

Your Guide to Knee Replacement Surgery



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Welcome

This program was specifically designed by Dr. Matthew Collard for our patients that are undergoing total knee replacement surgery.

The program consists of an overall explanation of the surgical procedure and the rehabilitation process following surgery. The team consists of physical therapists and clinicians, in conjunction with Dr. Matthew Collard, who want to insure your participation in the rehabilitation process. Our overall goal is to assist you in becoming functionally independent following surgery.

Basic Facts About Total Knee Arthroplasty

When the surgical team is ready, you'll be taken to the operating room suite. You will be given anesthesia to help you sleep through surgery and it will make you numb from the waist down. An incision is made on the front side of your knee. The incision will be approximately 4-6 inches.

Whether all or part of your joint is being replaced, Dr. Matthew Collard starts by preparing the bone. The surfaces of the joint are cleaned and shaped to hold the prosthesis, then the parts of the prosthesis are put in place. At this point, Dr. Collard tests the fit and alignment of the prosthesis. If the prosthesis fits correctly, its parts are secured to the thighbone, kneecap, and shinbone. The parts are then joined, forming a new joint. The skin incision is closed with sutures. Dr. Collard does not use staples.

Dr. Collard is careful to preserve the ligaments and tendons when performing the knee replacement. This usually allows the patient to use the knee within a day or two after surgery. In cases of ligament weakness or if a ligament must be adjusted, protection of the new joint may be necessary for two to six weeks.

After the surgical procedure you will be taken to the recovery room while you come out of anesthesia, then taken to your hospital room. On this day and the next day, nurses will get you up and the rehabilitation process begins. You will be in the hospital following your surgery for approximately 1-2 days, then discharged to your home or a rehabilitation facility.

Approximately 300,000 knee replacements are performed each year. There are numerous reasons why a total knee replacement would have to be performed. Conditions which would require surgery include injury, arthritic changes and joint degeneration. More than 95 percent of people who have a total knee replacement experience significant pain relief, improved mobility and a better overall quality of life.

Your Guide to Knee Replacement Surgery

Knee Replacement Illustrations



Healthy Knee



Arthritic Knee



Total Knee Replacement



Partial Knee Replacement

Commonly Asked Questions Regarding Total Knee Replacement

1. What system does Dr. Collard use for a knee replacement?

Dr. Collard uses the DePuy Sigma Total Knee Resurfacing System.

2. What is my new knee made of?

The DePuy Sigma Total Knee Resurfacing System is made of titanium, cobalt, chrome and polyethylene. It can be cemented or uncemented or a combination of both.

3. How big will my incision be?

The incision that is made depends upon a patient's height and weight. It is usually between 3 to 4 inches.

4. Does Dr. Collard use staples or sutures?

Dr. Collard always uses dissolvable sutures.

5. When can I take a bath or shower?

You may shower 2-3 days after surgery. The dressing that is put on the incision after surgery is waterproof. The dressing will be removed post-op day 5 and then a new waterproof dressing will be placed on the incision. You can safely immerse your knee in water 3 weeks after surgery, as long as your incision is fully healed and cleared by Dr. Collard at first post-op visit to do so. Swimming pools, hot tubs, lakes or rivers should be avoided during those 3 weeks. Water loosens the adhesive strips and slows healing of the incision, as well as an infection may occur. Wash your incision up and down, not side to side. Do not use a washcloth. Pat the incision dry.

6. Should I put lotion on my incision?

When the adhesive strips loosen and fall from the incision (usually 2 weeks after surgery), it is permissible to apply creams and ointments. They are not necessary for healing, but may help prevent itching and stretching sensations and decrease any sensitivity from scar tissue formation. Vitamin E or cocoa butter is recommended.

7. What should my incision look like?

Your incision should remain dry. After you leave the hospital, you should notice a decrease in the amount of drainage. Steri-strips are placed on the incision line. These are to remain dry. These strips should start peeling off the incision line in one week. Keep them on until you see Dr. Collard. If your appointment is 3 weeks post-op, you may take off the Steri-strips. Peel the Steri-strip from the outside to incision line, then repeat the procedure on the opposite side. You do not peel off the Steri-strip like a Band-Aid because you may open the incision. It is normal for the skin edges to appear red or irritated. If redness spreads beyond the incision line, however, or you notice any colored drainage or pus, you need to call our office immediately.

8. When do I change my dressing?

Keep your dressing clean and dry. After leaving the hospital, the nurse will put another waterproof dressing on the incision. This should remain on for 5 days. Afterwards you should change the dressing daily with 4 x 4 gauze pads and tape until you see Dr. Collard or until the wound is completely dry. Do not put any antibiotic cream or lotions on the skin at this time.

9. Should I use an ACE Wrap?

Use an ACE wrap on your knee until swelling has improved. It should be worn tight enough to help with swelling but not so tight it causes swelling in your foot or calf. The ACE wrap may be discontinued when swelling is gone.

10. Should I wear support hose or TED hose?

Support hose are usually not necessary but may help reduce swelling in the leg. Do not use any type of stocking with an elastic band around the top.

11. What kind of shoes should I wear?

High heels should be avoided of the first 3 months after surgery. Otherwise, there are no rules regarding shoes. Supportive tennis shoes are best

12. Should I walk with a cane or crutches when the knee doesn't hurt?

The knee should be protected for 2 months after surgery regardless of how good it feels. Short walks inside the house without a cane, crutches or walker will not harm the knee, but excessive pressure too early can delay healing and cause increased pain.

13. When should I go up and down stairs?

During the first week of surgery you should learn to walk stairs with the physical therapist. The pace at which you regain agility on stairs depends on individual trains and is hard to predict.

14. How long should I continue taking my medications after surgery?

If iron is prescribed, it should be continued for one month after discharge from the hospital. Blood thinning medications should be taken until the medication runs out and not refilled. If you are taking aspirin, continue for 6 weeks after surgery. If you are taking Xarelto, this blood thinner is taken for approximately 30 days after your surgery. All pain medications may be taken as directed for pain. You can begin to substitute Extra Strength Tylenol for the prescription medication at any time. Do not take ibuprofen, Advil, or Aleve products until off your blood thinner. If you have any questions about your medications, please call our office.

Most of your home medications for high blood pressure, heart problems or other internal medicine problems will be continued while you are in the hospital.

The antibiotics that were taken in the hospital are usually not continued at home.

Remember if you continue with your iron medication and also take pain medication, you should take a stool softener to prevent bowel discomfort and increase your water intake to help decrease constipation.

15. When can I drive?

Driving is an individual matter. Some people regain their coordination and reflexes quickly and others it takes a few weeks. You may start driving approximately 4-6 weeks after surgery as long as you are off your walking device and off your pain medications.

16. When can I return to work?

How soon you return to work is directly related to how quickly you heal and how much demand your job puts on your new knee. You could be off work 3 to 4 months if your job requires a lot of walking, standing or physical labor. Someone with a desk job with little or no walking and standing may be able to return to work part-time as soon as 3 weeks after surgery. Dr. Collard and your physical therapist will help determine when you are ready to return to work.

17. Will your office fill out FMLA or short-term disability papers?

If your employer provides FMLA or short-term disability benefits to their employees, our office can fill these forms out. These forms need to be dropped off at our office. The receptionist at the front desk will give them to our staff to be filled out. There are certain charges for different forms. The receptionist will collect the money from you for this service. This process takes approximately one week.

18. How long will my knee continue hurt and swell?

The pain after a total knee replacement usually decreases rapidly during the first month. It may come and go for several months. Sometimes there is a dull ache after a long walk that may recur for up to 18 months. Start-up pain (pain with the first few steps after standing up) may be present for as long as 2 years after surgery. This pain is related to bone hardness and decreases as the bone surface adapts to the knee replacement. Occasionally pain completely disappears for several months but may reappear, even 2-3 years after surgery. This improves without treatment and does not mean that the implant is loosening or failing.

The swelling usually increases during the first few days home from the hospital. This is improved by spending 2 hours per day in bed with the feet elevated. Correct elevation is achieved when the body is lying supine (on your back) with the ankles raised above the heart. Swelling is generally worse in the evenings and is increased by exercises. Swelling may come and go for up to 18 months following surgery.

19. How much weight should I place on the new joint?

It varies, depending on each patient and the type of procedure used to replace the joint. Typically, you may weight-bear as tolerated. Dr. Collard will specify if a different weight-bearing status is indicated, but usually full weightbearing.

20. How much should I exercise?

Mild to moderate exercises is beneficial. Over-exercise is painful and possibly harmful. The physical therapist will supply a list of exercises while you are in the hospital. Afterwards the home therapist will continue with a supervised exercise program when you are discharged from the hospital. Stretching exercises to improve knee range of motion are necessary for everyone. Thirty minutes, 3 times a day, should be devoted to straightening and bending the knee.

Preparation For Surgery

Preparing mentally and physically for surgery is an important step toward a successful result. Patients who come well prepared mentally and physically have swifter recoveries and fewer complications.

You must stop smoking prior to surgery. After surgery it is essential to avoid smoking for three months. Smoking interferes with bone formation and healing of the surgical incision. Continuing to smoke after surgery increases the risk of failure of the operation.

Diet is an important factor in general health and becomes especially important in times of stress, such as during and after surgery. All of the major support systems require excellent nutritional status to bring the patient safely through major surgery. A good diet, which is high in vitamins and minerals and low in fat, is of utmost importance. Vitamins A and C have been found to promote healing and aid in recovery. It is best to eat foods that are rich in these nutrients prior to surgery and during the entire first year after surgery. Vitamin A foods include yellow and orange vegetables, green leafy vegetables, liver and fruits. Vitamin C foods include green peppers, citrus fruits, broccoli, Brussels sprouts and cantaloupe. Other vitamin rich foods include beef, lamb, chicken, cheese and pumpkin. If you choose to supplement this with vitamin tablets, 100mg of vitamin C twice daily, 15 mg of beta carotene twice daily, and a multivitamin should cover most of your needs for these nutrients. It should be emphasized that taking vitamin tablets is no substitute for an adequate, well balanced diet, so both approaches are recommended.

NOTE: If you take a high dose of vitamin E, it may interact with aspirin and cause bleeding problems after surgery. All vitamin E supplements should be discontinued one week before and one month after surgery.

Vitamin K and Blood Thinners

Stay Safe While Taking Your Blood Thinner:

Call your doctor and go to the hospital immediately if you have had a bad fall or a hard bump, even if you are not bleeding. You can be bleeding but not see any blood. For example, if you fall and hit your head, bleeding can occur inside your skull. Or, if you hurt your arm during a fall and then notice a large purple bruise, this means you are bleeding under your skin. Because you are taking a blood thinner, you should try not to hurt yourself and cause bleeding. You need to be careful when using knives, scissors, razors or any other sharp object that can make you bleed. You also need to avoid activities that could cause injury.

To Prevent Injury Indoors:

- Be careful using knives and scissors
- Use an electric razor
- Use a soft toothbrush & waxed dental floss
- Do not use toothpicks
- Wear shoes or non-skin slippers in the house
- Be careful when trimming fingernails and toenails
- Discard any throw rugs, you may trip and fall

To Prevent Injury Outdoors:

- Wear gloves when using sharp tools
- Avoid activities that can easily hurt you

Food and Your Blood Thinner:

The foods you eat can affect how well your blood thinner works for you. High amounts of vitamin K might work against some blood thinners, like Warfarin (Coumadin).

Examples of Foods Containing Vitamin K:

These are some examples of some foods that contain medium to high levels of vitamin K:

- Asparagus
- Broccoli
- Brussels Sprouts
- Cabbage
- Endive
- Green Onions
- Kale
- Lettuce
- Parsley
- Soybean Oil
- Soybeans
- Spinach
- Turnips
- Collard Greens
- Mustard Greens

Foods to Avoid After Surgery:

- Cranberries, cranberry juice or cranberry products
- Alcohol

Pre-Operative Exercises for Total Knee Replacement

Ankle Pumps: Move the foot up and down at a rate of one per second. This should be done for 15 minutes, three times a day.

Quad Sets: Tighten the muscles around the knee by pushing the back of the knee as far down into the bed as possible and hold for 5 counts.

Glute Sets: Squeeze your buttocks together and hold for 5 counts.

Heel Slides: Slide heel up toward your buttocks, bending your knee as much as possible; then slide heel back down and straighten knee.

Hip Abduction / Adduction: Keeping knees straight and toes pointed towards ceiling, bring leg out to side and then back towards middle. DO NOT allow leg to cross your midline.

The above exercises can be done before your surgery as long as you are not experiencing any pain while exercising.

- Practice exercises with both legs
- Walk as much as you can tolerate

Returning Home

- It is very common to note swelling of the lower leg when first home. Do not be concerned as long as the swelling is down in the morning.
- You may sit for 30 minutes with your knee bent, but then you must stretch your knee muscles by walking approximately 5 minutes or by practicing your exercises.
- When climbing up stairs, step up with the “good” leg or the non-operated leg first, followed by the operative leg and your walking device. When climbing down stairs, the walking device and operative leg go first, then the non-operative leg.
- Both ice and heat can be used to help relieve pain but both can be harmful if left on too long. Heat should be applied for no longer than 15-20 minutes and ice should be applied for no longer than 10 minutes. Never sleep with a heating pad on your knee. It can damage the skin and even cause a severe burn.
- You will be contacted by home health services to start in-home physical therapy for 2-3 weeks. Outpatient therapy starts at 2-3 weeks and once you are no longer homebound.

Post-Operative Do's and Don't's

The therapist will work with you to teach you various exercises to strengthen your knee muscles and keep your new knee joint working smoothly. So, in addition to exercising faithfully, there are a number of steps you can take to protect your new knee.

Do contact your physician if you have any evidence of infection in any part of your body (i.e: redness, swelling, drainage, fever, or increased heat in a joint.)

Do sit or stand with the operative leg out in front of the other leg.

Do wear your knee splint at night unless your surgeon discontinues its use.

Do walk for short sessions, as tolerated, to gradually improve your physical endurance.

Do continue to use your walker, crutches or cane until your therapist specifies otherwise.

Do continue with the exercises you have been doing in the hospital. The physical therapist will start you on a rehabilitation program once you are home.

Do wear low heeled shoes that provide good strong support.

Do continue to use a raised toilet seat fitted in your bathroom.

Do continue to use the CPM machine to prevent stiffness in your new knee.

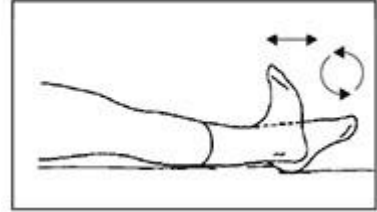
Don't pivot or twist on your operative leg when turning; take small steps to turn.

Don't sit on low, soft couches or chairs. Instead, use firm chairs with arms on them. This makes it easier and safer for you to sit and stand. A tall bar stool is acceptable too. Avoid soft sofas, easy chairs, and rocking chairs until your doctor advises you otherwise.

Strengthening Exercises for Knee Rehabilitation

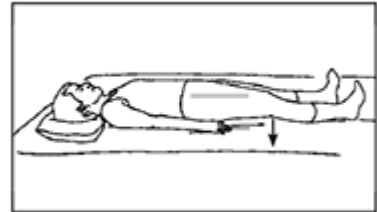
Ankle pumps and circles

Pump your feet up and down by pulling your feet up toward you, then pushing your feet down away from you. In addition, rotate your feet clockwise and counterclockwise.



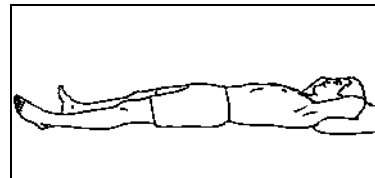
Thigh squeezes (quadriceps sets)

Tighten the muscles on the top of your thigh by pushing the back of your knee down into the bed. **Hold for 5 seconds and relax.**



Gluteal sets

Lying on your back with your legs extended, tighten your buttock muscles. Hold for 3 seconds.



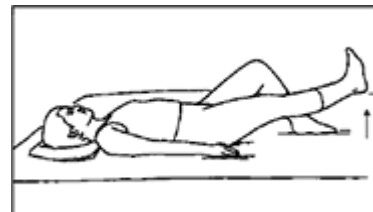
Leg slides (abduction/adduction)

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



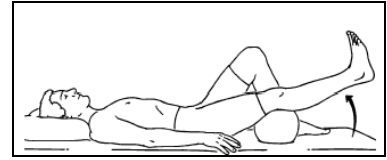
Straight leg raises

Bend your non-surgical leg with your foot flat on the bed. Tighten the muscles on the top of your thigh, stiffening your knee. Raise your surgical leg up (about 12 inches), keeping your knee straight. **Work up to holding for 5 seconds.** Slowly lower your leg down and relax.



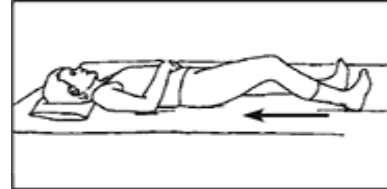
Short Arc Quads

Put a pillow or rolled up towel under your knee. Straighten your leg by tightening the muscle on the top of your thigh. Keep the back of your knee in contact with the roll at all times.



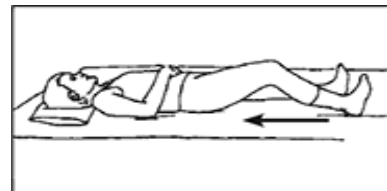
Heel slides (hip and knee flexion)

Bend your surgical 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 and relax. 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.



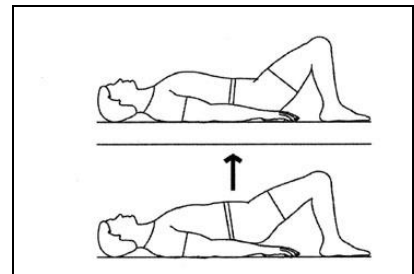
Heel slides with Assist

With a gait belt or sheet around your heel, gently pull your heel towards your buttocks, bending your knee until you feel a stretch. Hold for 5-10 seconds.



Bridging

Bend both knees so both feet are flat. Tighten your stomach and lift buttocks off bed. Hold for 3 seconds.



CPM Machine

A Continuous Passive Motion (CPM) machine may be beneficial to you after your total knee replacement surgery. This will be ordered in the hospital and started quickly after surgery. A physical therapist will place you in the machine and explain its operation.

You will be discharged with the CPM machine and it will follow you to a rehabilitation facility or to your home.

Various research has shown continuous passive motion to have the following benefits:

- Improved healing after surgery because the gentle rhythmic motion of the leg helps decrease swelling and increase blood circulation.
- Less post-operative pain since movement helps reduce joint stiffness and muscle spasm.
- Better ultimate range of motion of the operative knee because the natural movement of the knee is maintained.
- The use of the CPM machine, exercises and walking all work together to make your recovery a smooth one.

Total Knee Arthroplasty CPM Protocol is as follows:

0-55 degrees two times daily for 2-3 hours.

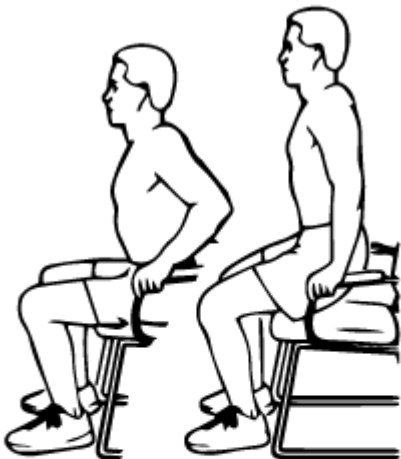
Increase CPM setting as tolerated starting at degree at hospital discharge.

Pre-Operative Knee Exercises

Many patients with arthritis favor the painful leg by using it less. As a result, the muscles can become weaker making recovery slower and more difficult. For this reason, it is very important to begin an exercise program before the surgery as you will learn the exercises at the optimal time and initiate the work toward improving strength and flexibility. This can make recovery faster and easier.

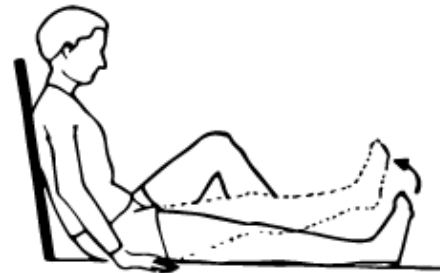
Ten basic exercises are listed her that Dr. Collard wants you to start now and continue until surgery. You should be able to do them in 15-20 minutes, and it is typically recommended that you do all of them twice daily. Consider this a minimum amount of “training” prior to your surgery.

Remember that you need to strengthen your entire body, not just your leg. It is very important that you strengthen your arms by doing chair push-ups because after surgery you will be relying on your arms to support you when walking with the walker or cane. You will also rely on your arms to help you get in and out of bed, chairs or on and off the toilet. You should also exercise your heart and lungs by performing light endurance activities, like walking 10-15 minutes daily. Do not do any exercise that is too painful.



1. Arm Chair Push-Ups

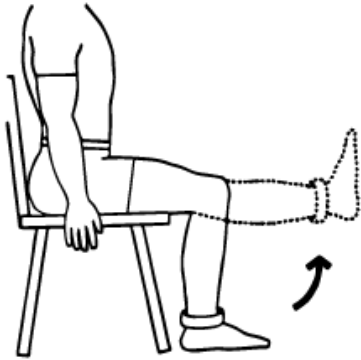
With hands on armrests, push up from the chair, pause momentarily, and then lower back down slowly.



2. Straight Leg Raise

While slightly reclined, tighten the muscles on the front of the thigh. Lift leg up about 30 degrees from the surface while keeping the knee straight, and then lower it slowly.

Discontinue if significant discomfort occurs.



3. Long Arc Quad (Long Kick)

Scoot back in your chair. Straighten the leg that will have surgery, pause momentarily, and then return your foot slowly to the floor.

Encourage full knee extension.



4. Heel Raises

While holding onto a stable object, slowly rise up on your toes, and then return to flat foot.

Do not rock or lean backward.



5. Side Kick

While holding a stable object, keep legs shoulder width apart and swing leg out to the side. Slowly lower the leg back to the starting position.

Keep toes pointed straight ahead. Don't lean.