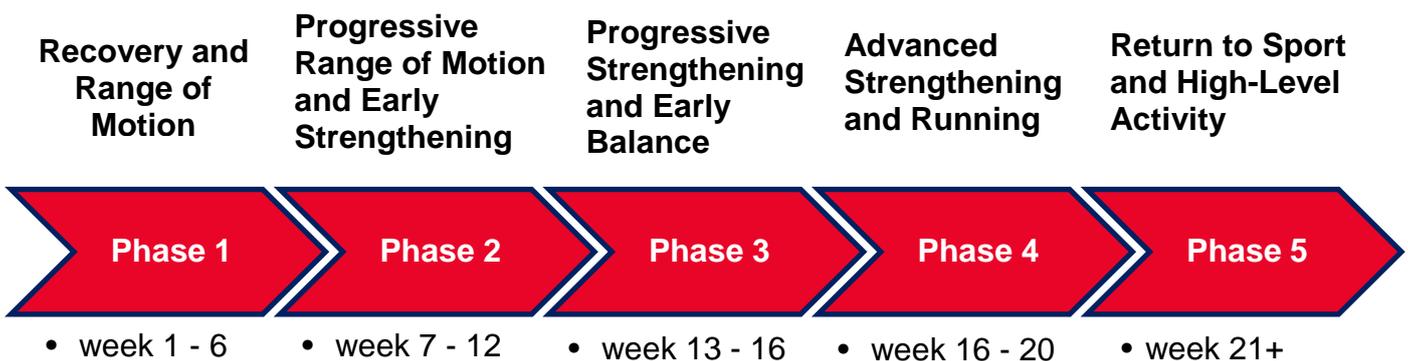


Quadriceps Tendon Repair



- This document outlines rehabilitation goals, precautions and exercises following Quadriceps tendon repair.
- The phases are listed as time blocks, however progression should be guided by your surgeon and treating physiotherapist.



Disclaimer:

This leaflet provides some exercises to assist with rehabilitation of your injury. While it contains the recommended exercises, it does not contain all the available exercises or information and does not take the place of talking to your orthopaedic surgeon or physiotherapist.

All exercises have risks and benefits. Your surgeon has weighed the risks of you undertaking these exercises against the expected benefits. If you have any concerns about any of these exercises, ask your surgeon or physiotherapist.

Do not continue the exercises if:

- You experience increasing pain (some discomfort is common)
- Your condition has deteriorated in any way since you last consulted your surgeon or physiotherapist
- You have a new injury or condition and have not consulted your treating doctor about continuing these exercises.

These exercises should only be undertaken by patients who are currently being treated by an orthopaedic surgeon at The Royal Melbourne Hospital.

If you do not understand how to perform an exercise then do not do it. Do not do more than the prescribed number of each exercise without first talking to your orthopaedic surgeon or physiotherapist.

Patients should be aware that the suggested exercises are not guaranteed to provide any improvement in your condition but may assist rehabilitation if undertaken in accordance with these instructions and your orthopaedic surgeon or physiotherapist's advice. Exercises are undertaken at your risk.

Keep this brochure as you may need to read it again.

Phase 1: Recovery and Range of Motion (week 1 - 6)

Goals

- Protect the tendon repair
- Control pain and swelling
- Gradually regain knee flexion (bending)
- Achieve good quadriceps (thigh muscle) activation

Hinge knee brace

- Wear your brace for **8 weeks**. Unlock to the specifications below every second week (unless your surgeon tells you differently)
- **Week 1 and 2:** locked in extension (straight)
- **Week 3 and 4:** locked 0 - 30 degrees bend
- **Weeks 5 and 6:** locked 0 - 60 degrees bend
- **Week 7 and 8:** locked 0 - 90 degrees bend

Walking (with the brace on)

- **Week 1 and 2:** place up to 50% of your body weight on the operated leg - use your crutches for support
- **Week 3 onwards:** gradually increase your weight through the operated leg up to 100% and then wean off the crutches

Swelling Management

- Remove the outer crepe bandage **48 hours** after surgery. Then wear an elastic compression bandage (Tubigrip) during the day (purchase from your local chemist). Remove it when you go to bed
- Elevate the leg and apply ice for **20 minutes, 3 - 4 times per day**

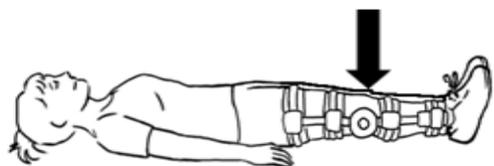
Phase 1 Exercises (keep the knee brace on for these exercises)

Start these exercises the day after surgery. Perform the exercises 3 - 5 times per day.

Knee Extension - Lying on your back with your leg out straight, gently push your knee down against the bed to feel the thigh muscle tighten. Hold for 5 seconds then relax

Repeat 3 x 10

Gradually increase the intensity of the contraction over the 6 weeks

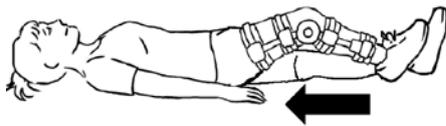


Add these exercises after 2 weeks

Unlock your brace to the degrees specified by how many weeks after surgery you are.

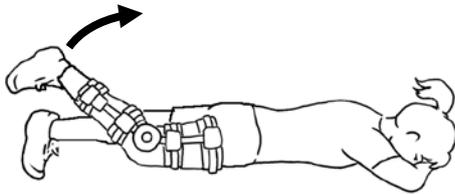
Knee Flexion - Lying on your back or sitting in a chair, slowly bend your knee. Stop when you feel the stretch in your thigh or when the brace stops you. Then return to a straight knee position

Repeat 3 x 10



Hamstring Curl - Lie on your tummy, bend your knee up to 30 degrees behind you. Stop when you feel a stretch in the thigh or when you are limited by the brace. Slowly lower down

Repeat 3 x 10



Phase 2: Progressive Range of Motion and Early Strengthening (week 7 - 12)

Goals

- Gradually restore knee range of motion
- Gradually regain quadriceps (thigh muscle) strength
- Normalise walking pattern

Hinged knee brace

- **Week 7 and 8:** locked 0 - 90 degrees bend
- **Week 9 onwards:** unlocked (full range), then gradually wean out of the brace over 2 - 3 days

Precautions / Management

- Focus on “**closed chain**” exercises (where the foot is in contact with a surface) squats or calf raises for example
- Start light “**open chain**” exercises (where your foot is free to move and not contacting a surface, like seated knee extension (**no resistance**))
- Begin stationary bike and swimming as tolerated (keep kicking gentle in the beginning)
- Continue swelling management as required

Phase 2 Exercises

Once the brace is weaned off (week 8 onwards) there is no restriction with range of motion, gradually progress to full movement as tolerated. Perform the exercises 2 - 3 times per day.

Knee Flexion - (Brace off) Either lying on your back or sitting in a chair, slide your heel towards your bottom until you feel a stretch or mild discomfort in your knee, then return to a straight position

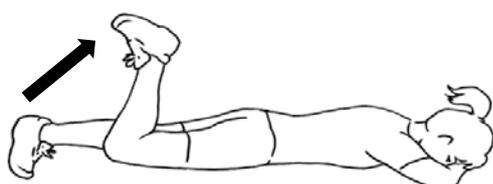
Repeat 3 x 10



Hamstring Curl - (Brace off) Lying on your tummy bend the heel of the operated leg towards your bottom until you feel a stretch in your thigh or knee, then return to a straight position

Repeat 3 x 10

To increase the challenge add a small ankle weight or theraband



These exercises should be performed with the brace on weeks 7 and 8. Remove the brace from week 9 onwards

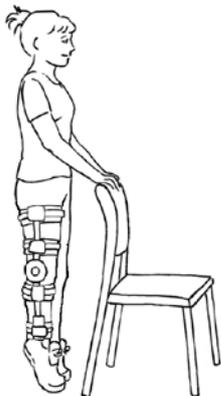
Squat - Stand holding something for support. Bend your knees into a squat then slowly stand up straight again

Repeat 3 x 10



Calf Raises - Stand holding something for support. Rise up onto your toes then slowly lower

Repeat 3 x 10



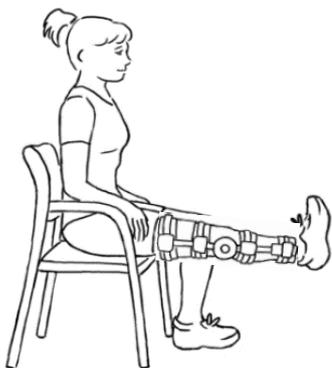
Lying Knee Extension - Lying on your back with a towel under your operated knee, squeeze your thigh muscles to straighten your knee. Hold for 5 seconds then relax

Repeat 3 x 10



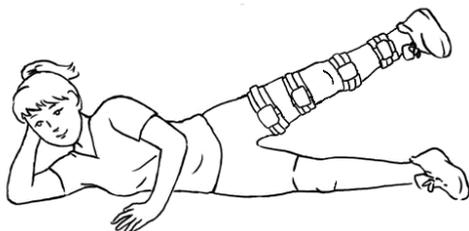
Seated Knee Extension - Sitting in a chair, straighten your knee out and tighten your thigh muscle
Hold for 5 seconds then relax

Repeat 3 x 10



Hip Abduction - Lying on your side, slowly lift the top leg up and down

Repeat 3 x 10



Phase 3: Progressive Strengthening and Early Balance (week 13 - 16)

Goals

- Restore full knee range of movement
- Progress strengthening exercises
- Restore balance (proprioception)

Precautions / Management

- Commence end-range quadriceps stretching
- Begin gym strengthening exercises, bias to the operated leg
- Avoid lunges and resisted knee extension until **week 17**

Phase 3 Exercises

Progress to Phase 3 exercises as guided by your physiotherapist. Perform 3 - 4 times per week.

Offset Sit-to-Stands - Sitting on a chair, place the operated slightly behind the good leg. Slowly stand up from the chair without using your hands

Repeat 3 x 10



Step ups - Step up onto a small box or step with the operated leg first. Use a rail or wall for support if needed

Repeat 3 x 10



Hip Bridge - Lying on your back with your knees bent, lift your bottom up off the bed, and then slowly lower down

Repeat 3 x 10



Balance Exercises

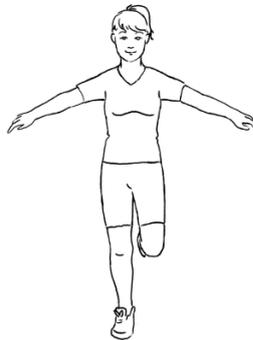
- Tandem stance - stand heel to toe with the operated leg at the back
- Single leg balance - stand and balance on your operated leg
- Toe taps - stand on your operated leg, tap each marker with the unaffected leg while maintaining balance

Repeat 3 x 30 seconds

To increase the challenge close your eyes, or stand on a pillow



a) Tandem Stance



b) Single Leg Stance



c) Toe Taps

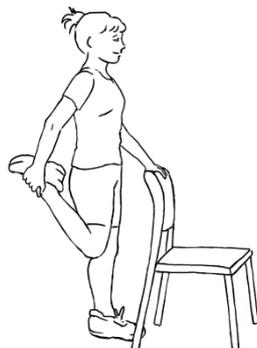
Crab Walk - Stand in a slight squat position with theraband around your knees. Side step 10 steps to the right, then 10 steps to the left

Repeat 5 times



Quadriceps Stretch - Stand holding a chair for balance. Gently bring your heel to your bottom to feel a stretch in the front of your thigh (quadriceps muscle)

Repeat 3 x 30 seconds

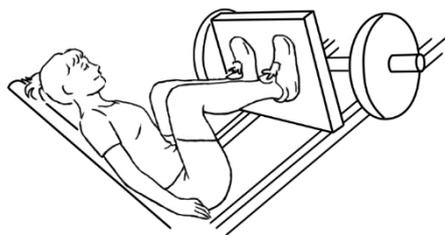


Gym Exercise Ideas - Start with low load and high repetition e.g. 3 x 15 - 20. As you gradually increase the load / weight, reduce the repetitions as guided by your physiotherapist

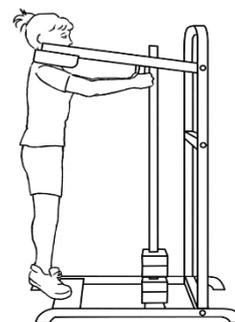
- a) Exercise bike
- b) Leg press machine
- c) Calf raise machine
- d) Core exercises with swiss ball
- e) Hamstring curl machine



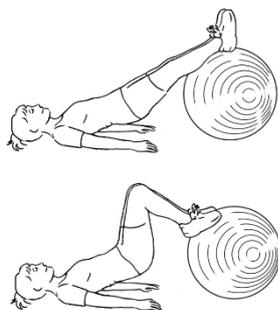
a) Exercise Bike



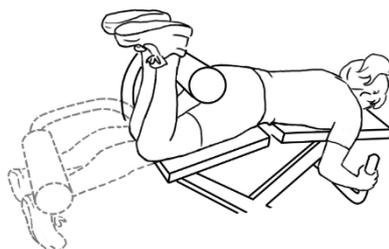
b) Leg Press



c) Calf Raise Machine



d) Core Exercises with Swiss Ball



e) Hamstring Curls Machine

Phase 4: Advanced Strengthening and Running (week 16 - 20)

Goals

- Advanced strengthening, balance and functional drills
- Return to jogging and running

Management:

- Progress strengthening to single leg exercises
- Gradually increase resistance with gym program
- Swimming with full power kicking

Phase 4 Exercises

Progress to Phase 4 exercises as guided by your physiotherapist. Perform 3 - 4 times per week.

Calf Raises, Squats, Hip Bridge - Progress these exercises to single leg

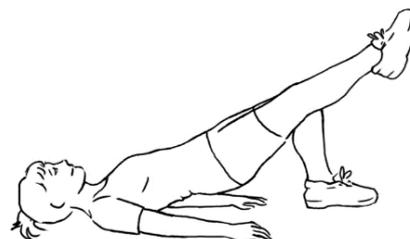
Repeat 3 x 10 each



a) Single Leg Calf Raise



b) Single Leg Squat



c) Single Leg Hip Bridge

Gym Program - Add lunges and seated knee extension to your program. Start with **low resistance** and increase gradually as tolerated

Repeat 3 x 10



a) Forward Lunges

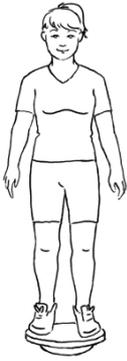


b) Resisted Knee Extensions

Advanced Balance Exercises - Balance on a wobble board, bosu ball or dura disc

Repeat 3 x 30 - 60 seconds

To increase the challenge add upper body movements (like throwing and catching a ball)



Running Program - Start at a slow speed on a flat surface for 5 - 10 minutes and build as tolerated

Discuss your program with your physiotherapist



Phase 5: Return to Sport and High-Level Activity (week 21 onwards)

Goals

- Regain power in operated leg - able to exert force quickly
- Feel comfortable, confident and ready to return to sport

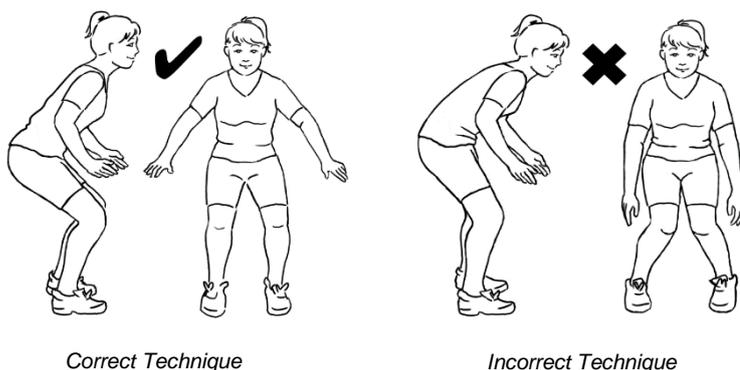
Management:

- Commence plyometric training (including jumping)
- Commence multi-directional running and sport-specific drills

Phase 5 Exercises

Progress to Phase 5 exercises as guided by your physiotherapist. Perform 2 - 3 times per week.

Jumping (Plyometric) Exercises - Squat down keeping hips, knees and ankles in good alignment
Hold for 1 second then jump straight up. Focus on landing softly with good hip and knee control
Repeat 3 x 30 seconds



To increase the challenge:

- Side jumps
- Box jumps with increasing height
- Jump with rotation – 90° and 180°
- Double leg jump landing on single leg
- Lunge jumps
- Hopping
- Triple jump
- Zig Zag – double leg or single leg

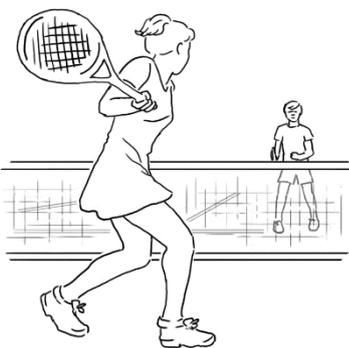
Running Drills (avoid treadmills) - Jog or run in a straight line running on flat ground. Start with 5 - 10 minutes then increase time as tolerated



To increase the challenge:

- Increase speed and/or distance
- Add incline/decline hill work
- Move in a different direction: forwards, backwards, sideways
- Add bounding or change speed
- Leaping
- Running with quick change in direction e.g. plant and cut

Sport Specific Exercise - Your physiotherapist will help plan exercises/drills specific to your sporting activity or gym requirements



When can I...

Sleep without the brace?

- After 8 weeks.

Return to work?

- Sedentary employment (e.g. desk job) **when comfortable**.
- Work that involves standing on your feet most of the day (e.g. retail work) around **4 – 6 weeks** if pain and swelling in the knee is minimal.
- Manual labour jobs (e.g. construction worker) around **12 - 16 weeks** once cleared by your surgeon and you are able to complete your work specific activities with no increase in pain or swelling.

Return to driving?

- Automatic car:
 - Left leg surgery: After **6 weeks** once the knee brace is unlocked 0-90 degrees or greater.
 - Right leg surgery: After **8 weeks** when out of the brace and you have achieved adequate knee bend and strength.
- Manual car:
 - After **8 weeks** once out of the brace and you have achieved adequate knee bend and strength.

Return to jogging?

- After **4 months** as guided by your surgeon and physiotherapist.

Return to sports?

- After **6 months** as guided by your surgeon and physiotherapist.

Contact

Department of Physiotherapy
Allied Health

(03) 9342 7440

