TOTAL KNEE REPLACEMENT

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COS knees
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The Table of Contents

Purpose

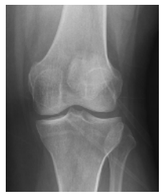
This booklet has been written to familiarize you with total knee replacement surgery. The information provided will answer many of your questions and help you prepare for your surgery.

Introduction

Your knee is one of the largest, most important joints in your body. Its strength and complexity enable you to perform many movements everyday. When a person experiences problems with their knee such as pain or stiffness, it becomes difficult to complete everyday activities.

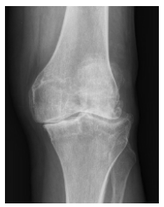
Problems with the knee may resolve over time, but sometimes pain or stiffness of the knee joint becomes progressively worse. This is often the case when a person is suffering from arthritis of the knee joint. When a knee has been arthritic for a long time, treatments that have been successful in the past, such as medications, injections, bracing, or physical therapy, may no longer help. Based on your age, your level of knee pain, and the amount of damage to your knee, total knee replacement surgery may be the best option for you.

The Normal Knee Joint



Your knee joint is made up of the ends of the femur or thigh bone, the tibia or shin bone, and the patella or knee cap. The ends of the femur and the tibia are covered with protective cartilage. The patella rests on the femur and is also backed with a cartilage layer. In between the femur and tibia are cushions of cartilage that provide padding to the joint. Strong ligaments and muscles hold the knee joint together and in correct alignment. The tissue capsule surrounding the knee joint has a membrane which produces fluid that lubricates the knee joint surface.

The Arthritic Joint



When a joint becomes arthritic, degeneration and inflammation of the cartilage, bone, and surrounding tissues occurs. Arthritis generally presents later in life and is characterized by the gradual onset of pain, disability, and deformity. However, this process can occur more rapidly in younger individuals, particularly if the joint has been injured. The most common form of arthritis is osteoarthritis (degenerative arthritis). Arthritis may also be caused by inflammation (rheumatoid arthritis) or be a result of trauma. Regardless of the initial type of arthritis, the result is permanent and pro- gressive damage to the cartilage and bone.

As the knee becomes arthritic the soft cartilage cushions between the bones begin to wear away. Without this protective padding the ends of the bones rub together. Under stress from activity, the bones begin to grind together resulting in bone loss, cyst formation, spurring, and deformity. The person with severe arthritis of the knee may notice pain with standing, walking, and kneeling. The knee may feel unstable and motion may become limited.

Total Knee Replacement Surgery

How do I know if I am a candidate for knee replacement surgery?

Knee replacement surgery is typically indicated for individuals that are no longer benefiting from non-surgical treatments, such as medication, therapy, braces, injections, and activity modification. When the pain and interference in daily activities is significant and quality of life is diminished, surgery should be considered. A knee replacement can last many years and result in much improvement in overall health and well-being. However, if you are still relatively young, knee replacement may not be the best choice, and other surgical options may be considered.

What is total knee replacement?

Total knee replacement is also known as total knee arthroplasty or TKA. The surgery involves resurfacing the ends of the bones with artificial implant materials made of metal and polyethylene plastic. One should think of knee replacement as a resurfacing of the joint rather than a replacement of the whole joint. Typically, a thin (less than 1cm) layer of cartilage and underlying bone is removed and replaced with the prosthesis. There are several designs of knee replacement implants. Total knee replacement involves three parts or components. The components are fixed to the bone by acrylic bone cement or with a surface that allows for bone ingrowth. The patellar component is high-density polyethylene plastic. The femoral component is metal, and the tibial component is plastic that attaches to a metal tray.

Are there other types of knee replacement surgery?

Two other types of knee replacement surgery include replacing only one part of the knee and revising a previous knee replacement implant. These are much less common. A person may be a candidate for partial knee replacement if only one compartment is damaged and there is little deformity. A revision knee replacement may be indicated for a patient whose previous knee replacement has failed.

How long does a knee replacement last?

Most knee replacements will last a lifetime. However, it should be remembered that the implant is a mechanical device inside of the body. Therefore, it is subject to loosening from the bone, wearing out, infection, and other unforeseen events. We know that modern knee replacements have a 90% chance of remaining functional after 10 years and 80% after 20 years.

What are the benefits?

Many people experience long-lasting benefits after knee replacement surgery. Joint pain is significantly reduced or completely gone. A person may look forward to being able to move the joint more freely and having more mobility than prior to surgery. Deformities of the knee joint are corrected and one is able to strengthen the leg with exercise. Most of all, quality of life improves as one is able to return to regular activities.

What are the risks?

Any major surgery is associated with risks. These risks include, but are not limited to, anesthesia or medical complications such as heart problems, stroke, pneumonia, or urinary infection. Important risks specific to knee replacement surgery are infection, blood clots in the legs or lungs, stiffness, wound problems, leg length inequality, implant dislocation, and damage to blood vessels, bones, ligaments, tendons, or nerves. Over the long-term, infection, loosening, wear, or breakage of the implant are possible complications.

The Initial Evaluation

During the initial evaluation, your knee problem and medical history will be reviewed. If you have had previous treatment for your knee pain and/or x-rays, it is important to bring these records with you.
The objective of this first visit is to determine whether knee surgery is indicated. This decision is based upon many factors, which include your degree of pain, severity of limp, the extent of decreased mobility, and your overall dissatisfaction with your condition. Another important consideration is your current health status. After evaluating your x-rays and completing the physical examination, I will be able to discuss with you the relative advantages and disadvantages of a surgical procedure and what the outcomes should be.

Preparing for Surgery

Once you and I have decided that knee replacement surgery is needed, questions arise. Experience has taught me that each patient has expectations which are different. It is important to me that my patients know what to expect postoperatively and during their hospitalization.

Screening for anemia

It is important to assess your overall health before having surgery. This will be done in several ways. You will be checked for anemia. If your red blood cell count is low, recovery from surgery may be more difficult. To correct this you may receive injections (erythropoietin) during the month before your surgery. These injections help your body to produce more red blood cells, which prevents you from having to donate your own blood prior to surgery. It also significantly reduces your need for a blood transfusion after your operation. Preoperative blood donation is rarely necessary.

Medical clearance

It is always a good idea to see your primary care doctor before having surgery. In most cases, I will require that you have a clearance letter from your primary care doctor before surgery is scheduled. This is especially necessary when a person has multiple or severe medical problems.

Finishing dental work

You will be advised to complete any necessary dental work prior to surgery. This is important because untreated tooth or gum problems and receiving dental work after surgery can put you at risk for developing an infection in your new implants. As a result, it may take you longer to recover from

surgery and in some cases the prostheses may have to be removed from the infected knee joint.

Medications

I need to know about all your medications. Some medications are not safe to take before surgery because they interfere with anesthesia or cause increased bleeding. You will be told which prescription and over-the-counter medications you may need to discontinue until after your surgery.

Pre-operative evaluation

At the end of your office visit, you will receive the phone number of the surgery scheduler. We will help you with insurance approval for the surgery and deciding on a surgery date. Once the date of your surgery is set, you will need to get some routine blood and urine tests. In addition, you may need a chest x-ray and electrocardiogram if you have not had these done recently. This information will be used to determine the type of anesthesia you should receive and screen for health problems that may need treatment before your operation. In general, you will need to be seen again by your surgeon just prior to surgery to have a complete history and physical examination performed. At this time, any remaining questions can be answered. You will register at the hospital after your evaluation and complete any lab tests that have been ordered.

Preparing your home

There are several things you can do to prepare for your time at home after your knee replacement surgery. For instance, it helps to put items you may need within reach so that you will not have to climb or bend down for them. Avoiding falls after your surgery is very important. The floor should be kept uncluttered and items such as throw rugs or loose cords should be removed or taped down.

After your knee replacement surgery, you will not be able to drive for one month. It is a good idea to stock up on food and toiletries you may need. Also, having a friend or family member available to help you after surgery is important. Make these arrangements ahead of time.

Before your surgery, a physical therapist may come to your home to evaluate your therapy needs. The therapist will show you what modifications you may need to make for your recovery at home, such as moving into a bedroom downstairs. You may also need assistance devices after surgery, like a cane or walker.

It is preferred that patients recover at home, but if this is not possible, arrangements can be made for a short stay at a rehabilitation facility.

Preparing yourself

Once you have decided to have a knee replacement surgery, it is important to have a good attitude and commit yourself to a successful outcome. Your recovery is a team effort involving you, your family, your surgeon, and the medical staff.

You may also improve your surgical results by losing weight and starting a low-impact exercise program such as walking or cycling. It is important to quit smoking or cut back as much as possible. Total joint replacement classes are held through St Mary's and Deaconess Hospitals, which many patients find very helpful.

The Day of Sugery

Arriving at the hospital

On the day of your knee replacement surgery, you will be admitted to the hospital. You will have been told when to stop eating or drinking and where you need to report. In general, you should not eat or drink after midnight the night before surgery. Plan to arrive two hours before your scheduled surgery time. When you arrive, there will be paperwork to complete. The nurse will make sure all your blood work and other tests are current. The nurse will take you to the pre-procedure room and have you change into a hospital gown.

When your chart is in order, your blood pressure, pulse, respiration, and temperature will be taken and an I.V. line will be started. The anesthesiologist will come by to talk with you, review your chart, and discuss options for anesthesia. Spinal versus general anesthesia with nerve blocks are my preferences.

The operation

When it is time, the anesthesiologist and the nurse will escort you in a bed to the operating room. Once you have been transferred to the operating table, you will receive anesthesia. The nurse will then place a catheter in your bladder. A stocking and compression device will be placed on your non-operative leg.

Your knee replacement surgery should take about two hours. An incision will be made down the front of your knee. The damaged bone and cartilage in your knee will be removed and replaced with implants. A drain may be placed inside the wound prior to closure.

The recovery room

Once the operation is complete, you will be taken to the PACU (Post-Anesthesia Care Unit) by the anesthesiologist and I will speak with your family about the operation. In the PACU or recovery room, the nurses will monitor your condition as you recover from the anesthesia. This takes about two hours and family is typically not allowed to visit. After this time, you will be taken to your hospital room on the orthopedic floor. If you have medical problems that require special monitoring, your surgeon or anesthesiologist may decide to keep you in the recovery room for a longer time.

The Hospital Stay

Your room

Typically, the hospital stay is three days. Most patients are transferred to the orthopedic floor the day of surgery. There will be equipment in your hospital room to help you with your recovery. The bed will have a bar above it to aid you in changing positions. You will have compressive stockings and pumps on both legs to increase the blood flow in your legs and help prevent blood clots. The incentive spirometer is an important device used to prevent pneumonia after surgery and your nurse will show you how to use it. Usually, the drain in your knee is removed the day after surgery.

Managing your pain
Throughout your hospital stay, you will receive a cocktail of medicines to help with post-operative pain and nausea. Most patients receive femoral nerve blocks and local anesthesia to help with immediate post-operative pain. Up until your second post-op day, you will still have your I.V. line. Some of these medicines will be administered through your I.V. and others will be taken by mouth. You will have a PCA (Patient-Controlled Anesthesia) pump attached to your I.V. for breakthrough pain.

Prevention of blood clots
Developing a blood clot in your leg is a serious risk after surgery. The clots can travel to the lungs and cause a pulmonary embolism. Several precautions are taken to prevent this from happening. Compression stockings and pumps are put on your legs during and after surgery. Walking is started by the first day after surgery. However, some patients are at higher risk for developing blood clots and medications to thin the blood must be used such as low-molecular weight heparin, coumadin, or aspirin. If you are started on Coumadin (warfarin) in the hospital, biweekly blood draws will be performed after your discharge to monitor medication levels. Low-molecular weight heparin (Lovenox, Arixtra) is usually continued 2 weeks after surgery. Coumadin (warfarin) is usually continued 4 weeks after surgery.

Starting therapy
Rehabilitation begins the day of surgery. There will be leg exercises to do while in bed and your nurse will help you move from your bed to the chair. You may also have a CPM (Continuous Passive Motion) machine in your bed to keep your knee moving and flexible. You should keep your knee straight when resting in bed without the CPM machine.

The physical and occupational therapists will usually see you the day after surgery. You will have different goals to meet each day to help you recover and be able to leave the hospital. The therapists will show you how to safely bear weight on your new joint utilizing a walker or crutches. You will also be taught how to manage daily activities such as dressing, bathing, and using stairs.

Leaving the Hospital

Arranging for discharge
During your hospital stay, plans for your discharge will be made with the case manager. You will either go home with home care arrangements made or be transferred to a rehabilitation facility. The case manager will help you arrange for transportation, home nursing, physical therapy, and any assistance devices you may need.

Discharge instructions
When you are discharged, the nurse will go over my instructions and any medications you may need. Important things to remember are to keep doing your exercises at least twice a day and to wear your TED hose daily for two weeks. Continue any weight bearing restrictions. Work on bending your knee with gentle motion as well as straightening your knee and regaining muscle strength. Your therapist will provide you with specific instructions

for exercises, walking, and other activities to promote your recovery.

Pain medications should be taken only as needed. You may shower, but avoid tub baths, soaks, or swimming, and driving until your first appointment at four weeks. You should call me if you are experiencing increased knee pain, swelling, calf pain, increasing redness, warmth, drainage from your incision site, or fever over 100 degrees.

Recovery Phase
By six weeks, you should be feeling well but will still experience discomfort, swelling, and warmth around the knee. At this time, return to normal daily activities is appropriate including full weight bearing and driving. Full recovery often occurs between six months and one year, although many patients return to recreation and unlimited lifestyle by three to six months.

Recovery Phase

Activities
It is generally best to avoid impact-loading activities, such as running, after knee replacement surgery. Kneeling is not recommended. Be sure to discuss specific activities with me.

Dental work
After knee replacement surgery, it is preferable to wait three months before having dental work done unless it is an emergency. When you are scheduled for a dental procedure, be sure to let your dentist know that you have had a knee replacement. You will need to take antibiotics ahead of time to prevent infection in your knee replacement. I will provide you with a knee replacement ID card to carry in your wallet.

Follow-up appointments
It is important to have your knee replacement checked even if you are experiencing no problems. Visits are scheduled at two to four weeks, three to four months, and six to twelve months. You should plan to return for x-rays between one to two years, at three years, five to seven years, ten years and every one to two years thereafter. If a problem is detected early on, it is often easier to correct.

Frequently Asked Questions

When can I drive?
I recommend that patients refrain from driving until four weeks after the day of surgery.

When can I get my knee wet?
You will be allowed to shower two to three days after your knee replacement. However, tub baths, soaks, and swimming should be avoided until after your first post-op appointment at four weeks.

When does the tape come off my wound?
At the time of surgery, tape-like strips (steri-strips) may be placed on your incision to protect it. They will eventually come off on their own in one to two weeks. Alternatively, you may remove them yourself after two weeks.

When will my knee stop being swollen and warm?
You may have swelling and warmth about the knee persistently for six weeks after surgery. This will gradually decrease, but it may take six months to a year for the swelling to resolve completely.

Why does my skin feel numb around my incision?
When the surgical incision was made down the front of your knee, the nerves in the skin were divided. For this reason, the skin in this area may feel fuzzy or numb. This is normal for patients with knee replacement surgery. This sensation will decrease with time.

Why does my knee click?
The implants in your knee are made out of metal and plastic. The components will separate slightly with gravity and when you swing your knee to walk, for example, a clicking sound may be heard as the pieces come into contact. It does not mean the components are loose or broken. It should not cause any pain.

Will my knee set off a metal detector?
With increased security measures at the airports, the implants in your knee will likely set off the metal detector. For this reason, I do provide you with an ID card should there be a need for you to notify others of your knee replacement.

What do I do if I see an internal stitch?
Occasionally, patients notice a stitch protruding from the skin. The area may become red and have a small amount of drainage. You may clean the skin with peroxide and remove any visible suture material if it appears loose. If the redness or drainage increase or you develop pain, you should contact my office.

When will I be able to return to work?
I will let you know after your first follow-up visit. Everyone has a unique situation. Generally, for desk jobs, 4-6 weeks; for active labor, 3 months; and for heavy labor, 4-6 months can be expected.

Closing Remarks

I hope this information booklet was helpful to you. Remember to refer back to it when a question comes up. Please feel free to ask me any other questions when you see me in the office. I value my time with all my patients.

I would like to take a moment to thank Michael Boyd, D.O. for his help in preparation of this manuscript.

Map

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Notes