical trainer, swim, rowing

REMEMBER THAT THE GRAFT IS AT ITS WEAKEST AT THIS POINT

WALL SIT

Back against the wall, slide down so that knee are at 90°. Hold for 30 seconds. Repeat 5 times.



LUNGES

In wide stride, with legs shoulder width apart, head up, back straight – bend both leg simultaneously until forward thigh is parallel to floor. Complete 10 times.



SINGLE LEG QUARTER SQUAT

Standing on the operated leg with the back against the wall, slide down the wall until the knee is at 30-45°. Slowly rise back to standing position. Repeat 10 times.



GLUTEUS MEDIUS WALL PUSH (SEE PREVIOUS)

Bend non-operated knee up and press against the wall. Bend operated knee to 30 degrees and squeeze the buttocks. Hold for 3 seconds. Rise and repeat 10 times.

LEG PRESS

Turn the foot of the operated knee out slightly and press forwards until the legs are just short of the locked position. Do 2 sets of 10 repetitions.



STANDING HAMSTRINGS STRETCH

Place the foot of the operated knee on the stool. Slowly lean forward, keeping the back straight until a stretch is felt in the back of the thigh. Hold for 15 seconds. Repeat 10 times.



✚ PHASE FOUR

From week 12 to 6 months – Advanced Proprioception - GOALS:

1. ability to kneel
2. jogging by 6 months on even ground
3. outdoor cycling
4. good proprioception: single leg squat on dura disk

✚ PHASE FIVE

From 6-8 months – Sports specific rehab

This is dependent on your chosen sport but includes such things as:

1. agility training: shuttle running, hill running, sprinting
2. kicking: can begin after 6 months with long distance kicking by 8 months
3. jumping: initially skipping but progressing to single leg jumps by 8 months
4. strength: squats and hamstring curls to maximal loads by 8 months

✚ PHASE SIX

From 8-9 months – Return to full activity

- Initially begin full cardiovascular training then contact training
- Competitive matchplay can begin after 9 months
- Long distance or power kicking after 8-9 months
- Can wear spikes after 8 months
- Tackling and being tackled can begin after 8-9 months

This information is not exhaustive and if you have further questions I would be happy to answer them.

Regards,



Luke McDermott.