

**Charles E. Abrahamsen, MD**  
Board-Certified Orthopaedic Surgeon

(727) 724-6169

**SOE**  
**ORTHOPAEDIC  
SURGERY**  
Center of Excellence

**Belcher Point**  
1801 N. Belcher Rd Suite B  
Clearwater, FL 33765  
Fax (727) 791-0470

## Rehabilitation Protocol: Total Knee Arthroplasty, Post-operative Charles E. Abrahamsen, MD

### YOUR REHABILITATION PROGRAM



### PREPARATION FOR SURGERY

*For more information, please review the online booklet,  
[http://www.mpmhealth.com/workfiles/Knee\\_book.pdf](http://www.mpmhealth.com/workfiles/Knee_book.pdf)*

**Anesthesia:** Total Knee Replacement surgery is performed under spinal or general anesthesia with femoral nerve block (a catheter placed in the groin to temporarily deaden the pain nerve to the knee). Femoral catheters are left in after surgery for 2 to 3 days to control pain after surgery. They typically lessen the need for pain medication dramatically.

**Pre-op medical evaluation:** All patients must be evaluated by their primary care physician (PCP) within 3 months prior to surgery. Please contact your family doctor or internist to arrange for a preoperative medical evaluation (pre-op clearance) to ensure the surgery does not carry an undue risk. Diabetics should have

their blood sugars under control (hemoglobin A1C levels <6.9%). Patients with inflammatory arthritis (e.g. rheumatoid arthritis) should contact their rheumatologist or PCP about reducing or discontinuing immunosuppressive medications several weeks before and after surgery.

**Exercises:** it is usually not necessary to perform any specific exercises prior to surgery.

**Braces & Crutches/Walker:** braces are usually not necessary. However, if your knee feels unstable (“gives out”) prior to surgery, we can prescribe a hinged knee brace for support. In extreme cases of pain and giving way, crutches or a walker may be necessary prior to surgery.

**Timing:** the hospital or surgery center will usually contact you 1-3 days before your surgery date to inform you what time you are to arrive the day of your operation.

**Facts:**

**A.** You will have a Foley catheter inserted in your bladder in surgery after you are anesthetized. It will be removed the morning of the 2nd post-op day. Urinary retention is usually avoided if a catheter is used, but occurs in over half of patients after a total hip replacement if no catheter is used.

**B.** Unless contraindicated you will be given a blood thinner for 4 weeks after surgery to lessen risk of blood clots (usually Coumadin; generic name is warfarin). Medications such as ibuprofen (anti-inflammatory agents), aspirin products, and Plavix can affect bleeding and should be discontinued at least 1 week prior to surgery. Birth control pills should be discontinued 1 month prior to surgery, if possible, as they increase the risk of blood clots.

**C.** If you are a smoker, stopping for a few weeks before and after surgery will lessen risk of complications such as blood clots or pneumonia.

**D.** Dental work and kidney or bladder problems and procedures should be taken care of prior to the knee replacement if possible, as these procedures can cause a temporary bacteremia (bacteria in the bloodstream). Addressing these conditions prior to knee replacement lessens risk of infection after surgery.

## RECOVERY AND REHABILITATION AFTER SURGERY

### IMMEDIATELY AFTER SURGERY

As soon as you wake up from anesthesia (and the spinal or epidural anesthetic has worn off), you should begin ankle pumps, in the recovery room—move your feet as if pumping a gas pedal. Do this frequently, at least every hour while awake, for the first 2 days after surgery. Ankle pumps help prevent blood clots. A blood thinner is also prescribed temporarily after surgery to lessen the risk blood clots. Keep the dressing dry. Ice is usually not needed as the bulky dressing is usually sufficient to control swelling.

CPM machine: A CPM (continuous passive motion) machine is used during the hospital stay; the CPM machine is not critical to the final result so it may be removed for several hours if uncomfortable or discontinued without harm to the patient's final result. Six (6) to eight (8) hours of CPM a day is sufficient to help “kick-start” your ROM (range of motion); if you feel more comfortable in the CPM you may use it all night and most of the day while in the hospital. CPM is not used after discharge from the hospital unless a physical therapist recommends it.

DIET: Start with clear liquids then slowly progress to solids if you are not nauseated. *Be careful!!* Even if you feel "fine" eating too much too soon can lead to nausea and vomiting.

### ***1<sup>st</sup> DAY AFTER SURGERY***

A walker is necessary until you are comfortable and feel secure walking without it, usually for 3 to 4 weeks after surgery. Begin: 1. Quad sets (lying on back, straighten knee by pushing back of knee down) and 2. Heel slides (lying on back, slowly bend knee as far as pain allows then straighten). Do each exercise 2 sets of 20 repetitions, 3 times a day (less if the knee is painful or swollen). Continue the exercises until your 1<sup>st</sup> postoperative appointment.

You may not get the incision wet until 14 days after surgery. No pool till 3 weeks post-op.

### ***2<sup>nd</sup> DAY AFTER SURGERY***

The hospital nurse will remove the Foley catheter, which is necessary as many patients develop urinary retention without a Foley. Begin attempting straight leg raises (try to lift the leg up with the knee straight) after each quadriceps set.

### ***3<sup>rd</sup> & 4<sup>th</sup> DAY AFTER SURGERY***

The hospital nurse will change your dressing on the 3<sup>rd</sup> day after surgery. If recovery is progressing as expected, by you will be discharged home and Home HealthCare arranged, or you will be transferred to a rehabilitation floor or facility of your choice. Discharge is usually the 4<sup>th</sup> post-op day (Saturday). CPM machine is not routinely continued after the hospital stay; it may be continued after the hospital stay if your physical therapist requests it by contacting Dr. Abrahamsen at the office.

**WEEKS 1-4**

1. **ACTIVITY:** Bear as much weight on the operated leg as pain allows and use your walker as needed. The walker may be discarded, and you may begin using a cane, when the knee is comfortable enough to walk on. You should be putting full weight on your leg (using a walker) by the 3<sup>rd</sup> week post-op.
2. **RANGE OF MOTION:** Increase active motion using heel slides for flexion and quad sets or prone stretching for extension within the tolerance of comfort so the knee moves from **nearly full extension to 90 degrees flexion by 2-3 weeks after surgery.**
3. **STRENGTHENING:** Strengthen the knee using straight leg raises (stop if you experience back pain during this exercise). It usually takes 3 to 5 days after surgery to be able to do lift your leg off the bed with your knee straight.
4. **WOUND CARE:** Sutures or staples, if present, are generally removed by the rehabilitation facility nurse or the home health nurse, 10-14 days after surgery. Dr. Abrahamsen prefers that **staples** (or sutures) be removed on a Tuesday, 14 days after surgery, as he is normally available in the office on Tuesdays to answer any questions that the nurse may have about wound care. You may **shower** (get the wound wet) the day after the staples are removed. Do not go in a public swimming pool or the ocean until 4 weeks post-op. Don't be surprised if you have bruising around the thigh; a tourniquet is normally used around the thigh during knee replacement surgery and may cause bruising. You may notice numbness or tingling when touching the skin on the outer side of the knee; this is normal as a small nerve branch giving sensation to this area crosses the incision and can't be avoided during surgery.
5. **GOAL:** By 3-4 weeks the knee should move from almost full extension to 90 degrees of flexion and may continue to be sore, stiff, and swollen. Swelling is best controlled by limiting activities such as walking, and elevating the leg above the heart. You should be independent using your walker.
6. **PHYSICAL THERAPY:** A physical therapist's treatment and supervision is almost always recommended for optimal results. Physical therapy visits are typically daily (5-6 days a week) in the first 3-4 weeks.

**WEEK 5-8**

1. **ACTIVITY:** You should be using a cane by the 5th week post-op. You may walk short distances outside the house and swim as your comfort permits.
2. **RANGE OF MOTION:** Once your knee bends to at least 90 degrees flexion you may use a stationary bicycle; exercising on a stationary bicycle can help improve motion. Begin with the seat elevated and initially do not apply any resistance to the wheel. Lower the seat as motion increases and add resistance as tolerated. Try to bicycle once or twice a day for 10 to 15 minutes.
3. **STRENGTHENING:** Continue quad sets, straight leg raises in neutral (toes pointing up) & external rotation (toes pointing out 30 degrees), progressing from 1 to 3 pounds ankle weight as pain allows. If you are not experiencing significant pain (no pain pills), you may add wall slides (mini or shallow squat leaning against a wall or door jamb) or mini squats holding onto the back of a chair for support. Don't bend your knees more than a right angle when doing chair squats.

4. **GOAL:** By 8 weeks the knee should extend nearly equal to the opposite knee and flex to 105 degrees. It is not unusual to still have some swelling in the knee which may limit motion. Do not be discouraged if some swelling & pain persists.
5. **PHYSICAL THERAPY:** Physical therapy visits are typically 3 times a week in the 2nd 4 weeks after surgery.

### ***WEEK 9-12***

1. **WEIGHT BEARING:** You should be walking with mild or no limp, using the cane only if you need it to feel safe.
2. **RANGE OF MOTION:** continue to exercise to improve or maintain motion. Final goal is 105 degrees of flexion for most patients as it will allow you to get up from a chair without having to use your arms to push yourself up. 90 degrees flexion allows normal stair climbing. The knee replacement is not designed to bend past 120 degrees.
3. **STRENGTHENING:** Continue strengthening until you can step up & down with your weight on the operated knee and stoop & touch the floor comfortably.

## **ANSWERS TO COMMON QUESTIONS**

### **How long does it take to recover from a knee replacement?**

Total Knee Replacement usually requires a 3 month recovery period. In the 1<sup>st</sup> month the knee may be painful enough to take frequent pain pills; just getting to the bathroom and back, bathing, dressing, eating and doing the exercises recommended by the physical therapist can take all day long. The 2nd month the knee is usually still painful but motivated patients can return to part-time work; the exercise program requires several hours a day. The 3rd month formal physical therapy is usually not needed; the home exercise program provided by the physical therapist requires an hour or 2 a day, and occasional pain pills may be necessary. After 3 months most patients are functioning normally with only some discomfort. It can take 6 months to a year to be pain-free after a total knee replacement.

### **How long will I be in the hospital?**

Total Knee Replacement usually requires a short (3-4 day) hospital stay.

### **How long does the surgery take to perform?**

The surgery usually requires 2 hours to perform.

### **What is the risk of blood transfusion?**

According to Florida Blood Services "Clinical Transfusion Today" (Winter 2006 p.2), the risk of Hepatitis B is 1 in 200,000; Hepatitis C risk is 1 in 2,000,000; HIV (AIDS) risk is 1 in 2,000,000. Reference: Labmedicine, Vol 36 p717 (2005).

### **When will I see the doctor?**

Dr. Abrahamsen makes rounds each day while you are in the hospital, usually in the morning (before 9am). The 1st office visit after discharge from the hospital is usually 4 weeks after surgery. By this time you should be comfortable traveling in a car to the office. If you go to a rehabilitation facility, the medical doctor at the rehabilitation facility will make rounds--usually once a week.

### **If I go to a rehabilitation or skilled nursing facility, when can I go home?**

The rehabilitation facilities normally have a weekly meeting that involves the social worker, physical therapist, nurse coordinator, and medical director. They will make a judgement, based on your progress and your home situation, when it is safe and advisable for you to go home. In general Dr. Abrahamsen recommends that you be able to get out of bed and to the bathroom and back safely, without assistance, before you are discharged home.

### **When can I drive a car?**

When you feel safe and confident behind the wheel so you can avoid getting into an accident. Generally, driving may be resumed within the first 4 to 6 weeks after surgery, but may take longer if you require pain medication frequently. Do not drive when you are taking pain pills.

### **When can I return to work or school?**

Motivated people who have a sitting or desk job can usually be back at work 8 weeks after surgery.

### **What is the success rate of the surgery?**

95% of patients will have relief of pain and be able to walk, climb stairs & participate in normal day to day activities. Dr. Abrahamsen uses implants that have been proven over time. 95% of patients will have no sign of problem with their knee replacement 15 years after their surgery.

### **Will my legs be the same length?**

Except in very unusual circumstances (correction of the most severe deformities), leg length is not affected by total knee replacement. Of course, some people will feel taller after their crooked leg is straightened out!

### **Must I take an antibiotic before dental work or other procedures?**

Yes, it is recommended by the American Academy of Orthopaedic Surgeons (AAOS Information Statement, **Antibiotic Prophylaxis for Bacteremia in Patients with Joint Replacements, 2009**) that an antibiotic be taken prior to dental work in the 1<sup>st</sup> 2 years after a joint replacement, unless you have complete upper and lower dentures (or no teeth). Taking an antibiotic prior to dental appointments is especially important if you may have a dental infection (e.g. painful tooth or swollen gum). It is controversial if an antibiotic needs to be taken prior to routine cleanings (Dr. Abrahamsen recommends taking it). Patients who are immunocompromised (e.g. rheumatoid arthritis or Type I diabetes) are at higher risk and may be considered for

prophylaxis indefinitely. Prophylaxis is also recommended before endoscopy (e.g. colonoscopy or cystoscopy).

### **Will I set off the metal detector at the airport?**

Possibly. The United States Transportation Security Administration (TSA) regulations state: *“It is recommended (but not required) that you advise the screener that you have a metal implant and where the implant is located. Screeners will need to resolve all alarms associated with metal implants. Most alarms will be able to be resolved during a pat-down. Therefore, clothing will not be required to be removed or lifted as part of the inspection process.”*

### **What is a gender specific knee replacement (female knee)?**

The knee replacement Dr. Abrahamsen is available in 10 sizes for the femur component, including "female" sizes, or narrower dimension from side to side. These narrower components are helpful in ensuring a knee component does not protrude beyond the sides of the femur bone. If a component protrudes too far, it can cause chronic knee pain.

### **What is the difference between a knee resurfacing replacement and a total knee replacement?**

Knee replacement has always been a resurfacing operation. Approximately 10mm of the surfaces of the tibia (shin bone), femur (thigh bone), and patella (knee cap) are resurfaced. The entire knee joint is not cut out and replaced.

### **Is the clicking I feel in my knee replacement a concern?**

No. A knee replacement is metal and plastic. It is not unusual to experience clicking in the first 3 to 6 months after surgery. The clicking usually resolves after the knee is no longer swollen.

### **Why is there a numb area on the outer side of the knee?**

A small nerve branch goes across the lower part of a knee arthroplasty incision and is unavoidable. The sometimes annoying sensitivity in the area of numbness normally resolves within a few months of surgery.

### **What sports can I participate in after a knee replacement?**

A survey of the Knee Society concluded golf, swimming, stationary or road cycling, bowling, ballroom dancing, shuffleboard, hiking, square dancing, & speed walking are all **allowed** after total knee replacement. Other activities, including skiing, doubles tennis, horseback riding, & rowing are **allowed with experience**. There was **no consensus** for singles tennis, weight lifting, hockey, racquetball, roller skating, & baseball. Activities **not allowed** included jogging, soccer, basketball, volleyball, & football.

**Can my physical therapist watch the operation?**

Yes, the therapist can call 724-6169, ext. 203, and inform our medical assistant if they would like to observe the surgery. It is a hospital policy that non-medical personnel are not permitted in the operating room; this includes family and friends.

**If you have any more questions and you should, please write them down in the space below and call 724-6169 for our medical assistant, or ask Dr. Abrahamsen at your next office visit.**