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Precision Joint Replacement  
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**AFTER YOUR TOTAL KNEE REPLACEMENT**

Your full recovery from your total knee replacement surgery is going to take several months. This pamphlet will help you understand your recovery. Guidelines are included which discuss precautions to protect your new joint, exercises that increase your knee strength and range of motion, and activities of daily living that will help you become an active partner in your care and recovery.

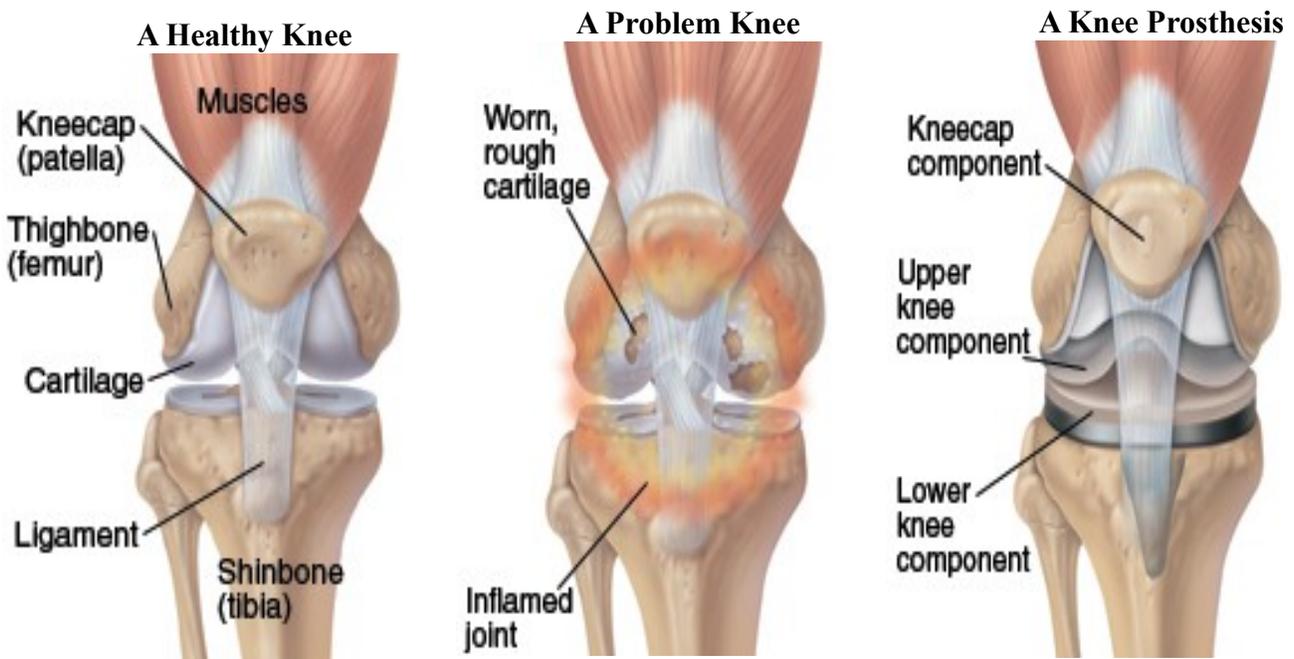
**The Normal Joint**

Your knee is a hinge joint found where the end of the thigh bone (femur) meet is the beginning of the large bone in your lower leg (tibia). A healthy knee has layers of smooth cartilage that cover the ends of the femur and the tibia. The smooth cartilage acts as a cushion and allowed the surfaces of the two bones to glide smoothly as you bend your knee. The muscles and ligaments around the knee joint support your weight and help move the joint smoothly so you can walk without pain.

As the knee joint degenerates, the smooth cartilage can wear down on the ends of the femur and the tibia. The smooth surfaces become rough, like sandpaper. Instead of gliding smoothly when you bend your knee, the bones grind and you have pain and/or stiffness.

**Your Replacement Knee Prosthesis**

To create a new knee joint, the ends of the bones forming the joint are surgically removed. They are replaced with parts similar to pieces shown here. The parts of the prosthesis are made of metal and very strong plastic. The prosthesis provides new smooth surfaces on the ends of the bones.



## **Guidelines to Protect Your New Knee Joint**

### **Lying in Bed**

During the first 24 hours following surgery your knee will be stiff and may feel very uncomfortable. You may also have a Continuous Passive Motion (CPM) machine placed under your knee after surgery. The CPM will help prevent your knee from becoming too stiff and tight. However, you may take a periodic rest from the CPM by elevating your leg on a pillow placed lengthwise beneath your entire leg. Do not place a pillow or rolled up towel under your knee. You may also lie on either side when you are not in the CPM. Your physical therapist will give you additional instructions on the use of your CPM.



### **Sitting in a chair**

Use a firm sturdy chair with arm rests. Use a cushion or pillow to raise you up, if needed, to facilitate getting out of the chair. Allow your foot to rest on the floor if you can.

### **Walking**

Avoid putting too much weight on your new knee.

The physical therapist will teach you to use a walker or crutches when you walk until your knee heals. Your therapist and doctor will tell you how much weight you can safely put on your new knee. At your six-week check-up, your doctor will tell you if your knee has healed enough to progress to a cane or one crutch.

### **Your balance might be shaky for a while.**

- Use handrails on steps
- Use low-heeled or flat shoes
- Avoid wet or waxed floors
- Keep your floors free of items that could trip you. Throw rugs or small objects should be kept off the floor for your safety
- Watch for pets or other animals that could get in your way.
- Avoid ice or snow

### **If you are riding in a car, stop every hour or so.**

Get out and walk around for a few minutes. This will help the circulation in your legs and keep your muscles from stiffening up. Check with your doctor when you can resume driving after your surgery.

## **Adaptive Equipment**

After your total joint replacement, you may benefit from several pieces of equipment to make your daily activities easier and safer. Your doctor and physical therapist will recommend the equipment that best suits your needs.

### **Seat/Shower Bench:**

This seat allows you to sit while bathing and provides you safety while you are in the shower.



### **Seat Cushion:**

Cushions are used to elevate the seat height of a chair, couch, car, or other surfaces.

### **Elevated Toilet Seat:**

This device is attached to your toilet seat to elevate its height.



### **Reacher:**

A reacher is used to pick up items off the floor and help you with dressing.



### **Dressing Stick:**

This device has a hook on one end and a pusher on the other end. It is used to help put on pants, skirts, pull up zippers, etc.



### **Sock Aid:**

This aid helps you safely put on your sock.

### **Long-Handled Bath Sponge:**

This sponge helps you clean hard to reach areas while bathing.

### **Long-Handled Shoe Horn:**

This shoe horn is attached to a long stick and allows you to put on your shoes while sitting or standing.

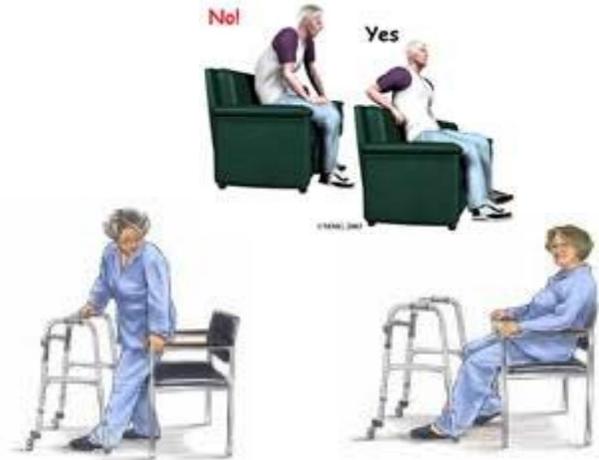


## Managing Activities of Daily Living Following Your Knee Replacement

### Chair Transfer

Avoid recliners and soft couches until otherwise told by your doctor. Stiff-backed chairs with armrests are ideal to sit in. If the seat is low, you may place 1 or 2 pillows in the chair to elevate the seat and facilitate transfers.

1. Back up to the chair until you feel both legs touching the chair
2. Slide your operated leg out in front of you as you reach back with one hand for an armrest.
3. Lower yourself slowly, keeping your operated leg straight out. Once seated, bend your knee comfortably or keep it straight.
4. When getting up, scoot your operated leg out in front of you. Remember to keep your hip positioned less than 90 degrees.
5. Push up using the armrests, keeping your operated leg out in front of you.



### Car Transfers

The front seat is preferable because it generally has more leg room, can be adjusted for comfort, and can allow the rider to more easily wear a seat belt.

1. Make sure the seat is as far back as possible. Back up to the car with your walker or crutches. Put your operated leg out in front of you.
2. Lower yourself slowly to the seat.
3. Scoot back into the seat, then swing your legs into the car. If the seat is low, recline the back slightly or put a pillow on the seat to sit on.
4. To get in the back seat in a semi-reclining position. You will need to use your arms and non-operative leg to scoot yourself back further onto the seat.



## Walking with Crutches

### Crutch Safety

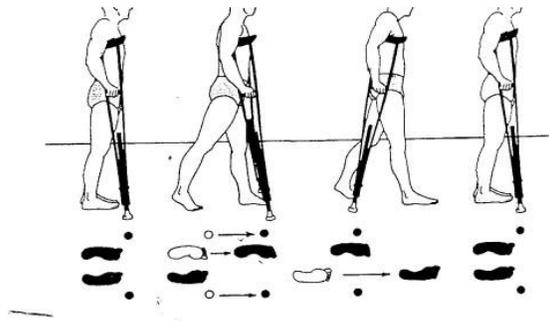
- The pressure or weight goes on your hands and not on your armpits. Nerve damage can result if weight is placed on the armpits for a long period of time.
- Keep your elbows close to your sides to help keep the crutches against your ribs
- Your crutch tips should be 2 to 3 inches out to the side so you do not trip on your feet
- There should be a slight bend in your elbows when holding the crutches (15 to 20 degrees)
- Take your time and do not try to walk too fast
- Keep your head up and look ahead. Do not look at your feet when walking .
- When walking on carpet, you must pick up your crutches and injured leg more than when you walk on tile or linoleum floors.
- Remove all throw rugs from the floor to keep from slipping and falling



### Touch Down Weight Bearing

The touch down method means that you may touch your operated leg on the floor, but do not step onto your operated leg. It is like “walking on eggshells”.

### Partial Weight Bearing



Partial weight bearing means you may place up to 50% of your body weight on your operated leg. Do not place your full weight on the operated leg until cleared to do so by the doctor.

## Weight Bearing as Tolerated/Full Weight Bearing

You may place as much weight on your operated leg as you can tolerate. Use the crutches to improve your balance and safety, as well as favor the operated leg when it is painful.

### Stairs and Curbs

Always use a handrail if available.

#### Going up with Handrail

1. Place both crutches under your arm on the injured side.
2. Grasp the handrail with your other hand, if possible
3. Bring your good leg up to the next step. Let the injured leg trail behind.
4. Straighten your good leg and bring the crutches and injured leg up



#### Going up without the Handrail

1. Keep the crutches on the stair you are standing on
2. Support your weight between your crutches
3. Bring your good leg up to the next step. Let your injured leg trail behind.
4. Straighten your good leg and bring the crutches and injured leg up



#### Going down with the Handrail

1. Put the crutch on the lower step
2. Lower your injured leg down to the lower step
3. Support your weight between your crutch and handrail
4. Move your good foot to the lower step



#### Going down without the Handrail

1. Put the crutches on the lower step
2. Support your weight between your crutches
3. Bring your injured leg down to the lower step. Let your good leg trail behind.
4. Bring your good leg down.



## Exercises

The day after your surgery, the physical therapist will get you out of bed the first time. The physical therapist will help you walk with a walker or crutches as you are able. You will be sitting in a chair for 15 to 30 minutes by the second day. Each day the amount of walking and time sitting in the chair will increase as you can tolerate. Before you go home the physical therapist will teach you how to climb the stairs safely to protect your new knee.

Your physical therapist will start you on a home exercise program the day after your knee surgery. Additionally you may perform isometric exercises in bed right after your surgery to help you begin to recover.

Exercise will help you to regain the strength in your knee and legs so you can walk more easily. These beginning exercises should be performed until you can do 3 sets of 10 repetitions very easily. An advanced set of exercises is provided for when the beginning exercises are too easy. Exercises need to be continued for at least 6 weeks when you go home. Your therapist will go over the home exercise program with you before you are discharged.

## Isometric Exercises

Isometric exercises will help your muscles to begin to “wake up” after surgery and will help to promote circulation in your legs to prevent blood clots from forming. They may be performed throughout the day whenever you feel your legs becoming stiff. Remember to breathe in as you tighten your muscles, and out as you relax them. Breathe normally while you hold the position.

### Ankle Pumps

This strengthens your calf muscles in your lower leg.

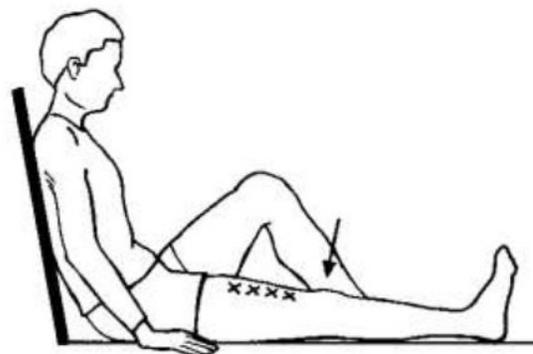
1. Lie on your back
2. Bend your ankle and pull your foot and toes away from you as far as possible, like you are pushing on the brake pedal of a car.
3. Repeat with both legs 10 times every 2 hours throughout the day.



### Quad Setting

This exercise helps your upper leg or thigh muscles.

1. Tighten the muscles of your thigh
2. Keep your knees straight. Push your knee down into the bed, having your kneecap move upward toward your hip.
3. Think about trying to raise your heel ½ inch off the bed.
4. Hold for a count of 5 and then relax.
5. Repeat with the other leg
6. Alternate legs for 10 repetitions on each side 3 times a day.



### Gluteal Setting

1. Squeeze your buttocks together. Hold for a count of 5.
2. Relax and repeat. Perform a total of 10 repetitions 2 times a day.

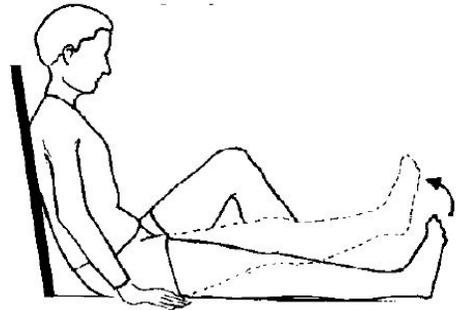
## Home Exercise Program

The following three exercises should be performed at home for at least six weeks or until they become very easy to do (30 repetitions) They should be performed 2 to 3 times per day. The first two exercises should be performed while lying in bed. The third exercise should be performed while sitting in a chair. A sheet of advanced exercises is attached to help you progress as these exercises become easier to complete. The advanced exercises may be started 4 weeks following your total knee replacement, only if the previous exercises can be completed without difficulty.

### Straight Leg Raises

This exercise works the muscles of the upper leg and thigh

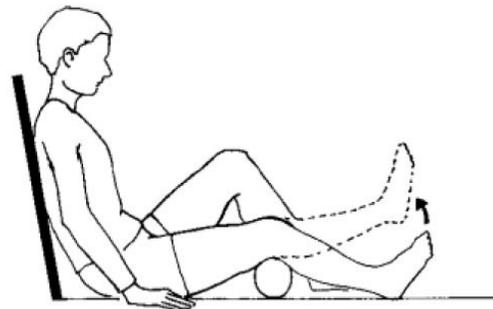
1. Keeping your knee as straight as possible, lift your leg off the bed 12 inches.
2. Lower the leg slowly back to the bed
3. Relax and repeat
4. Perform 30 repetitions, resting as needed.



### Knee Straightening Over a Pillow

This exercise works the muscles of the lower thigh and will help to walk without limping.

1. Place a rolled up pillow or towel under the operated knee.
2. While your knee remains on the pillow, lift your foot up, straighten the knee and point the foot towards the ceiling.
3. Slowly lower your foot back to the bed.
4. Relax and repeat
5. Perform 30 repetitions, resting as needed.



### Knee Bending

This exercise helps to improve the range of motion of your new knee.

1. While sitting in a high chair, hang your leg freely to let gravity bend your knee. If this is too painful, let your foot rest on the floor and slide your heel back along the floor. Bend the leg back under the chair as far as possible.
2. Straighten the leg back out in front of you.
3. Relax and repeat
4. Perform 30 repetitions resting as needed.



Another way to perform this exercise is as follows:

1. Sit in a chair with both feet flat on the floor
2. Bend your operated knee, slide your foot back and plant your heel firmly on the floor
3. While keeping your feet in place, slide your hips forward to the edge of the chair and hold for 10-30 seconds
4. Slide your hips back in the chair and relax
5. Repeat 10 times

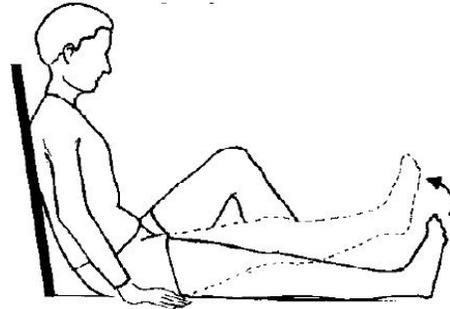
## Advanced Exercises after your Total Knee Replacement

These advanced exercises may be started 4 weeks following your total knee replacement, only if the previous exercises can be completed without difficulty.

### Straight Leg Raise

This is the same exercise you have been working on previously. However, the difficulty can be increased by holding your leg off the ground for a period of time.

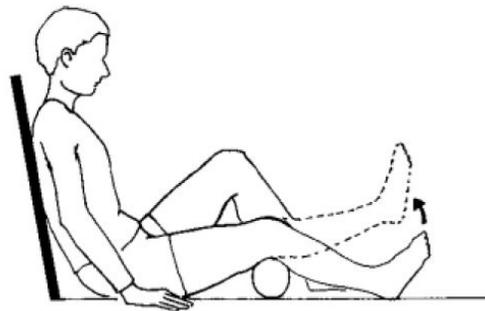
1. Keeping your knee as straight as possible, lift your leg off the bed about 12 inches.
2. Hold your leg straight without along your foot to drop for a count of 5 to 10 seconds
3. Lower the leg slowly back to the bed
4. Relax and repeat
5. Perform 30 repetitions; resting as needed



### Knee Straightening over a Pillow

This is the same exercise you have worked on previously. However the difficulty can be increased by holding your leg off the ground for a period of time.

1. Place a rolled up pillow or towel under the operated knee.
2. While your knee remains on the pillow, lift your foot up, straighten the knee and point the foot towards the ceiling.
3. Slowly lower your foot back to the bed.
4. Relax and repeat
5. Perform 30 repetitions, resting as needed.



### Stationary Bike

It is okay to start riding a stationary bike without resistance after 2 weeks after your surgery if your incision is healed. You can start by doing small semicircles with your operated knee straight down. Slowly rock the pedal back and forth causing your knee to bend. Gradually work towards a full circle. Make sure the amount of motion as well as the amount of time you spend on the bike starts at a low level and slowly increases. Monitor your pain and swelling closely and cut back if either increases significantly.



## **Avoiding Problems After Surgery**

### **Blood Clot Prevention**

Follow your orthopedic surgeon's instructions carefully to minimize the potential of blood clot which can occur during the first several weeks of your recovery.

#### **WARNING SIGNS OF POSSIBLE BLOOD CLOTS IN YOUR LEG INCLUDE:**

- Increased pain in your calf
- Tenderness or redness above or below your knee
- Increased swelling in your calf, ankle and foot.

#### **WARNING SIGNS THAT A BLOOD CLOT HAS TRAVELED TO YOUR LUNG INCLUDE:**

- Sudden increased shortness of breath
- Sudden onset of chest pain
- Localized chest pain with coughing

**NOTIFY YOUR DOCTOR IMMEDIATELY IF YOU DEVELOP ANY OF THESE SIGNS.**

### **Preventing Infection**

The most common causes of infection following total knee replacement surgery are from bacteria that enter the bloodstream during dental procedures, urinary tract infections, or skin infections. These bacteria can lodge around your knee replacement and cause an infection.

Following your surgery, you should take antibiotics prior to dental work or any surgical procedure that could allow bacteria to enter your bloodstream.

#### **Warning signs of a possible hip replacement infection are:**

- Persistent fever (higher than 100 degrees orally)
- Shaking chills
- Increasing redness, tenderness or swelling of the knee wound
- Drainage from the knee wound
- Increasing knee pain with both activity and rest

**NOTIFY YOUR DOCTOR IMMEDIATELY IF YOU DEVELOP ANY OF THESE SIGNS.**

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