

## Strengthening program: Knee exercises before total knee replacement surgery

- You may have discovered that you've been less active because of your knee joint discomfort. When muscles aren't used, they become weak and don't perform well in supporting and moving your body.

Having your knee replacement surgery will correct the joint problem, but you will need a regular exercise program to strengthen your muscles and properly support your new joint.

Beginning an exercise program before your surgery can greatly enhance your recovery period. **Make sure to do the exercises on both sides to build strength.**

Because everyone responds to exercise differently, you need to be the judge of how much exercise you can do each day. **If an exercise causes an increase in joint discomfort, stop doing that exercise.**

You should try to exercise one to two times a day, every day, before surgery. Do five repetitions of each exercise. If you are comfortable with the exercise, increase the repetitions by five each week until you reach 20 repetitions (week one: 5 to 10 repetitions, week two: 10 to 15 repetitions and week three: 15 to 20 repetitions).

For the most comfort, do the exercises lying down. Your bed is an excellent place to do your exercises.



### Ankle pumps and circles

Bend both your ankles up, pulling your toes toward you, then bend both your ankles down, pointing your toes away from you. In addition, rotate each foot clockwise and counterclockwise, keeping your toes pointed toward the ceiling.



### Thigh squeezes (quadriceps sets)

Tighten the muscles in front of your thigh by pushing the back of your knee down into the bed. Hold for 5 seconds and relax. Repeat with opposite leg.



### **Heel slides (hip and knee flexion)**

Bend your hip and knee by sliding your heel up toward your buttocks while keeping your heel on the bed. Slide your heel back down to the starting position. Keep your kneecap pointed up toward the ceiling during the exercise. You may want to use a plastic bag under your heel to help it slide easier. Repeat with opposite leg.



### **Leg slides (abduction/adduction)**

Slide your leg out to the side, keeping your kneecap pointed up toward the ceiling. Slide your leg back to return to the starting position. You may want to use a plastic bag under your heel to help it slide easier. Repeat with opposite leg.



### **Lying kicks (short arc quadriceps)**

Lie on your back with a 3-pound coffee can or rolled blanket under your knee. Straighten your knee. Hold for 5 seconds. Slowly lower your leg down and relax. The back of your knee should stay in contact with the can/blanket throughout the exercise. Repeat with opposite leg.



### **Straight leg raises**

Bend one of your legs with your foot flat on the bed. Raise your opposite leg up (about 12 inches), keeping your knee straight. Hold briefly. Progress to holding for 5 seconds. Slowly lower your leg down and relax. Repeat with opposite leg.



### **Bed mobility exercise**

Lie flat on your back. Come up on both elbows. Straighten arms out behind you and come to a sitting position. Lower yourself down onto your elbows again, then down to lying flat.



### **Knee bending (sitting knee flexion)**

Sit on a chair. Bend your knee back as much as you can. Hold for \_\_\_\_\_ seconds. Return to the starting position and relax. Repeat 5 times.



### **Sitting kicks (long arc quads)**

Sit in a sturdy chair. Lift your foot, straightening your knee as much as possible. Try to keep your knees level, as if you were holding a tray on your lap. Hold for 5 seconds. Slowly lower your leg down and relax. Return to the starting position and repeat with opposite leg.



### **Chair push up**

Sit on a sturdy chair with arms or in a wheelchair. Grasp the arms of the chair. Push down on the chair arms, straightening your elbows so that you raise your buttocks off the seat of the chair. Hold for 5 seconds. Lower yourself slowly back into the chair. If your arms are weak at first, use your legs to help raise your buttocks off the chair.



### **Optional: Hamstring sets (heel digs)**

Bend your involved knee a little and tighten the muscle on the back of your thigh by digging your heel into the bed. Hold for 5 seconds.



### **Optional: Buttocks squeezes (gluteal sets)**

Tighten your buttocks muscles by squeezing the muscles together. Hold for 5 second

## **Advanced knee exercises after knee replacement surgery**

- A regular exercise program will strengthen the weakened muscles. **Your success with rehabilitation largely depends on your commitment to follow the exercise program developed by your therapists.**

Ideally, you should exercise two to three times a day, every day, after surgery.

Follow specific directions given to you by your surgeon, therapist or nurse.

### ***Advanced knee exercises***

**Do the advanced knee exercises below only if you are instructed by a therapist or surgeon.**



### **Towel stretch**

Lie on your back and bend your knee. Use a towel behind your knee and pull the towel with both hands to increase the stretch in your knee. Hold for \_\_\_\_\_ seconds. Return to the starting position and relax.



### **Prone knee flexion**

Lie on your stomach with a towel under your thigh. Bend your knee back as far as possible. Hold for \_\_\_\_\_ seconds. Return to the starting position and relax. Repeat \_\_\_\_\_ times.



### **Prone hip extension**

Lie on your stomach with a pillow under your hips. Keep your surgical leg straight and lift it toward the ceiling. Hold for 5 seconds. Slowly lower your leg down and relax.



### **Step stretch**

Place the foot of your surgical leg one to two steps above and lean into your surgical knee, keeping your upper body straight by holding onto railings. Hold for \_\_\_\_\_ seconds. Repeat \_\_\_\_\_ times.



### **Knee step up**

Step up with the surgical leg, then step back down. Repeat.

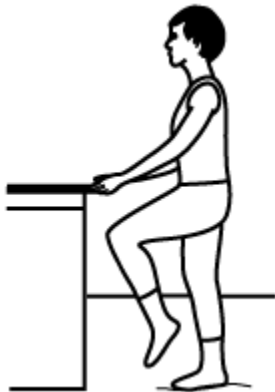
## *Advanced standing exercises*

**Do the following advanced standing exercises only if instructed by a therapist or surgeon.**

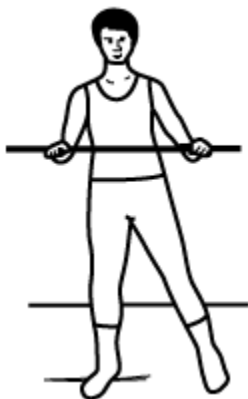
Standing exercises for legs: Hold for \_\_\_\_\_ seconds.



1. Stand, holding on to a secure object. Lift your leg forward off the ground.



2. Bring your knee up toward the ceiling, bending your knee.



3. Lift your leg out to the side.

Focus on keeping your back straight, standing tall. Also, make sure your toes are pointing forward.



4. Bend your knee, bringing your heel toward your buttocks.

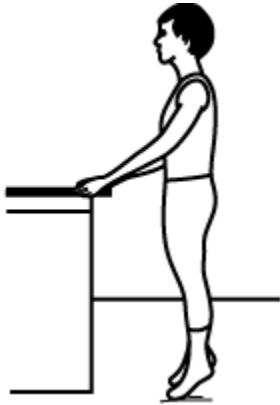


5. Slowly lift your leg backward, keeping your knee straight.





6. Bend your knees slightly. Hold briefly.



7. Raise up onto the balls of your feet.

Focus on keeping your back straight, standing tall. You should feel this in your calf muscles.

