



FISIOTERAPIE PHYSIOTHERAPY

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ROOMS:
PROGRESSION OF
EXERCISE

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Knee Rehabilitation after surgery (Anterior Cruciate Ligament reconstruction and Total Knee Replacement)

EXERCISES:

2-4 Weeks

**EXERCISES SHOULD NEVER BE EXCESSIVLY PAINFULL
REPEAT ALL EXERCISES APPROXAMITALY 10 TIMES**

1. Active movement

a. Hip flexion

1. Lie down with your knee straight.
2. Tighten your thigh (quadriceps) muscle ie pull up your knee cap.
3. Keep leg straight at the knee and turn the heel in.
4. Lift your leg up towards the ceiling.
5. Hold 5-10 seconds.



b. Abduction

1. Lie down on the healthy side.
2. Make sure your hip and shoulder are in line.
3. Keep your leg straight.
4. Lift the operated leg up towards the ceiling
5. Hold 2-5 seconds.



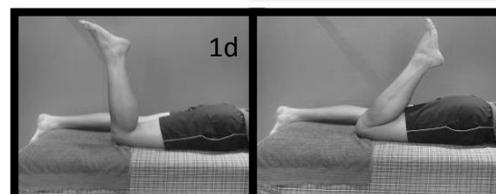
c. Adduction

1. Lie down on the operated side.
2. Cross the healthy leg up in front of the operated leg.
3. Lift the operated leg upwards toward the ceiling.
4. Hold 2-5 seconds.



d. Knee flexion

1. Lie down on your stomach.
2. Bend your knee upwards toward your buttock
SLOWLY.



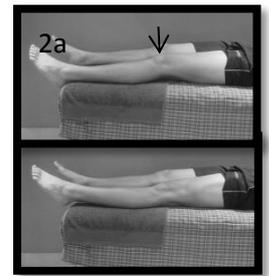
e. Hip extension

1. Lie down on your stomach.
2. Tighten/squeeze your buttocks.
3. Lift your operated leg straight up towards the ceiling.
4. Make sure you are not using your back muscles.
5. Hold 2-5 seconds.



f. Calves

1. Stand with your knees slightly bend.
2. Push up on your toes.
3. Slowly lower your heels.



2. Static exercises

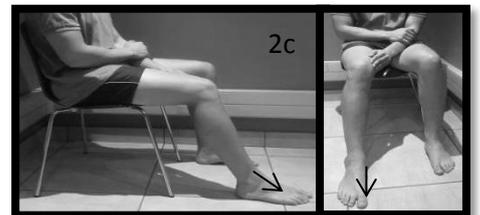
a. Quadriceps

1. Place the operated leg on the bed or a table.
2. Let the healthy leg hand down.
3. Keep your back straight.
4. Keep the knee flat against the bed/table.
5. Hold 20-30 seconds.
6. **Repeat only 2 times.**



b. Hamstrings and Gluteus

1. Sit with your knees 90° bend.
2. Push your operated side's foot gently into the ground.
3. Tighten your buttocks.
4. Hold 5-10 seconds.



c. VMO

1. Sit with your operated knee bend 70°.
2. Place your foot flat on the floor.
3. Try to push the foot forward without moving the foot.
4. Feel that the muscle just above and towards the middle of your knee cap tightens.
5. Make sure that your buttock, back thigh or calves don't tighten.
6. Hold 5-10 seconds.
7. When this can be done easily:
 - a. Squeeze a towel between the knees.
 - b. Repeat instructions 1-6.



3. Knee range

a. Extension: **Feet of bed** (If your knee cannot straighten completely)

1. Lie on your stomach.
2. Make sure your knee is just off the bed and your thigh is supported.
3. Place a light weight around your ankle to pull your knee straight.
4. Hold this position for 2-3 minutes.



b. Flexion: **Heel ups**

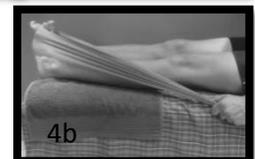
1. Stand at a table.
2. Make sure your operated leg is straight.
3. Bend the operated knee backwards up to 90°.
4. Slowly straighten the knee.



4. Theraband exercises

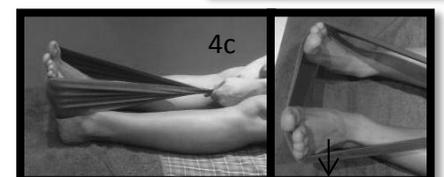
a. Plantar flexion

1. Hold the theraband around your foot.
2. Push your foot down against the theraband.
3. Make sure your knee does not move.



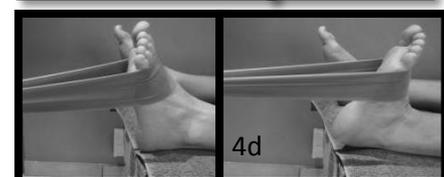
b. Inversion

1. Hold the theraband around your foot.
2. Moving at the ankle pull your foot inwards (toward the other foot) against the theraband.
3. Make sure your leg does not move.



c. Eversion

1. Put the theraband around both your feet.
2. Moving at the ankle push the operated foot outwards against the theraband.



d. Dorsiflexion

1. Tie the theraband in front of you.
2. Pull your foot up towards your body against the theraband.

e. Hip abduction

1. Stand with the theraband tied around both legs.
2. Bend your knees slightly.
3. Shift your weight to the operated leg.
4. Tighten the thigh and buttock muscles on the operated side.
5. Move your healthy leg away from the operated leg (outwards).
6. Place your healthy leg on the ground and spread your weight 50/50.
7. Move your healthy leg back to starting position.
8. Make sure your operated leg stays behind your toes and does not move/give in.



5. Stepping

a. Healthy leg first.

1. On a low/small step.
2. Keep your back straight.
3. Step up with the healthy leg.
4. Make sure your knee stays behind your toes.
5. Bring your operated leg up.
6. Step back down with your healthy leg first.

b. Operated leg

1. Keep your back straight.
2. Place your operated leg on the step.
3. Keep your healthy sides toes on the floor.
4. Put half your weight on the heel of the foot.
5. Make sure your knee stays behind your toes.
6. Hold 5-10 seconds.
7. Lower the operated leg.
8. When you can do this without any pain climb the step with your operated leg first.



4-6 weeks

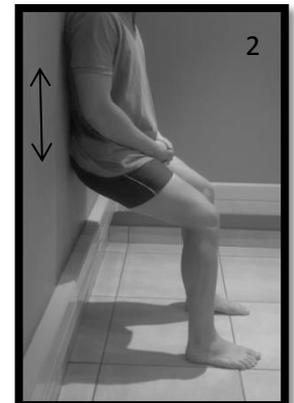
1. VMO in standing:

- a. Stand with the operated leg slightly forward.
- b. Bend the knee 40°.
- c. Keep the knee in line with the toes.
- d. Keep your foot flat on the floor.
- e. Try to push the foot forward without moving the foot.
- f. Feel that the muscle just above and towards the middle of your knee cap tightens.
- g. Make sure that your buttock, back thigh or calves don't tighten.
- h. Hold 5-10 seconds.
- i. As your balance improves start placing more weight on the operated leg.



2. Wall squats

- a. Stand with your back against the wall.
- b. Make sure your toes face forward and your feet are hip width apart.
- c. Keep your knees in line with your toes.
- d. Tighten your buttocks and hamstring muscles.
- e. Keep them tight as you slowly bend your knees and slide down the wall into the squat position.
- f. **DO NOT BEND MORE THAN 40°.**
- g. Push up, placing most of your weight on your heels.
- h. Do not straighten your knees completely.



3. Cycle

- a. If you have a stationary bike at home you may bike with a **LOW RESISTANCE.**
- b. Set the height of the saddle so that your leg can straighten, **but not completely.**
- c. Step with your heel, not your toes.
- d. Keep a steady rhythm.
- e. You may progress the time but not the resistance.

6-9 weeks

1. Cycle

- On a stationary bike.
- Medium resistance.
- Make sure the saddle is not too high.

2. Walk on a treadmill

- No incline.
- Slow speed.

3. Proprioception and stability

a. Floor balance

- Stand on your healthy leg for 10-15 seconds.
- Now stand on your operated leg for 10-15 seconds.

b. Balance board

- Stand with both legs evenly spaced on the balance board. Keep your eyes open. Keep your balance for 10-15 seconds.
- Stand with your healthy leg on the balance board. Keep your eyes open. Keep your balance for 10-15 seconds.
- Now stand with your operated leg on the balance board. Keep your eyes open. Keep your balance for 7-10 seconds.
- Repeat steps 1-3 with your eyes closed.
- Then repeat steps 1-3 and try to throw/catch a ball.

c. Exercise mats or half balls

- Repeat/progress the same as with a) balance boards.

d. Trampoline

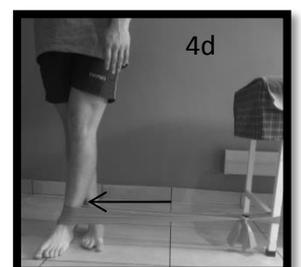
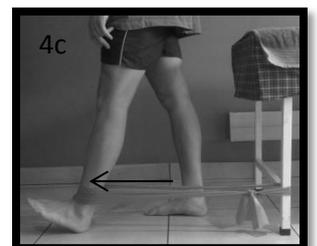
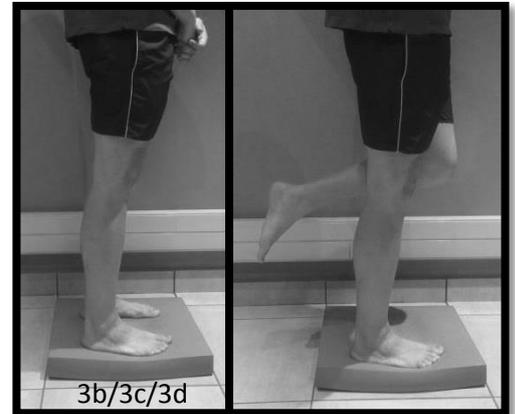
- Repeat/progress the same as with a) balance boards and b) exercise mats.

e. Rhythmic stabilisation

- While standing on the balance board or mats.
- Loop the theraband around your waist.
- Try to keep your position while your therapist/partner tries to pull you sideways, backwards or forwards by pulling gently on the theraband.

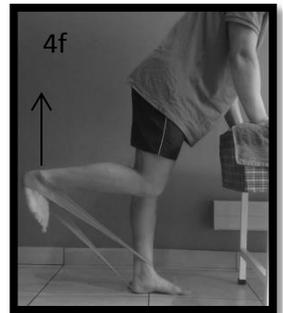
4. Theraband

- Do all exercises with both legs.
- The leg taking the weight must always be slightly bent.
- Hip flexion
 - Tie the theraband in a loop around the leg of a bed/table.
 - Bend the knee slightly.
 - Stand with the theraband behind you.
 - Move your leg forward.
 - Make sure you move at the hip not at the knee.
- Hip adduction
 - Tie the theraband in a loop around the leg of a bed/table.
 - Keep the leg straight.
 - Stand with the exercising side closest to the theraband.
 - Move it against the rubber towards and in front of the other leg.
- Hip abduction
 - Tie the theraband in a loop around the leg of a bed/table.
 - Keep the leg straight.
 - Move the leg outwards against the theraband.
 - Later try walking sideways against the theraband.



f. Knee flexion

1. Tie the theraband around both legs.
2. Stand straight with your leg hanging straight down.
3. Bend your knee backwards against the rubber. (ie heel up).



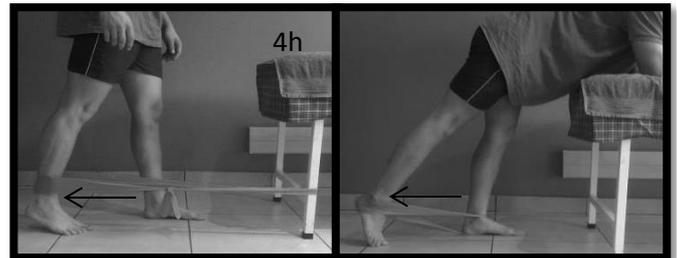
g. Crawling position

1. If this position is painful for you, rest your upperbody/chest on the bed in order to take some weight off your knees.
2. Tie the theraband around your thighs.
3. Move your knee outwards as far as possible keeping the knee bend.



h. Hip extension

1. Do this exercise in the following positions.
 - a. Lying on your side.
 - b. Standing up straight.
 - c. Supporting your upperbody/chest on a bed.
2. Tie the theraband around your legs or loop it around the bed.
3. Move your leg backwards against the theraband.
4. Make sure you are moving at the hip not the knee.



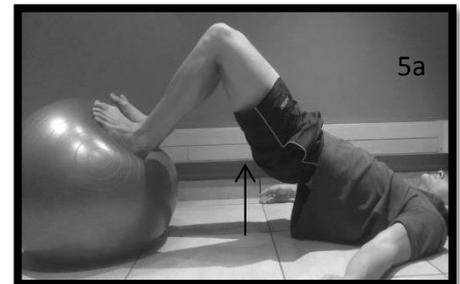
i. Foot exercises

1. Same as week 2-4.

5. Exercise ball

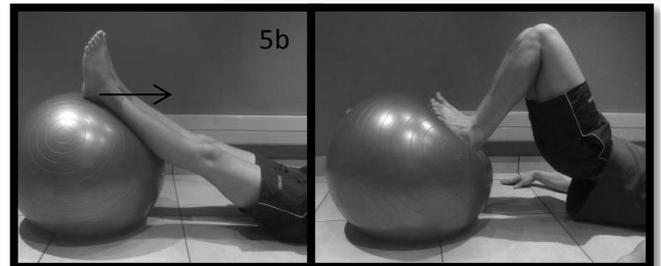
a. Bridging

1. Place both feet on the ball.
2. Bend your knees.
3. Tighten your stomach and buttocks.
4. Lift your hips.
5. Now repeat steps 1-4 with only one leg on the ball.



b. Hamstring pull

1. Place both heels on the ball.
2. Bend your knees, pulling the ball closer to your body.
3. Straighten your knees pushing the ball away.



6. Lunge – no pain or discomfort!

- a. Stand with your feet together.
- b. Step backwards with your operated leg.
- c. Bend the knees slightly.
- d. Return to starting position.
- e. Now try stepping forward with your operated leg. Remember to not let your knee fall passed your toes or inwards.
- f. Then try stepping sideways.



7. **Squats** – no pain or discomfort!

a. Wall squats

1. Stand against a wall.
2. Flatten your back.
3. Slide down the wall bending your knees up to 90°.
4. Remember to keep your knees in line with your toes.
5. Most of your weight should be on your heels, ie behind your knees.
6. When this is comfortable move away from the wall. Start with holding onto a stable surface for balance.



b. Sit to stand

1. Stand up and sit down on a chair.
2. Your weight should be behind your knees, on your heels.
3. Make sure your knee stay in line with your toes and do not pass your toes when standing up.
4. Now try this on a exercise mat or balance board.
5. Later try this while using only one leg.



c. One leg squat with support

1. Stand in facing away from a chair.
2. Place your healthy leg on the chair.
3. Squat/bend your operated leg keeping your weight behind your knee.
4. Make sure your knee stays in line with your toes but does not move forward passed your toes.
5. Keep your body upright.



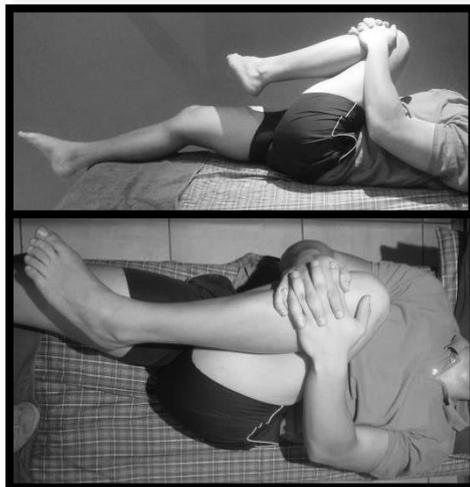
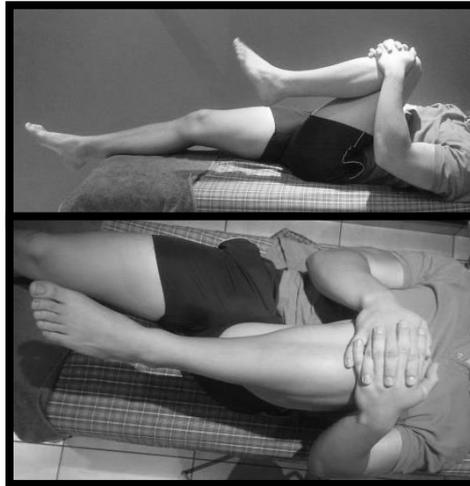
8. **Stairs** – climb stairs to strengthen the knee further.

9. **Stepper** – make sure to keep the resistance low-medium.

10. Stretches

Progress weekly.

- a. Hold the position for 30 secs.
- b. Repeat 3 times.



9-12 weeks

1. Step down

- a. Forwards
 1. Stand on a step.
 2. Step down from the step moving your leg forward.
 3. Make sure to keep your pelvis straight.
 4. Do not let the leg fall in towards the other leg.
- b. Sideways
 1. Stand on a step.
 2. Step down from the step moving your leg outwards to the side.
 3. Make sure to keep your pelvis straight.



2. One leg squats

- a. If you have no pain over the front of your thigh/knee.
- b. Stand on one leg.
- c. You may hold onto a stable surface for balance.
- d. Squat/bend your knee.
- e. Keep your knee in line with your toes.
- f. Make sure your knee does not pass your toes.
- g. Keep your pelvis straight.



3. Resisted lunges/walking

- a. Tie a theraband around your waist.
- b. Tie it to a stable surface or let someone hold it in place.
- c. Lunge as instructed week 6-9 pulling against the theraband.



4. Run lightly on a trampoline

- a. Do not straighten your knee when it lands.
- b. Slow jog, not a sprint.

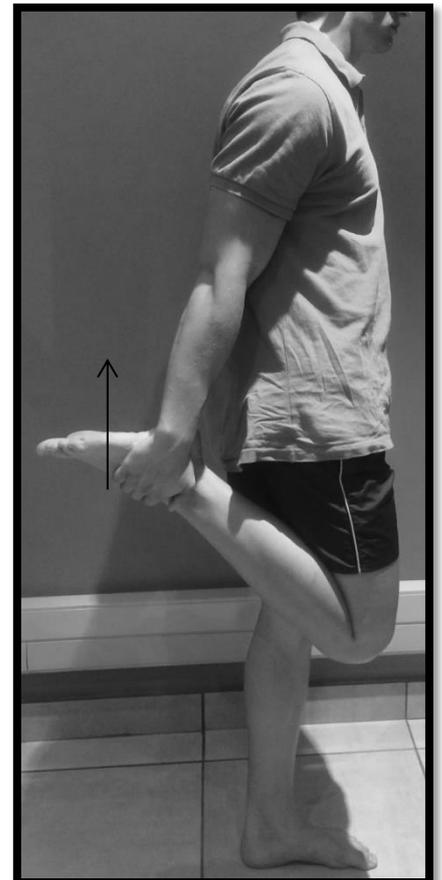
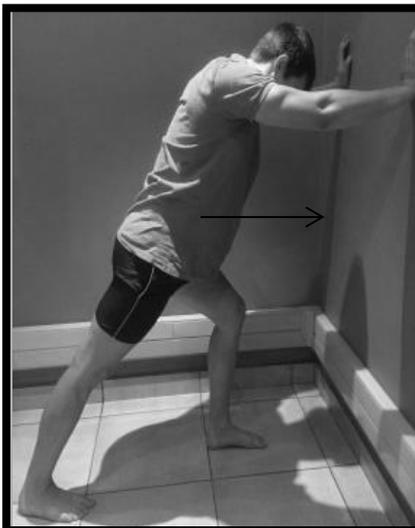
5. Jumping

- a. Jump lightly from one leg to the other.
- b. Do not land on a straight leg.

6. Stretches

Lower limb in standing: Progress weekly.

- a. Hold the position for 30 secs.
- b. Repeat 3 times.



14+ weeks (biokineticist)

1. Agility

- a. Trampoline
- b. Steps
- c. Direction changes
- d. Plyometric exercises