ALABAMA
Orthopaedic
INSTITUTE

ORTHOP.A.C.E.

MIS Patient Management System

A purpose-built facility for assessment, education, research and follow up for patients with arthritis, sports injuries and other musculoskeletal problems.

- Dr. Kenneth Bramlett

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ALABAMA Orthopaedic INSTITUTE

ORTHOP.A.C.E.

MIS Patient Management System

☐ ☐ 2005 YOUR SURGERY DATE

- ☐ READ YOUR BOOK AND MATERIAL
- ☐ VIEW YOUR VIDEO/ CD/ DVD/ WEBSITE
- ☐ PRE-HABILITATION
- ☐ ARRANGE FOR BLOOD
- ☐ MEDICAL CHECK UP
- ☐ DENTAL CHECK UP
- ☐ ADVANCE MEDICAL DIRECTIVE
- ☐ PRE-ADMISSION TESTING
- ☐ FAMILY SUPPORT REVIEW

PATIENT MANAGEMENT SYSTEM FOR ORTHOPAEDICS
ORTHOP.A.C.E. SYSTEM

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ALABAMA Orthopaedic INSTITUTE

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MIS Patient Management System

ORTHOP.A.C.E.

The Orthopaedic Patient Activity Competence Evaluation (ORTHOP.A.C.E. TM) System

We have provided our patients with an individualized program that allows them to get well at their own careful PACE. It is dependent upon education, surgical details and each patient's commitment and cooperation.

The ORTHOP.A.C.E. System requires that you complete specific goals that will better prepare you for your operation. Experience has shown that surgery preparation plays a major role in the patient's overall recovery and success of their surgical procedure. You will be given individualized instructions that help you efficiently meet your expected potential.

It is critical that all prehabilitation instructions are carried out prior to being admitted to the hospital. Failure to do so may result in a postponement or cancellation of surgery. Your prehabilitation exercises are especially important. Each is designed to be simple to perform and will help you control your surgical outcome.

After surgery you will continue most of these exercises and instructions. Your surgeon, nurse and physical therapist will score your progress daily. Get copy of old score card referenced here. When your ORTHOP.A.C.E. Score reaches 75 to 100, you may be considered for discharge.

The ORTHOP.A.C.E. Scoring Form highlights the functions that you must be able to perform independently before you return home. Other medical and social factors are important. However, these goals must be achieved for independent function.

This manual is for you to use in "prehabilitation" before surgery and in your "recovery" and "rehabilitation" following surgery. Please read carefully each section.

Key Steps:

1. Diagnoses
2. Prehabilitation
3. Surgery
4. Rehabilitation
5. Follow Up

"Having had a total knee done by the standard method and (ORTHOP.A.C.E.) I can tell you the 'new' is better!"

- King, male, 63

"I liked knowing what was expected of me and exactly what to do and when."

- Dishongh, female,

As with all medical considerations, be sure to consult with your surgeon on your specific case. This manual is intended to serve as an instruction tool for the nursing staff and your surgeon to use to ensure that you understand and can do the ORTHOP.A.C.E. requirements; it is not intended to replace, supplement or detract from your surgeon's medical judgment and management of your individual knee procedure.

Remember - As the patient, you are the key element to your success. The ORTHOP.A.C.E. System is designed to enable YOU to establish definite goals and to reach them in a safe effective manner. As these goals are reached, it will become obvious to you how effective your efforts have been to improve your own function and ability. We are here to guide you safely along your recovery path so that each additional pre-set goal can be achieved.

"I didn't like waiting for surgery, but it's just common sense to prepare before you have surgery. I'm glad I waited and was ready."

- Beasley, female, 82

SECTION 1

Welcome to the ORTHOP.A.C.E. SYSTEM

Once the decision to proceed with surgery is made, your ORTHOP.A.C.E. Team will make every effort to assist you in preparation. As users of the ORTHOP.A.C.E. System, we will provide the highest quality care, enabling you to return to an active lifestyle as soon as we feel it is safe to do so.

Elective surgery dates will usually be four to eight weeks after your initial visit to your surgeon's office. You will actually begin preparation for surgery during your first office visit, and it is important for you to take a very active role in your conditioning before and after surgery. Patient accountability is critical!

Hospital stays vary depending on the procedure. The length of your hospital stay will depend largely on your commitment and cooperation, but may be significantly shorter, more pleasant and more successful if you follow the ORTHOP.A.C.E. System instructions carefully.

This manual will be a valuable resource for preparing you for surgery and your return home. Keep this manual with you, refer it often and bring it to the hospital as a reference. If you need additional information not covered in this guide, your surgeon's staff will be happy to provide it.

Please study this manual carefully and follow the directions closely. Remember, the ORTHOP.A.C.E. System has been developed to make your surgery and recovery as successful, smooth and comfortable as possible. Your commitment and cooperation are vital to the accomplishment of both your and our planned goals.

SECTION 1/Cont.

The ORTHOP.A.C.E. Team

There are many people who make up the ORTHOP.A.C.E. TEAM. They are all very important to the success of your medical treatment. The following is a summary of those you may meet at the hospital and in your surgeon's office.

Surgeon: A board-certified orthopaedic surgeon will be performing your surgical procedure using state of the art orthopaedic equipment and technology. He/she will be available to answer your questions and will be the final authority for all aspects of your care.

Non-operative Orthopaedic Specialist: A physician who evaluates and treats patients with orthopaedic problems, but does not operate. He will assist in your care during office visits and with your hospital care. He will work closely with your surgeon.

Registered Nurse, RN: A registered nurse specializing in orthopaedic surgery and patient care will present preoperative information and prehabilitation instructions to prepare you for surgery. The CRNFA will also provide you with educational material about your operation and rehabilitation and assist you in preparing for your discharge. The CRNFA and floor nurses will coordinate your care in the hospital based on your surgeon's orders.

Surgeon's Assistant: The surgeon's assistant is a significant part of each surgical case. The surgeon's assistant is a dedicated professional who contributes to accurate case management. Some surgeons have them and some do not.

Anesthesiology Department: Physicians and nurse anesthetists make up this department. They will evaluate and recommend the best method to ensure a safe anesthesia experience. Patients may receive a general or spinal anesthetic based on physician and patient preference.

Physical Therapy Department: The physical therapists will begin seeing you either the day of surgery or the morning following your operation and will instruct you in safe transfers, ambulation and strength development.

Occupational Therapists: As part of the rehabilitation team, the occupational therapist will instruct you in methods of handling day-to-day activities, general home functions and accommodating temporary lifestyle changes following surgery.

"My nurses were great, but after the first day, I could do just about every thing myself."

- Moore, male, 43

SECTION 1/Cont.

Physician Consultants: Your surgeon feels that it is essential to have a check and balance system to monitor your medical condition as you undergo surgery. If there are any questions as to your medical condition and if your own physician is unavailable, a consultation is obtained. Your hospital has many excellent internists and specialists who are available if they are needed before or after surgery. Once you are discharged, you will be returned to your own internist or physician.

Social Workers: Social workers are available to assist you with any questions regarding your discharge arrangements and return home. They will also answer possible questions regarding Medicare and other insurance coverage for possible needed equipment.

Staff Nurses: As well-qualified professionals, Staff nurses are trained to provide excellent care. If you have questions or concerns about your care, please let your surgeon, orthopaedic nurse clinician or floor nurse know so that they can be addressed at once.

Conclusion

The practice of orthopaedic surgery is a very rewarding field of medicine that treats many forms of injury and disease. The purpose of our efforts is to evaluate, diagnose and treat the spectrum of cases we see as accurately, safely and efficiently as possible, in order to allow each patient - young and old - to return to a more purposeful and productive life. With only a few restrictions, you should be able to return to your current position with 6 - 10 weeks.

It is important from this point forward for you to realize that you are not sick - you are just undergoing a surgical procedure! Everyone trained and participating in the ORTHOP.A.C.E. System of patient treatment has a clear focus of your health and wants you to have a successful outcome.

SECTION 2

ORTHOP.A.C.E. Preoperative Review for Surgery of the Knee

This test will assist in ensuring that you are emotionally and mentally prepared for a successful knee surgery. Try to answer the questions with what you already know. Then review the answers found on the following page and make sure you understand each answer. After completing the manual, review these questions and their answers one more time.

☐ True ☐ False 1 The main reason for having a total knee replacement surgery is to decrease my pain and increase my stability.

☐ True ☐ False 2 Following surgery, pain and soreness will be much less if I start moving my leg and resume activity promptly.

☐ True ☐ False 3 I should not eat or drink anything from midnight the night before surgery until after surgery.

☐ True ☐ False 4 I will most likely be in the hospital three to four days or less.

☐ True ☐ False 5 I should clean my incision with alcohol two times a day (for one week Post-op) and especially after a shower.

☐ True ☐ False Swimming and stationary bicycling are great exercises for my knee during the first month. Running for exercise is not allowed until six weeks post op.

☐ True ☐ False I should wear my anti-embolism (elastic) stockings in the daytime for 4 weeks after my surgery or until all swelling has gone.

☐ True ☐ False I should take antibiotics if prescribed for me until they are finished.

☐ True ☐ False It is my responsibility to arrange for someone (friend / family) to assist me for a week after I go home following my operation.

☐ True ☐ False My ORTHOP.A.C.E. exercise program will start 4-8 weeks prior to my surgery date.

☐ True ☐ False Following surgery, pain and soreness will be much less if I start moving my leg and resume activity promptly.

SECTION 3

Answers To ORTHOP.A.C.E. Pre-operative Review for Surgery of the Knee

1 **True.** The main reason for having surgery of the knee is to decrease your pain and increase your stability. Knee surgery is performed for fractures and other traumatic injuries, but it is most commonly used to enable a more active, independent lifestyle for those suffering from chronic pain and instability due to arthritis.

2 **True.** Following surgery, pain and soreness will be much less if you start moving your leg and resume activity promptly. Certainly pain is a expected after your surgery. However, if you know step by step what to expect, the anxiety, fear, and pain are usually less. It is generally agreed that the sooner the patient becomes mobile, the sooner pain reduction occurs. Swimming and stationary bicycling are great exercises for your knee. They allow movement of the joint without putting undue strain on it. Running for exercise is not advised because it is a high impact exercise.

3 **True.** You must be NPO (without food or drink) from midnight before surgery until after surgery. By putting something in your mouth, you increase secretions, which can cause aspiration, which can cause pneumonia and could lead to death. If you are on Heart or Blood Pressure medication, please take it with a sip of water early the morning of surgery. See page 7 for additional instructions, and ask your surgeon if you have any questions about specific medications.

4 **True.** If there are no complications, you will probably be in the hospital two to three days. The current average length of stay for total knee replacement surgery after using the ORTHOP.A.C.E. System is two days. If you are a Minimally Invasive Surgery MIS candidate your hospital stay may be less than 36 hours or sometime the same day discharge.

5 **True.** You should clean your incision with alcohol two times a day and especially after a shower. This is an important precaution to help prevent infection. Repeat this for one

"I can't imagine staying in the hospital any longer." (72 hours)

-Koostra, Female, 75

SECTION 3/Cont.

6 **True.** Swimming and stationary bicycling are great exercises for your knee. They allow movement of the joint without putting undue strain on it. Running for exercise is not advised because it is a high impact exercise.

7 **True.** You should wear your compression stockings in the daytime for four weeks on both legs. This is to prevent Blood clots (DVT).

8 **True.** If needed after discharge, you should take the antibiotics prescribed for you until they are finished. A sufficient dose will be prescribed for you at the time of discharge, and usually a refill is not needed. If you have any questions about your particular antibiotics, please consult your surgeon.

9 **True.** It is your responsibility to arrange for someone to assist you for a week or so after you go home. This person may stay with you or simply stop in several times a day. You may have a little difficulty performing routine tasks at first, and this will help make the transition easier.

10 **True.** The exercise program should be started several weeks before surgery (preferably at six to eight weeks) in order to properly condition the muscles. It is much easier for the knee surgery patient to recover after surgery if the muscles have been developed before surgery.

11 **True.** Following surgery, pain and soreness will be much less if you start moving your leg and resume activity promptly. Certainly pain is a expected after your surgery. However, if you know step by step what to expect, the anxiety, fear, and pain are usually less. It is generally agreed that the sooner the patient becomes mobile, the sooner pain reduction occurs.

SECTION 4

Before Your Surgery of the Knee :-
Eating, Drinking and Medications

It is important to understand that always before ANY surgery DO NOT EAT, DRINK (even water), SMOKE, CHEWGUM, EAT HARD CANDY OR TAKE MEDICATIONS AFTER MIDNIGHT BEFORE SURGERY, unless on Blood Pressure or Heart Medication. Take with only a sip of water.

All total joint implant and major surgery patients should have a check-up during the four to eight week period before surgery with your internist and your dentist. This is suggested in order to prevent any acute changes in your condition from occurring and will serve to insure a safer and less complicated hospital stay.

If your medications change from the time of your office interview until your surgery, please let your surgeon know. It is always wise to keep a complete list of your medication and allergies with you, especially when coming to the hospital. If other questions occur regarding your current medical status, contact your regular physician and get cleared before arriving for surgery.

If you smoke or use any type nicotine product, we want you to stop at least two weeks before surgery. Smoking increases the risk of respiratory and other complications and impedes the healing process. The cessation of smoking will enhance the overall improvement of your health and give your body the maximum opportunity to recover without complications.

If you are on aspirin or arthritis medication such as **Naprosyn, Lodine, Voltaren, Feldene, Motrin, Relafen, Daypro, Aleve, Advil or Ibuprofen**, stop taking it ten days prior to your surgery date. You may take Celebrex, Vioxx or Tylenol. If you are on **Coumadin** or any medication to thin your blood, or if you are a diabetic on **insulin**, please ask for specific instructions. **Blood Pressure and Heart medication should be taken the morning of surgery.** *Please consult your surgeon for instructions if there is any question regarding your medication.*

**"Since I had to quit smoking for two weeks for my knee surgery, I just quit forever.
Thanks for more than a good knee"**

- Johnson, male, 70

SECTION 4/Cont.

Six Important Patient Responsibilities . . . Before Surgery

The following are six important things for patients to remember before admission to the hospital:

1. Obtain a second opinion if required by your insurance company.

2. Your surgeon may advise you to give blood within the time allowed (30 days prior to surgery). The minimum amount will be instructed per individual case.

3. Have appropriate examinations (dental, urological, respiratory and/or cardiac) as directed by your surgeon or internist. These must be cleared before your surgery.

4. Work on the ORTHOP.A.C.E. prehabilitation exercise program two times a day, every day until your surgery.
Document progress on the chart.

5. Arrange for family or friends to help you the first week after surgery. A daily visitor or family member to assist with meals and a shower will make the transition easier. Please start now preparing to return to a safe, familiar home environment.

6. Three days before your surgery, start showering with Phisoderm or Dial soap. This will help guard against infection.

As with all medical information in this manual, please be sure to consult your surgeon's office if questions exist. All details, however small, are beneficial to the overall clinical outcome.

SECTION 4/Cont.

What You SHOULD Bring to the Hospital

1. The desire to return to a normal lifestyle.

2. Confidence in yourself.

3. Your ORTHOP.A.C.E. book for reference.

4. List and bring medications you are currently taking, such as blood pressure or heart medication.

5. Bring a copy of any results of test from your internists and / or specialist.

6. Blood cards, if you gave your own blood.

7. Personal items such as toothbrush and razor.

8. Insurance cards.

9. Living Will, if you have one. (see p. 10)

10. If you have your own crutches or walker, please bring them. Our therapists will make sure needed adjustments are made. Additionally, your leg will be swollen following surgery, so bring loose clothing to wear. The day after surgery, you will start dressing in these clothes instead of a hospital gown. We suggest a loose pair of shorts, a very loose pair of slacks or jogging pants and shirts. Comfortable walking or tennis shoes are also necessary.

What you SHOULD NOT Bring to the Hospital

1. A fear of getting well.

2. Pre-conceived notions of surgery gathered from family and friends.

3. Jewelry.

4. Large amounts of money.

5. Unnecessary personal valuables.

-Confidence-

If you think you can?
or
If you think you can't?

You are probably right!

SECTION 4/Cont.

What You Will Need at Home in Order to Participate in the ORTHOP.A.C.E. System

1. Access to an exercise bicycle. (Recumbent Bicycle preferred)

2. Large zip-lock bags or ice bags.

3. Walker or crutches and cane. (The walker, crutches or cane can be obtained at the hospital.)

4. Bedside commode (optional). This may be used at night and can also be used over a regular toilet during the day. (The bedside commode can also be obtained at the hospital.)

5. Rubbing alcohol for cleaning the incision and tape and gauze pads for a dressing, if one is still needed at the time of discharge.

6. Someone to assist you with a shower and meals for a week or two once you return home.

7. Tylenol for pain, headaches or postoperative temperature, which is a normal reaction of the body after surgery.

8. A safe environment for walking, without loose rugs or cords, etc. Arrange your bedroom so that you can get in and out of bed on the affected side.

9. A firm bed that is easily accessible for rest and to use during exercise.

10. Chairs with high, firm seats and armrests.

SECTION 5

Orthopaedic Surgery of the Knee - What Should you Expect?

Overview

During the last twenty years, the treatment for orthopaedic diseases has greatly improved. Only ten years ago, a patient would stay 10-14 days in the hospital. There were complications associated with these long stays which the ORTHOP.A.C.E. System has been developed to decrease. This has been accomplished by improving preoperative assessment and training, and by making certain that all details are addressed as thoroughly as possible.

Once surgery is decided, you will prepare to come to the hospital the day your surgery is planned. You must be NPO (no food or drink) from midnight until after the surgery. Upon arrival, go to the hospital's admitting department. Your pre-surgical testing will then be done, if not already complete before hospital admission. Remember the hospital and surgeon's office may be unable to tell you the exact time for your surgery because emergencies do occur and the surgery schedule could be altered.

Each hospital day is carefully planned, yet changes are not always predictable. Please be patient if your surgery or discharge is delayed. Each patient is treated as an individual, with a quality result as our primary concern.

How Long Does a Knee Replacement Operation Take?

Most knee replacement operations and other reconstructive surgical procedures take from one to two hours. On the day of surgery, you may rest in bed, but you will resume the planned ORTHOP.A.C.E. protocol once you recover from anesthesia.

How Long Will I Be in the Hospital?

The national average length-of-stay (LOS) for surgery of the knee ranges from 4 to 6 days, in some cases longer. The current average hospital stay for knee surgery using the ORTHOP.A.C.E. System is 1-2 days, with many patients going home on the second day. In addition, by following the ORTHOP.A.C.E. System guidelines, only 5% of ORTHOP.A.C.E. patients require time at an extended rehabilitation facility or in outpatient rehabilitation. 90 % of the patients are discharged to go home on day 2.

"The second day after my knee operation, I could do everything I needed to go home."

-Booth, male, 57

SECTION 5/Cont.

Your experience may differ, but the goals are the same for all. ORTHOP.A.C.E. is a plan and your role is to work to be strong physically and mentally. Realize that the operation is performed not to set you back, but to allow you to move forward and resume your independence in your environment.

How Much Pain Should I Expect?

We have found that after the first twelve to eighteen hours, the pain from the surgery decreases 40 to 60%. Those who work hard on their exercise program, have stopped smoking and have not taken previous narcotics for pain relief at home have less pain. You must understand that the pain decreases as you increase your post-op activity and motion. A safe and adequate pain-management program is planned and assessed daily to allow for your comfort. It is generally agreed that the sooner the patient becomes mobile, the sooner the pain reduction can occur. This has been repeatedly shown and is consistently recommended to each of our patients.

Will I need Blood after Surgery?

Most people will need blood after a total joint surgery. When a bone is cut the bleeding has to stop on its own. If cement is used the bleeding will be less. While in surgery a tourniquet is used so the bleeding does not start until after the surgery is over. We will check your blood count in the recovery room and every day to ensure a safe blood count.

Many people prefer to give their own blood in anticipation of surgery. Others have family members give blood for them and still others will use the blood bank. If you normally keep a high hemoglobin/hematocrit and are above average weight you are more likely to come out of surgery without having to have blood. Your medical doctor can check your hematocrit and blood type. The average patient may lose 1-2 units of blood post operative.

If you choose to give your own blood
your surgeon needs to send a form to the facility where you are to give blood. If you have heart or other medical problems the blood bank may require a release from your medical doctor or cardiologist. Blood is only kept for approximately 30 days (patient) and you will have to have an appointment.

You should call the agency nearest you. Make sure they have a form for you before arriving. The day you give your blood please eat prior to going and drink plenty of fluids.

SECTION 5/Cont.

Please bring the card or papers they give you to the hospital when you are admitted. The actual blood will be processed and sent to the hospital in time for your surgery.

If you are unable to give blood the Red Cross is able to bank blood so that your procedure is possible.

Current information indicates this is a safe and effective as donation programs.

How Long Will a Knee Replacement Last? Most knee replacement will last 10 to 15 years. However, a small percentage may not last that long. A second replacement may be necessary. Failure is related to weight, lifestyle and bone gravity.

Why do they fail?

Most of the time either the plastic spacer wears down or the tibia component becomes loose. Both can be corrected with surgery. It is important to make sure that the follow up appointments are kept.

What is an Advance Directive or Living Will?

An **Advance Directive** is a method of communication to your caregivers should you become mentally or physically incapacitated. It will express your wishes in the case you become unable to express your desires regarding your care should your heart or lungs fail to work and we need machines to keep you alive.

If a patient has a, the physician, family and the medical center staff, is committed to honoring the wishes of the patient. You may also appoint a health care agent to direct your care. Both methods must be in the form of legal documents and must be done in advance usually by your attorney.

It is always best if you make your wishes known to your family. You should also let them know if you wish to be an organ donor before they are faced with that question. If you have questions regarding an advance directive you may contact the admissions department of the facility you will be admitted.

SECTION 5/Cont.

"Getting up for the first time was a little scary. But as instructed, I was up for dinner 6 hours after surgery. The next time was easy."

-Bordner, Male, 62

General Order of Events Following Surgery of the Knee

Operative Day: On the day of surgery, once you are comfortable/stable in your room you will continue with the ORTHOP.A.C.E. protocol. Once alert, you should begin doing your post-op exercises by pumping your ankles. You can move any way that is comfortable for you. Please remember to take deep breaths. Hold your breath as if you were swimming across a pool under water. This will help to keep your lungs clear. Throughout the next couple of weeks, use your incentive spirometry to perform deep breathing exercises (see p.16). You will be encouraged to get on the bedside and even stand or sit in a chair. The sooner you move the better.

Post-op Day 1: You need to have breakfast sitting in a chair. You should sit in a chair for your meals and use the bed only for rest or sleep. The nursing staff and physical therapist will check to see that you are doing your exercises correctly. Initially, the physical therapist or nurse will help you get up and will walk with you until you are independent. You may start using a regular toilet on the day of surgery. The nursing staff will be assisting you in understanding transfers and ambulation. **After the first 6 hours, bedpans and urinals should not be used and all meals should be eaten in a chair. These activities are important to your progress.**

Post-op Day 2: All drains and lines will come out on post-operative Day 1 or 2, and your dressing will be removed and a smaller one applied. You will progress toward independently moving from bed to chair, exercising and walking with a walker or crutches. **You should be out of bed as much as possible and you may become independent in transfer and ambulation on day 1 or 2.**

SECTION 5/Cont.

While sitting in the chair, alternate sitting with your legs on the floor, knees bent and sitting with your legs stretched out, heels on a footstool. While your legs are stretched out, really concentrate on pressing the knee downward using your quadriceps muscles (full knee extensions). Having a leg which will completely straighten out when walking is the goal and will only be realized with conscious effort. Your independence will be regained if the ORTHOP.A.C.E. System has been consistently followed and if the surgical procedure has had no complications.

Post-op Day 3: Practice all the maneuvers started on the previous day until you are comfortable performing them. If you have not worked on stair climbing, you should do so before being discharged. Many knee surgery patients are able to return home on day 1 0r 2, yet sometimes patients need specialized help and time to get safe and confident. Most find home more comfortable once they are independent and medically stable. You may take a shower if your incision is healing properly.

Remember - As a patient, you are the key element to your success. The ORTHOP.A.C.E. System is designed for YOU to set goals and to instruct you toward achieving these goals in a safe, effective manner. Once the first goal is reached, it will become obvious to you how effective your efforts have been to improve your own function and ability. We are here to guide you safely, yet specifically, along your recovery path so that each additional pre-set goal can be achieved.

SECTION 6

ORTHOP.A.C.E. Prehabilitation and Rehabilitation Exercises for Surgery of the Knee

The success of your knee operation is a result of a combined effort between you and your ORTHOP.A.C.E. team. The results and speed of your recovery depend on how well you understand and succeed following ORTHOP.A.C.E program. In your follow-up visits after surgery, your surgeon will follow your progress and answer any questions you may have about caring for your knee.

The following are some exercises you must do, particularly as you make preparations for your knee surgery. Work twenty to thirty minutes twice a day before surgery and three times a day after surgery. Your ORTHOP.A.C.E. Patient Video will show you the exercise routines for preparing and maintaining the muscles' strength needed for your knee surgery. Remember, with any new exercise program you will probably have increased muscle soreness and pain. Please do not stop, but continue and work through this phase; it is normal.

After about three weeks you will find everything becoming easier. Each exercise protocol has been tested and developed during ten years of successful implementation and follow up. They are designed to help you and will not impair or be harmful. Please understand that all Total Knee Replacement patients are educated are educated and placed on this program and the success rate is 99% plus. All the information creates a step wise system that allows the patient a safe and efficient recovery.

"The exercises seemed impossible to me at first. But by starting with a few and being determined, I accomplished the exercise goals we set. And, as promised, it paid off!"

-Bounesor, female, 68

SECTION 6/Cont.

Stationary Bicycle

Before surgery, you should use a stationary bicycle and build up your endurance to ride it at least 30 minutes **every other day**. Normal to light wheel resistance is all that is necessary.

About ten days after surgery, put the seat up where it is comfortable and begin riding the bicycle again. You may then gradually lower the seat, as you are able. (This flexes the knee more). Ice on your incision ten minutes before and after each exercise for the first two weeks may make you more comfortable. If you do not have a bicycle, it is very likely that a relative, friend, church, or exercise club may have one that you can use. If looking to obtain a bicycle- a recumbent type is most comfortable and preferred.

Swimming

Swimming is also an excellent exercise for arthritis patients. If possible, swim 20 -30 minutes three times a week or more. You may resume swimming 10 -14 days after surgery.

All of the above exercises, along with a healthy diet, will help control your weight. An ideal body weight will improve the chances for the best overall results and long term use of your knee. **Consider your weight as one of the most important factors in the long term success of your knee surgery. We will assist you in weight loss management and provide you with primary instructions.**

ORTHOP.A.C.E. Knee Prehabilitation and Rehabilitation Schedule

Level One: Basic Prehabilitation and Rehabilitation Activities

Level One Activities are performed 4 - 8 weeks before surgery and continued three months after surgery. These six activities are essential to the Prehabilitation - Rehabilitation transition.

1) Ankle Pumps

2) Gluteal Sets

3) Quad Sets

4) Double Leg Standing- ½ Squats

5) Side Lying Abduction

Level Two: Advanced Rehabilitation Activities

Level Two Exercises are started after surgery to ensure a progressive strong range of motion and stable leg control.
These are initiated 1 week post operatively to continue 4-7 weeks.

1) Chair to Wall Exercise - (may begin immediately after surgery)

2) Stationary Bicycle - (begin 10 - 14 days after surgery)

3) Swimming - (begin 10 - 14 days after surgery)

4) Single or Double Leg ½ squats

Note: These two levels of activity are important in order to resume safe functional ambulation and transfers. Frequently, your surgeon and his staff may accelerate your progress or alter the sequence in given situations. If you have any questions, please ask your surgeon and rehabilitation team.

Level One: Basic Prehabilitation & Rehabilitation Activities

Ankle Pumps

Ankle pumps help prevent the development of blood clots. Lie on your back or sit in a chair. Pull your toes toward you. Hold for 5 counts. Then point your feet and toes downward. Hold for 5 counts and relax for 10 counts. Be sure to generate full force in both directions. You will do ankle pumps before surgery - and when you awaken in the recovery room afterwards. Before your operation, do 50 ankle pumps in the morning and 50 in the evening, plus any time in between.

Gluteal Sets

Gluteal Sets help you walk, climb stairs and reduce back strain. These can be done in any position at any time. Squeeze your buttocks muscles together tightly. Hold for 10 counts and then relax. Do 50 in the morning and 50 every evening. The tension in the legs will increase circulation and decrease risk of blood clots.

Quad Sets

Quad Sets help you gain leg control after surgery and improve circulation. Lie on a table or bed. Tighten your thigh muscle by pressing the back of your knee down. Hold for 10 counts and then relax. Do this exercise 50 times, two times a day. You will also do Quad Sets immediately after surgery.

Both are critical to your ability to transfer in and out of chairs and to walk.

Double Leg Stand & Squat

Stand next to a counter or use your walker and squat down bending only your knees. Go down only till your knees are 1/3 to ½ bent and hold steady for 15- 30 seconds. Keeping your back straight and hands for balance only- 20 squats in a row 4 times a day will greatly build upper leg and back strength to assist in walking and climbing stairs.

"As I came into the house after being discharged from the hospital the second day after surgery. I stopped, put a load of clothes in the washer, then made my husband and myself a sandwich."

-Packard, female, 69

Side - Lying Hip Abduction

We include the Side-Lying Hip Abduction to help prevent limping and to increase your stability while walking. Start by lying on your non-affected side… keep your shoulder, hip and ankle in a straight line. You might be more stable by bending the knee of your other leg 10 - 12 inches away from your other leg and hold it for a count of 10 - 12 seconds… be sure to keep your knee straight… and then slowly lower your leg. Remember to work on both legs. Work up to 20 times, two times a day before surgery and three times a day after surgery.
Our exercises and instructions are designed to help increase your strength and flexibility. By following the ORTHOP.A.C.E. System's guidelines, you can expect to be safely independent after your surgery, walking and moving on your own. We want you to be mobile.

ORTHP.A.C.E. Overview of Surgery of the Knee

Introduction

The goal of surgery of the knee is to relieve pain and to improve function and provide stability. Knee surgery is commonly performed for reasons such as osteoarthritis, rheumatoid arthritis, avascular necrosis, trauma or problems from birth. There are several surgical procedures used to reconstruct the knee of both the young athlete and the more senior patient. The decision depends upon your age, bone quality, activity level and expectations.

Your surgeon, following your interview and examination, will discuss with you the option of soft tissue or implant procedures and implants that will be appropriate for your age, weight, activity level and bone condition.

Many operations exist to correct knee deformities and disease. The following is an overview of the commonly performed knee procedures available to orthopaedic patients:

Many complications from surgery are preventable.

"Mobility" is a major key to prevention of complications.

SECTION 8/Cont.

Arthroscopy of the Knee - The arthroscope is a fiber-optic telescope that is inserted into the knee joint to evaluate and treat a number of conditions. This is an effective and one of the most common procedure.

Arthroscopically Assisted Anterior Cruciate Ligament Reconstruction - Minimal incision technique for major ligament reconstruction of the knee.

Total Knee Replacement - Joint resurfacing and degenerative disease resection via arthrotomy. It is a correction of all three compartments of the knee.

Uni-condylar / Hemi-Knee Replacement - Partial joint resurfacing of one half of a knee where there is limited disease. It replaces only the inner or outer worn areas of the knee and is quickly rehabilitated. This has excellent 10-15 year outcome.

Revision Total Knee Replacement - Re-operation of previously performed yet unsuccessful or worn-out knee disease.

High Tibial Osteotomy - Tibial realignment procedure to redistribute weight/load and wear on joint surface.

Patellar Realignment- Assessment, realignment and surgical control of the motion of the knee cap.

Possible Complications of Knee Surgery

As with any type of surgical procedure, there are certain risks associated with knee surgery. These problems include infection, blood clots, nerve palsy, vascular injury, fractures, swelling, pulmonary embolus and complications related to receiving blood products and bone used from a bone bank. Even though rare, complications do sometimes occur.

Please consult with your surgeon prior to surgery regarding other possible complications. Extensive measures are taken to prevent each of the above. Your surgeon feels his/her overall success is directly related to each individual patient's specific operative success. Therefore, you will be instructed in measures that will help to decrease the likelihood of problems and aid in a safe healing process. Your cooperation is vital in preventing many of the above complications.

SECTION 9

"This program doesn't leave time to lie around and feel sorry for yourself."

-White, female, 76

"The enthusiasm is infectious!"

-Donegan, male, 67

Physical Therapy After Surgery of the Knee

During your hospitalization, physical therapy is a vital part of your recovery. It helps you to regain your full potential. Once at home, continue to do the exercises your therapist has been teaching you and also those you did before surgery as part of the ORTHOP.A.C.E. System, working three times a day. Instructions are found in the patient video and exercise guide.

Ten to fourteen days after surgery, start using your stationary bicycle with the seat at a comfortable height. As you gain flexion (bending of the knee), lower the seat. Also, three or four days post-op, begin practicing this exercise: Sit facing the wall. Place the toe of your shoes against the baseboard. Scoot your chair closer to the wall. Sit in this position for ten minutes. Repeat three to five times a day. It is best to do this exercise in the morning when the swelling of your knee is less. Ice packs over the knee may help the discomfort. Work up to the point where your knees and toes are able to touch the wall at the same time. Then you may place a book or brick at the baseboard and continue to increase your flexion.

Do not lose the amount of strength and flexibility you have when you leave the hospital, but rather increase your strength by the time you return to the doctor's office for your first postoperative visit. This is possible by exercising gradually more and more each day once you are home.

It is hard to predict at what point a knee patient will regain total control of the leg. It may be immediately post-op (24, 36, or 72 hours) or it may be ten days, but each exercise should be attempted frequently during the day. Muscle function returns and your leg will again respond when you want it to respond. This can only be effectively accomplished by **you, the patient.**

The OrthoP.A.C.E. Patients are mentally groomed when they walk in for surgery.

Nurse---D.Morgan

ORTHOP.A.C.E Surgery of the Knee -Postoperative Management

Your surgery and subsequent treatment may include some or all of the following equipment:

Intravenous (IV) Lines: Started in the holding area before surgery. Used for fluids and medications, including your anesthetic drugs.

Surgical Wound Drain: Tubing used to evacuate blood from your wound. It will be gently removed one to two days after surgery.

Anti-embolism Stockings: White elastic stockings worn to decrease the risk of blood clots. They must be worn in the daytime on both legs for 4 weeks. These should be removed at night.

Surgical Stainless Steel Clips (staples): Used to close the skin edges after surgery. They are removed ten to twelve days after surgery. Your family may be instructed on removing the staples for you. There will be permanent layers of sutures that remain under the skin.

Incentive Spirometry: A device that may be used to help you make a conscious effort to breath deeply. Often after surgery, a patient's breathing will be too shallow to adequately ventilate their lungs. This device should be used every hour.

Return Appointment Following Surgery of the Knee

To insure your safe post-operative progression, your surgeon may ask you to return to the office in 10 to 14 days for a recheck. Thereafter, your surgeon may ask to see you again at various intervals, for example, 4 weeks, 3 months, 6 months and 1 year.

For the long term, each patient is evaluated at annual or bi-annual visits which are mandatory for X-rays and clinical exams. Data collection and outcome assessment of your case will be collected during these intervals. This enables the ORTHOP.A.C.E. program to further enhance its clinical effectiveness.

SECTION 10

ORTHOP.A.C.E. Surgery of the Knee, Home Again

Once home, it is important to call your surgeon's office if you have a sudden increase in knee pain, increased swelling which does not decrease in the morning, or incisional drainage. If you experience chest pain or shortness of breath, you should go to the emergency room immediately. The following guidelines will apply for the next four weeks or until your surgeon allows changes:

1. Use your walker or two crutches as instructed until you feel safe and confident enough to go to a cane or one crutch. The cane should be used on the opposite side from the operative knee, before progressing to independence from the operative knee, before progressing to independence from support.

2. If there are no contraindications, take an aspirin daily as instructed for one month to decrease the risk of blood clots. Other methods to prevent blood clots include coumadin and other anticoagulants. See your surgeon for specific instructions.

3. Use a pillow between your knees to turn in bed to increase your comfort.

4. Get in and out of bed on the side of your affected knee when you are in bed. Get in and out on the same side. Arrange your room at home before surgery so you can do this after surgery.

5. When sitting, choose an armchair for the first three months and anytime thereafter when you have the option. It will make getting up and down easier and safer and extend the overall life of your knee. For the first three months, do not sit on couches, low

Discipline can be the difference between success and failure.

SECTION 10/Cont.

6. If your surgeon allows, you may shower three days after surgery if the incision is healing without complications. After showering, clean the incision with alcohol which will dry the area thoroughly. A dressing is not required on the knee after four days, unless drainage persists.

7. A bedside toilet may be helpful during the night to prevent falls.

8. Continue to wear your special support stockings (anti-embolism hose) for 4 weeks after surgery. You should sleep without them. You may want to request a second pair before you leave the hospital or obtain these at a drugstore or hospital supply facility.

9. Keep the incision clean with alcohol. You may use aloe vera creams, Vitamin E cream or skin lotion on the incision after it has healed completely (approximately two weeks).

10. Please continue your Level One and two exercise program three times a day for two months. Add bicycle 10 - 12 days after surgery. The wall exercise starts around day 3 or 4. This will help you maintain and increase the flexion (bending of the knee). You will have normal movement in your knee with a little effort.

11. Please continue your exercise program three times a day.

Important

You will need to take antibiotics before dental work (even routine cleaning) and before other procedures which might cause bleeding, such as sigmoidoscopies, colonoscopies, and genito-urinary manipulations. Please tell your dentist and other doctors that you have had a total knee replacement and that you need a prescription for prophylactic antibiotics. You will need to do this for the rest of your life.

Likewise, you will need to treat any other infections promptly to prevent infections of your new knee.

ORTHOP.A.C.E. Antibiotics

Information

A joint replacement reacts much like a heart valve replacement to bacteria circulating within the blood stream. For this reason, the antibiotics recommended by the American Heart Association for patients having heart valve replacements or mitral valve prolapse are most often used for total joint patients. Your physician, however, may have other recommendations for specific antibiotic coverage associated with your care and treatment. To help you understand what is required to avoid these secondary complications, the **American Heart Association antibiotic protocol** for implant prophylaxis is included in a general format: For Dental/Oral/Upper Respiratory Tract Procedures

Standard Regimen In Patients At Risk:

Amoxicillin 2.0 grams (children 50kg) orally one hour before procedure.

Unable to take oral medications:

Ampicillin: Adults, 2.0 Grams (children, 50mg/kg) given IM or IV within 30 minutes before procedure.

What counts is not what we know but how well we use what we know.

SECTION 11/Cont.

For amoxicillin/penicillin-allergic patients:

Clindamycin: Adults, 600mg (children 20 mg/kg) given orally one hour before procedure.

- OR -

Cephalexin or cefadroxil: Adults, 2.0 grams (children, 50mg/kg) orally one hour before procedure.

- OR -

Azlthromycin or clanthromycin: Adults 500mg (children, 15mg/kg) orally one hour before procedure.

- OR -

Erthromycin 250mg every 8 hours times three doses.

Amoxicillin / ampicillin / penicillin - allergic patients unable to take oral medications:

Clindamycin Adults, 600mg IV within 30 minutes before procedure.

Adapted from Prevention of Bacterial Endocarditis: Recommendations by the American Heart Association by the committee on Rheumatic Fever, Endocarditis, and Kawasaki Disease. *JAMA 1990:* 264(22):2919-2922, ã 1990 American Medical Association. Used by permission.

ORTHOP.A.C.E. Answers to the Most Frequently Asked Questions about Knee Surgery

Your surgeon expects you to have a number of questions regarding your upcoming knee surgery. Please do not hesitate to request answers and clarification. The following are answers to some of the most common questions asked:

Can I expect swelling?

This is a very common occurrence following orthopaedic surgery. Arteries carry blood to the hip, knee and lower leg area while blood is returned to the heart through the venous system. This depends on the integrity of the valves within the veins, muscle contraction and the normal dependent position of the legs. However, following a knee operation, muscle contractions in the leg are decreased because of low activity level. The veins become distended and are no longer effective, thus, swelling occurs.

Some people experience swelling while in the hospital and others notice it after going home. The swelling may occur from the thigh to the ankle. To help with the swelling, elevate your feet and legs higher than the heart while you are lying down. Do this two to three times a day for thirty minutes to an hour. Also continue wearing your elastic stockings in the daytime for 4 weeks.

If the swelling does not decrease after sleeping all night or by elevating your legs during the day, you may contact your surgeon's office. But, please try the recommended measures first. It is not uncommon to have swelling for three to six months following surgery of the knee. When swelling is persistent, and / or progressively painful, you should notify your surgeon's office.

What should I watch out for concerning blood clots?

If you experience leg swelling that does not change after sleeping during the night and is accompanied by severe, sharp pain in the calf, the leg or groin, call your surgeon's office. Such occurrences may indicate a blood clot, although the chances of a blood clot forming are low.

Methods used to prevent blood clots include activity and exercises. Coumadin, a medication to reduce the formation of blood clots, may be administered during and after your hospital stay. After discharge, if you are not on Coumadin, you should take aspirin with breakfast in the morning to help prevent blood clots, if aspirin is not contraindicated.

SECTION 12/Cont.

I've noticed some drainage from my incision. Is this normal?
It is not uncommon to see a clear yellow or blood-tinged drainage up to two weeks after surgery and such drainage does not indicate an infection. Continue to clean the incision with alcohol two times a day. Use a dressing if the drainage gets on your clothing. If the incision becomes progressively painful, hot and /or difficult to move, it is important for you to notify your surgeon for inspection of the incision.

When can I participate in sports following my surgery?
Each patient's progress will be monitored independently. Any request to return to your preoperative activity level sooner than prescribed must be assessed by your surgeon and the medical team.

What signs of infection should I watch for?
Signs of infection include intense pain, redness, swelling and thick drainage from the incision. These symptoms will be accompanied with a temperature of over 101 degrees, chills and pain about the wound in general which is progressive and persistent.

What is a good policy regarding sitting?
Initially, it is best not to sit longer than thirty minutes at a time. You must get up and walk every one to two hours. This will help decrease the risk of blood clots and stiffness.

Can I climb stairs following my surgery?
Stair climbing when necessary is acceptable. You will be instructed to safely do this before your discharge. Always lead up the stairs with the non-affected leg. And go down with the surgical leg first.

When can I begin driving a car?
We routinely allow our patients to drive a car when they feel it's safe. Do not drive until you have complete control of your leg and are no longer taking pain medication. Do not drive if you are still taking pain medication that may cause drowsiness.

May I turn to my side while lying down?
Yes, but you should do so with a pillow between the knees for comfort.

After an Anterior Cruciate Ligament Reconstruction, will I be able to return to sports?
Yes, this surgery is performed with active people in mind. You may need a static brace for the first six weeks and a dynamic brace after that.

"I never thought having knee surgery could improve my overall life so much."

-Bailey, male, 72

SECTION 12/Cont.

When may I resume sexual activity?
Usually 4 weeks after surgery it is considered safe to resume sexual activity.

Could my body reject the metal of which my knee is made?
It is extremely unlikely that your body would reject the metal of a joint replacement. Infections may occur, but it is not because of the metal.

Will my artificial joint set off metal detectors at the airport?
No. One artificial joint should not set off the alarms. Yet if it is found that you do have trouble with airport detection, arthroplasty identification cards are readily available.

When may I stop taking my aspirin and wearing my special hose?
These are the only measures we use other than activity to decrease the risk of blood clots. We want you to continue both of these for four (4) weeks.

When should I begin riding my bicycle?
Ten to fourteen days, raise your bicycle seat up and start moving the pedals. If you feel unsafe getting on the bicycle, try a chair behind the bicycle and see if you can reach the pedals.

Is it common for my total knee to be warmer than my other knee?
You will notice a difference of temperature for many months after surgery.

I can hear a pop sometimes when I take a step. Is that normal?
After total knee surgery, there will be fluid in the knee and the kneecap can be heard popping into place. As the swelling goes down, this will also subside.

SECTION 13

Specific Types of Surgery of the Knee

There are a number of different types of knee surgery. These procedures can improve the quality of life for a great number of individuals suffering from orthopaedic disease or injury. The following is a discussion of knee surgeries, with the goal of better understanding your own personal situation.

Total Knee Replacement

"The Treatment for Degenerative Arthritis"
Joints that are painful, stiff, swollen and have a loss of motion can decrease your activity level and quality of life. If this has happened to you, you may be a candidate for a total knee replacement.

This surgical procedure fifteen years ago took three hours in the operating room and fourteen to twenty days in the hospital, followed by 2 - 4 weeks in a rehabilitation hospital. Today using the ORTHOP.A.C.E. System, your hospital stay will be shorter and less stressful. In three or four days, you will be home to continue your own ORTHOP.A.C.E. rehabilitation protocol.

In the over-50 population, it is not unusual to see forms of degenerative joint disease. This occurs when the cartilage covering the ends of the major bones of the thigh and the lower leg is worn away by mechanical means and disease. When the cartilage is gone, the joint no longer moves smoothly and painlessly. There is bone against bone and pain occurs.

The cause most often is normal wear and tear from use over the years. There are factors that cause the degeneration of the joint to occur prematurely, such as malalignment of a leg, excessive body weight and trauma from injury earlier in life.

In potential total knee patients, there will be at least one of two complaints, and often both. These complaints are pain which causes an alteration in your life style, and / or instability of the knee that could cause a fall. Frequently, patients complain of swollen, hot joints that are stiff after sitting for short periods with pain often worse at night.

"After being told that my weight would shorten the life of my knee, I lost 40 lbs and plan to lose ten more."

Boyles, male, 68

SECTION 13/Cont.

To decide if you are a candidate for a total knee replacement, a plain X-ray, along with the history you give and physical examination of your knee will help your surgeon diagnose your condition. Even with all the sophisticated diagnostic tools available today, the plain X-ray is generally all that is needed.

In the early stages of degenerative joint disease, a program of exercise, weight control and NSAIDs can help decrease the need for surgical treatment. But when more conservative measures are not helpful and you meet certain criteria such as age, weight and strength, a total knee can be the answer.

When a total knee replacement is decided upon, a combination of metal and plastic are implanted to create a new joint which will glide smoothly as you walk. Many different prostheses exist and specific details about you dictate the type selected. The metals used are either a chrome cobalt alloy or titanium alloy, both extremely strong metals designed specifically for use in orthopaedic implants. Polymethylmethacrylate (PMMA, commonly called "bone cement") may also be used.

For the total knee replacement surgery, an incision, approximately 8 inches in length, is made down the center of the knee. The entire knee is exposed and the synovium is dissected and removed. The smallest amount of bone possible is removed and replaced by the metal and plastic components chosen for you. When the soft tissue is balanced and your surgeon is pleased with the knee, it is closed with a drain in place. A large thick dressing is placed over the entire leg. You are then taken to the recovery room. The actual surgery usually lasts one to three hours.

After surgery you need to resume your ORTHOP.A.C.E. exercise program by doing quad sets, ankle pumps and straight leg raises. You may get out of bed and apply your full weight on your new knee. The drain and dressing will be removed two days after surgery and the incision should be cleaned with alcohol two times a day for about two-and-a-half weeks. You may shower three days after surgery without covering the incision. You may leave the incision uncovered when the drainage has stopped.

"It was hard work but worth it all to see the quick progress I made."

-Belcher, Male, 73

SECTION 13/Cont.

You may flex (bend) the knee as much as you like, but for the first seven to ten days, extension (ability to completely straighten the knee) is the most important thing you can do along with your exercise program. It is normal for a total knee to have increased swelling on days seven, eight, nine and ten. It will then begin to improve. To help this, elevate your leg on four or five pillows and apply ice twenty to thirty minutes of every hour and minimize flexion. You may start back with the bicycle at ten days, and if available, swimming may begin within 10 - 14 days after surgery or sooner if you like.

Your surgeon may want to see you back in the office in seven to ten days after you leave the hospital. He / she may want to see you again at three to four weeks, then two to four months and six months, then once each year for the rest of your life.

Complete recovery should be obtained in six months. The average is two to three months. Most patients are back to their normal activities in six weeks. You may still experience some arthritis pain and stiffness with weather change, etc., but your day-to-day life will be much improved.

Complications are rare. However, you should be aware of possible risks involved, such as blood clots, anesthesia risk, infection, nerve or blood vessel injury and fractures. We will continue to make a low complication rate a priority every day. To reduce the risk of infection, it is important to clean the incision with alcohol two times a day. Take a buffered aspirin every day for one month to decrease the risk of blood clots, unless you are taking coumadin or aspirin is contraindicated.

The ORTHOP.A.C.E. prehabilitation exercises that you started before your surgery will be all that is required after surgery. If you are not at the point that your surgeon feels you should be at day 10, some outpatient physical therapy will be prescribed. You should continue the exercise program three times a day, and you should begin to let gravity bend your knee. As the swelling goes down, this task will become easier. Unless instructed differently, you may put as much weight on your knee as desired. Use a walker or two crutches until you can walk with minimal limp and feel safe doing so.

"Nine days from my total knee surgery, I went to a retirement party-without my walker."

-Gilmore, female, 67

SECTION 13/Cont.

Total knee replacements are excellent procedures when chosen and performed correctly on the appropriate patients. Your surgeon can provide you with information regarding the specific procedure and implant selected for you.

Unicondylar Knee Replacement

Joints that are painful, swollen, malaligned or are undependable because of instability can definitely decrease your activity level and quality of life. When conservative treatment no longer has a positive response, a total knee replacement is the alternative to daily pain. However, when only part of the knee is damaged, a unicondylar knee may be performed instead of a total knee replacement.

The unicondylar knee replacement is a procedure that is not seen as commonly as the total knee replacement. This procedure replaces only the part of the knee that is diseased. By using this method, plenty of bone is left in case the knee needs to be revised years later to a total knee. It works well on the average-size person, but with all type knee replacements, weight gain is discouraged.

Arthritis and replacement are the major indications for a unicondylar knee replacement. The diagnosis is only on one side of the knee. Mechanical overload is the primary cause of the damage.

Symptoms include knee pain, which is often worse at night, stiffness, especially in the morning, and occasional swelling. The pain is more focal on one side of the knee than on the other. Diagnosis is made by listening to the patient and through a physical examination. Joint space narrowing is easily seen on plain X-rays.

As always, conservative therapy is tried first. An exercise program can be started and NSAID's can be used. If these are ineffective and you meet the criteria for weight and age, a unicondylar total knee is considered.

Your surgeon will make an incision approximately eight inches long down the center of your knee. He/she will remove much of the diseased tissue. Measurements will be made and a trial knee will be used to make certain of the correct size and position. When everything is right, the prosthesis will be cemented. The incision is closed with a drain in place and a large soft dressing is applied. You will leave surgery and spend an hour or two in the recovery area.

"My new knees made Walt Disney World and my grandchildren a wonderful experience again."

-Varden, 52

SECTION 13/Cont.

When you are back in your room and awake, you may move anyway you choose, and with assistance you may get up. Keeping the leg elevated on three or four pillows and using ice will decrease the pain. The pain will decrease after approximately 12 to 18 hours. Medication will be available if required. You should begin soon to push your knee down into the bed (Quad Sets) and lift your leg up (Straight Leg Raises).

The drain and dressing will be removed 36 to 48 hours after surgery. To reduce the risk of infection, the incision should be cleaned with alcohol two times a day. Take a buffered aspirin two times a day for one month to decrease the risk of blood clots, unless you are taking coumadin or aspirin is contraindicated. You should continue the ORTHOP.A.C.E. prehabilitation and rehabilitation exercise you began in the office. Do them three times a day and begin to let gravity bend your knee when sitting. As the swelling goes down, this will become easier. You may put as much weight on your knee as you can tolerate. Your full weight is fine. You should use a walker or two crutches until your surgeon instructs you differently.

Call for an office appointment before you leave the hospital if one has not been already made for you. Your surgeon may want to see you in eight to ten days to check your progress and remove your staples.

Recovery is different for everyone, ranging from four weeks to four months. The average is six weeks. You may continue to improve for four to six months. Often increased swelling occurs on days seven through ten and will then start decreasing. For six months, you may experience intermittent swelling.

Complications are rare. However, you should be aware of possible risks involved, such as blood clots, anesthesia, infection, nerve or blood vessel injury, and fractures. We will continue to keep a low complication rate a priority every day.

Unicondylar knees, when placed in appropriately selected patients, have an average lifespan of eight years. Severe pain is an exception and the complication rate is low. Most patients return soon to a near-normal functional capacity.

SECTION 13/Cont.

High Tibial Osteotomy

When our knees become an excuse to decrease activity and change our lifestyle, there is definitely a problem. Malaligned knees can cause pain from the wearing away of the cartilage on one side of the knee. You may be in your 30's, 40's or 50's when this occurs. Also, weight is a factor. A total knee will not last if you are overweight. A procedure called "high tibial osteotomy" (HTO) may be chosen for you in lieu of total knee replacement.

Due to malalignment of the knee (varus deformity or "bow-leg," which is most common), the joint space on the medial or inside of the knee will be smaller than the lateral or outside joint space. The cartilage on that side has simply mechanically worn away which leaves bone-to-bone on the one side and a perfectly normal unworn cartilage on the other.

The cause of the degenerative joint diagnosis requiring HTO can be from arthritis, but usually is from years of wear and tear on a malaligned knee. Excessive weight will certainly speed the process, which is seen following previous fractures or after cartilage resection surgery.

Indications for high tibial osteotomy also include complaints of pain on only one side of the knee. There can also be swelling and redness from the inflammation of the soft tissue. You can hear and feel a grinding sound as the bones are irritated through motion.

Diagnosis is easily made by physical examination and listening to the patient. A series of plain X-rays are all that will be needed to see an abnormal joint space and a progressively malpositioned leg.

Conservative treatment is always used first. An exercise program and NSAIDs are often helpful. Many have tried these prior to seeing surgeons. When a more conservative approach is not beneficial, surgery can be considered. The high tibia osteotomy is a very good procedure for the right patient. The angle of the tibia is changed to allow weight to be carried more on the unworn portion of the knee. By doing this, you can be given added years before a total knee replacement is considered.

"I didn't come to see a surgeon for an ego boost; I came to find out how to get the best result."

-Weldon, Male, 74

SECTION 13/Cont.

At the time of surgery, your surgeon will begin by looking into the knee with an arthroscope. He /she will check and record the damage to the cartilage and check to see if the meniscus and ligaments are intact. An approximately six inch curved incision will be made starting near the joint line and going down. The tibia is cut based on precise measurements of the tibia (the degree of correction has been determined earlier in the office from the X-rays that were taken). A pie shaped wedge is then taken from the bone, allowing the tibia to be straightened. Your surgeon will then use a metal plate and screws to close the wedge which in turn changes the direction of the lower leg. The incision is closed and a dressing is applied. A brace will be placed on your leg before you leave the operating room.

You should be up as soon as possible on two crutches, but only touch down, no weight bearing, until further instructed. Wear the brace at all time.

Following a HTO, you should, from the beginning, work on straight leg raises. You may also bend the knee as much as you desire. Pain medications will be available upon request. The dressing and drain will be removed 24 to 48 hours after surgery. Your hospital stay will most likely be one or two days. An out-patient physical therapy program will occasionally be arranged, but most people will simply continue the ORTHOP.A.C.E. prehabilitation exercises that began before surgery. Keep your incision clean with alcohol two times a day, and keep the incision padded from the brace. You may shower three days after surgery. Remove the brace for exercise, showers and for just sitting around. Your surgeon may want to see you in eight to ten days following surgery to remove your sutures and to check your progress.

It takes ten to sixteen weeks for recovery. The bone has been cut in a controlled manner, and because it is one of the thickest bones in the body, it must now have time to heal.

This surgery has the same risks mentioned earlier, along with the possibility of crushing bone on the opposite side if too much weight is applied too soon.

SECTION 13/Cont.

Arthroscopic Knee Surgery

The human body can withstand only so much wear and tear. Even the smallest of body parts, such as the cartilage in our knee can cause a good deal of pain if injured.

Twenty years ago, knee ligament and cartilage surgery required a large incision, a week in the hospital and several weeks on crutches. Because of advancements in technology and techniques, surgery can now be done in an hour or less and usually through two half inch incisions. Most patients go home the same day and are only on crutches for a few days. They are able to return to their normal activities in three to eight weeks after surgery.

The most common type of knee trouble is found in the menisci, two crescent shaped pads of cartilage acting as shock absorbers between the major bones of the thigh and lower leg. The medial meniscus (inside of the leg) is especially vulnerable to twisting or contact injuries as in skiing or a fall, and commonly causes a popping, locking or sensation of instability when walking or twisting the knee.

An injury can be sudden, such as an incident involving sports, or it can develop gradually over the years. The gradual type is a result of years of small tears until the damage becomes bad enough to cause pain.

The tears, or loose fragments of cartilage, may catch in the joint, locking it or causing it to give way unexpectedly. There is a range in the amount of pain and difficulty in walking that may occur. Small tears may heal and the symptoms decrease. A non-steroidal anti-inflammatory drug (NSAID) can be helpful. But because there is poor blood supply to that area, most do not heal and need to be removed. Part of or all of the meniscus may be removed depending on the severity of the damage, yet occasionally, meniscal tears and associated ligament tears of the knee can be repaired through arthroscopically-assisted techniques.

X-rays are routinely ordered to check for rare occurrences such as tumors and fractures, to check the alignment of the knee and to evaluate for arthritis. An MRI can be used to confirm torn cartilage, but at $600 to $1000 per test, it will not be ordered on every patient. A torn meniscus can accurately be diagnosed 85 - 90% of the time by an experienced clinician through the history you give and examination of the knee.

SECTION 13/Cont.

Arthroscopic knee surgery is a one-day procedure. You must be NPO (without food or drink) from midnight until the procedure is completed.

Modern knee surgery uses the arthroscope. A telescope (about the size of a pen) is inserted through a one-half inch incision into the knee joint. The surgeon can visualize the inside of your knee on the television screen in front of him/her. Water is pumped into the joint to expand it, making room for the instruments, and the surgeon can repair the damaged knee. (More complicated cases and extensive knee damage will require an incision. 90 percent of the time, we will know this before we go into the operating room.) Most of the time, part of the cartilage is removed, but if the tear is near the lining of the knee where the blood supply is better, a repair of the cartilage will be performed.

Following your arthroscopic surgery, you may be discharged home when the anesthesia department feels it is safe and you are not nauseated or in too much pain. At home, you should use crutches until you can comfortably get around and until your next appointment.

During the first twelve hours after surgery you should keep ice over and under the knee 20 minutes out of every one hour. Keep your leg elevated above your heart as much as you can. Take an NSAID pain medication as prescribed as well as all of you antibiotics. Resume your exercise program today, especially straight leg raises, 200 to 300 each day, start with 20 every hour, done slowly. (Make sure the leg is straight.)

Your dressing should be removed 48 hours after the surgery. Clean the incisions with alcohol and then redress, using small ace bandage and clean gauze next to the incisions. The next day, you can remove the dressing, shower and then clean the incision with alcohol, using an over-the-counter adhesive bandage over the incisions. Clean incisions two times a day with alcohol starting on day two. A dressing or covering is usually not required after the third day. Use crutches until you can do without them.

Your surgeon may want to see you seven to ten days after the surgery. We will check your overall strength, the ability to extend and flex your leg and remove your sutures. You will have two to three post-op visits.

SECTION 13/Cont.

Those who are in good physical condition, such as young athletes who have a sudden injury, usually recover quickly in two to three weeks. The average patient, whose symptoms have been developing and worsening over the years and have other problems such as arthritis, will take longer to recover, perhaps six to ten weeks. **Although arthroscopic surgery helps to relieve symptoms for many arthritis patients, when there is bone-to-bone contact in the knee, this surgery will not be a complete cure.**

You should do the prehabilitation and rehabilitation exercises found on page 12 of the manual and in the ORTHOP.A.C.E. video. It is very important to do these three times a day without fail. The muscles must be kept strong for the knee to be in good working order and pain-free. Use ice before and after exercise.

Anterior Cruciate Ligament Repair

We use our knees in walking, climbing, sitting and many other activities, but an injured ligament can cause even simple activities to become ordeals. The ligaments in our knees play a major role in the stability of the knee. If a ligament is injured, your knees may feel unstable and undependable. However, your surgeon can repair these injured ligaments.

The knee is stabilized by four main structures attaching the major bone of the thigh and the major bone of the lower leg. These are the medial and lateral collateral ligaments (MCL and LCL), which run down the sides of the knee, and the anterior cruciate and posterior cruciate ligaments (ACL and PCL), which run down the center of the knee.

The ACL and the MCL are more likely to be injured than the other ligaments. Your ACL is usually injured by a twisting motion. The MCL is most frequently torn from trauma to the outside of the knee, as seen often in football injuries.

Either injury can cause your knee to be weak and unstable, and other symptoms will probably occur. You may hear a pop accompanied by immediate pain, with swelling usually occurring one to three hours after injury.

SECTION 13/Cont.

An early physical exam and history will help determine the severity of the injury. You then may be asked to return days later so that stability of the knee can be checked, after some of the tenderness and swelling has decreased. Usually a plain X-ray will be taken to rule out fractures and other abnormalities. A magnetic resonance image (MRI) is frequently performed and can be very helpful in detecting ligament tears and other soft-tissue injuries.

A knee ligament injury may be treated either, surgically or non-surgically. The physician's recommendation depends on the severity of the injury and the level of activity. Non-surgical methods involve a period of rest, exercise and wearing a brace. Surgery involves reconstruction or repair of the ligaments.

ACL repair begins by looking into the inside of your knee with an arthroscope. If there are other injuries, such as a meniscus tear, your surgeon may repair these first. The graft is taken from the patellar tendon after a four inch incision is made or an allograft (tendon from the tissue bank) can be used. Small holes are drilled in the bone, and the graft is prepared and inserted through the holes. Screws are used to attach it in place. If the MCL is repaired, it is re-attached to its original position with permanent sutures and possibly a screw. A small drain may be left in place to remove excess fluid. Your incision is closed and your leg will be placed in a dressing and brace before leaving the operating room.

You may bear weight as desired, but you must wear your brace locked in extension when standing. When sitting, you may bend the knee. You should work on straight leg raises starting with 20 every hour you are awake. Pain medications will be available upon request. The dressing and drain will be removed 12 to 24 hours after surgery.

Your hospital stay will be approximately 6 hours if done out-patient to 24 hours if there is a need to stay overnight, and an out-patient exercise program will be arranged. You should work on the exercises for at least 30 minutes two to four times a day at home. Keep your incision clean using alcohol two times a day. Use a dressing to pad the incision against the brace. You may remove the brace to shower, exercise and when just sitting around. When up, two crutches should be used until your physician allows you to walk without them.

Set Your Goals High
The Results Will be Rewarding

SECTION 13/Cont.

Please call for an office appointment before you leave the hospital if one has not been already made for you. We want to check on you eight to ten days after surgery. We will remove sutures and check your progress.

It takes six to nine months for complete recovery after ACL/MCL repair. The graft must be protected while the re-vascularizing process takes place. The weakest period of time is thought to be around three months. Before athletic involvement in the first year, you will be fitted into a protective brace.

The risk of ligament repair, as with other surgeries, involves a risk of infection, blood vessel or nerve damage, tearing or stretching the graft, or deep vein thrombosis (blood clot).

ACL reconstructive surgery using the central third of the patellar tendon is very popular and commonly performed today. It requires a dedicated patient to be prepared to participate in the rehabilitation cycle, which is demanding. The long-term results are favorable, and a return to normal activity is anticipated.

Conclusion

We hope that you have found this information helpful. We also trust you will know that if any of the material mentioned in this booklet is confusing or hard to understand, your surgeon will be glad to address your concerns either by phone or on your next visit to the clinic.

Thank you for taking the time to read this material. We understand that this manual contains a great deal of information. We also know that the best results come from the most informed patients and those motivated to see themselves in their best condition as quickly as possible.

Surgery exists as a method of correcting a problem and improving a patient's condition and this is everyone's goal. Please be assured-your surgeon and the medical team are more than willing at any time to answer any questions or to review any material before and after surgery. The best results are obtained when people are provided the right information to become informed, motivated and confident.

ORTHOP.A.C.E. has two essential components: you and your medical staff. Everyone works together as a team to reach specific and realistic goals. This creates a sharing of confidence and trust and, in turn, energizes the ORTHOP.A.C.E. patient to achieve the success we witness daily. The ORTHOP.A.C.E. team's priority is your health and safety. That is what the ORTHOP.A.C.E. System is all about.

Your ORTHOP.A.C.E. Team

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ALABAMA Orthopaedic INSTITUTE

ORTHOP.A.C.E.
MIS Patient Management System

Apart from Knee services, Dr. Bramlett's other orthopaedic services include

Hip, Shoulders, Foot & Ankle

Hips

Apart from management of hip arthritis, our Hip Replacement services include

- **Alabama Minimally Invasive Surgery-** Hip Replacement (for arthritis of the hip joint).
- Revision Total Hip Replacement (for previously failed hip joint surgery)
- Bipolar Hip Replacement (for Fractured and/or arthritic hip join)

Shoulder

Common problems of the shoulder include disorders of the rotator cuff; shoulder instability (dislocations and separations); fractures of the upper end of the arm (humerus), collarbone (clavicle), and shoulder blade (scapula) and arthritic conditions of the shoulder.

Our services include painful shoulder conditions such as bursitis, tendonitis, calcium deposition, advanced arthritis, tumors, rotator cuff tears and frozen shoulder.

Foot and ankle

Dr. Bramlett treats a wide variety of foot and ankle disorders, including:

- Fracture, sprains, and strains
- Diabetic foot care
- Foot deformities
- Toe disorders
- Tendon disorders
- Arthritis and joint diseases
- Sports injuries
- Nerve disorders

If you have any of these conditions and wish to be advised on the most appropriate treatment alternatives, please call on 1 205 822 9595 during office hours to schedule an appointment.

Alabama Orthopaedic Institute Divisions

- **Clinical Care**

  Orthopaedic Sports Medicine Clinic of Alabama, P.C.
  www.osmcoa.com

- **Clinical Education**

  For orthopaedic surgeons, Allied Health Professionals & Medical students interested in orthopaedic training and education.
  www.misrei.com

- **MIS Research & Education Institute**

  An institute for research for treatment, management and prevention of arthritis, Sports Injuries and other musculoskeletal problems.
  www.misrei.com

- **MISREI Foundation**

  An independent organization raising funds to support MIS Research & Education Institute.
  www.misrei.com

- **Musculoskeletal Info**
  Information on common sports injuries, Orthopaedic procedures, prevention of sports injuries and much more.
  www.orthoeinfo.com