



# Cartilage Repair Center

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## What is a Partial Knee Replacement?

The knee is divided into 3 compartments - the medial, lateral, and patellofemoral compartments. A partial knee replacement is a surgical procedure used to treat patient with moderate-to-severe osteoarthritis (OA) isolated to only 1 or 2 compartments of the knee. With partial knee replacements, only the damaged compartments of the knee are replaced, and the healthy compartments are preserved.

A partial knee replacement is designed to resurface the end of the bone and preserve as much bone stock for any future conversions that may be needed. It is expected to last between 10-15 years and would allow an easier conversion to a primary total knee replacement, if needed.

Compared to a total knee replacement, patients who undergo partial knee replacement surgery typically have a quicker and less painful recovery. Additionally, a partial knee replacement removes less bone and preserves all the ligaments of the knee. This gives the knee a more natural feel.

This handout is intended to describe a single compartment replacement (unicompartmental medial or lateral replacement) and 2 compartment replacement (bicompartamental).

## Who is a candidate for a Partial Knee Replacement?

Patients who are candidates for a **unicompartmental** replacement have moderate-to-severe osteoarthritis of **only 1 compartment** of the knee, either the medial or lateral weightbearing compartment. Often, the pain is isolated to that single arthritic compartment. Whereas patients who are candidates for a **bicompartamental** replacement have moderate-to-severe osteoarthritis of **2 compartments** of knee – the patellofemoral compartment (kneecap and groove) and either the medial or lateral weightbearing compartment. In these patients, the remaining compartment of their knee is healthy. In addition to radiographic findings of osteoarthritis, these patients have failed conservative/non-operative treatments. Conservative treatments include weight loss, physical therapy, braces, ambulatory aids, anti-inflammatory oral medications, and injection treatments (cortisone, hyaluronic acid, etc.).

At the end of this handout, you will see x-rays of patients who underwent a medial unicompartmental replacement (fig. 1), a lateral unicompartmental replacement (fig. 2), and a medial bicompartamental replacement (fig. 3).

To determine if you are a candidate for a partial knee replacement, your surgeon will first obtain plain x-rays to assess areas of bone-on-bone arthritis. Typically, your surgeon will also have you get an MRI of your knee to evaluate all other compartments of your knee and confirm the most suitable type of partial knee replacement. It is critical that the other compartment(s) of your knee that is/are not to be replaced have normal, healthy cartilage. Otherwise, you may not experience significant improvement following surgery and require further surgery.

The goal of a partial knee replacement is to restore your ability to perform everyday activities, such as stair climbing, walking on uneven ground, getting out of a low chair or car, or sitting with the knees bent for a prolonged period of time. These activities are generally difficult to perform when there is osteoarthritis present in the knee.

This procedure will help patients feel very comfortable and pain-free, but it is not intended for return to high-level impact loading, twisting activities. Premature failure of the components by wear is likely in patients who resume running and pivoting sports. The prosthesis is designed to restore quality of life with activities of daily living.

### What are the different types of Partial Knee Replacement systems?

Your surgeon has various types of partial knee placement systems readily available. This helps to individualize your surgical needs and give you the best possible outcome. The different types are Zimmer Persona® (Fig. 1), Conformis iUni® (Fig. 2), and Conformis iDuo® (Fig. 3).

The Zimmer Persona® is a component produced by the company Zimmer. Your surgeon will typically use this system for a **medial unicompartmental replacement** (Fig. 1). The components provide accurate reproduction of the anatomic curves and size of the weight bearing surfaces of the knee. Compared to other systems, the Zimmer Persona® allows for the surgeon to make minimal cuts, sparing more bone stock for possible future conversion (if needed) to a total knee arthroplasty. This system provides the patient a normal biomechanical function.

The iUni® is a component produced by the company Conformis. It stands for individualized unicompartmental resurfacing device. It is primarily used for patients needing a **lateral unicompartmental replacement** (Fig. 2). It differs from traditional implants in that traditional implants require the surgeon to choose from a range of standard implants that require the surgeon to cut the bone to fit the implant. iUni offers a more unique approach by creating the implant to specifically fit your knee, mirroring the surface and contours of your anatomic knee. This provides a bone sparing approach to the surgery. It gives the patient a more natural feeling to the knee, preserving bone, cartilage, and ligaments.

The iDuo® is a bicompartamental partial knee replacement system produced by Conformis. It is designed to resurface the either the medial or lateral weight bearing surfaces along with the patellofemoral compartment (Fig. 3). This device conforms to your anatomic surfaces and curves with the knee to give the surgeon a way to preserve the bone stock and allow for easy conversion to total knee replacement in the future (if needed).

### What will happen during my surgery?

Your surgery will be performed using either a general anesthetic or a spinal anesthetic depending on your preference. During your surgery, the surgeon will make an open incision along the front of your knee running up and down your leg about 4-6 inches long. Through this incision, the surgeon will be able to access the damaged area(s) of your joint. The femoral and tibial side of your medial or lateral compartment will be resurfaced with a metal implant made from cobalt chrome. Polyethylene spacers will be placed between the tibial and femoral components. If you are undergoing a bicompartamental replacement, the back side of your patella will be resurfaced with a “button” made of polyethylene plastic as well. The components are held in place using cement.

At the end of the surgery your surgeon will use a pharmacy prepared mixture of medications that he will inject into all the pain sensitive areas of the knee that may provide relief of pain after surgery for 12-24 hours without a nerve block.

Your surgical incision will be closed with all subcutaneous or “dissolving” stitches. This means that you will not have any stitches that need to come out. You will have a long plastic bandage on the incision that should stay on for 7 days after the surgery. You can shower directly on this plastic bandage. After 7 days, the bandage can be removed, and you can shower directly on the skin.

### **What can I expect post-operatively after a Partial Knee Replacement?**

When you wake up from surgery, you will have a soft knee brace (immobilizer) on your leg to keep your leg straight. It is important to wear this brace at night, so your leg stays straight and does not curl up.

You will also be given a walker or crutches. You will be able to fully weight bear on your operative leg immediately following surgery. You will use your walker/ crutches anywhere from 1-2 weeks depending on your muscle strength. You will spend 1-2 nights in the hospital. This is to make sure that you are comfortable and that your pain is well controlled.

This time in the hospital also allows you to also meet with physical therapy and get some early exercise and walkers/ crutch training. You will begin working with a physical therapist in the first few days following surgery. It is recommended that you make arrangements with an outpatient physical therapy office within the same week of surgery. Compared to home physical therapists, outpatient physical therapy facilities, will have more equipment and modalities to move your recovery along quickly.

After surgery you will also be on baby aspirin 81 mg twice daily for 3 weeks after surgery to prevent blood clots in the legs (DVT- deep venous thrombosis), or if you are on a blood thinning medication, the doses will be adjusted around your surgery, as recommended by your healthcare providers.

### **How will my pain be controlled after surgery?**

During your hospital stay, your pain will be controlled using IV pain medication. One of the goals of your care will be to transition you from IV pain medication to oral pain medication. This is often achieved on the first day after surgery. You will be sent home from the hospital with a

prescription for oral pain medication to be filled at your local pharmacy. The most prescribed post-op pain medications include oxycodone and tramadol. Most patients will require regularly scheduled doses of pain medication for the first 1-2 weeks. Following week 2, you will begin to decrease your pain medication use to prior to physical therapy and before bedtime. Most patients will not require any pain medication past week 4-6.

**For pain medication refills, you will need to come to the office for a face-to-face, in-person appointment. Florida State Law does not allow us to call in prescriptions or refill pain medication without an office visit. We are only allowed to give 7 days of pain medication at a time.** Be sure to follow the directions carefully. It is important to know how to obtain your pain medication refills appropriately and in a timely manner.

### **When will I follow-up with my surgeon after surgery?**

Your first post-operative visit will take place 2 to 3 weeks after your surgery. This appointment is critical for checking your incision healing and range of motion as well as to answer any questions you may have in the first few weeks following surgery. You will then follow-up with your surgeon 6 weeks (if necessary), 3 months, and one year after surgery. After the first year, you will follow up with your surgeon every 3 years.

### **What restrictions will I have after a partial knee replacement?**

Once you have fully recovered from your surgery, you will return to activities as tolerated. You will still be able to be highly active following surgical intervention. Approved activities include things such as walking, swimming, biking, elliptical trainer, golf, tennis, hiking, skiing, and skating. Long distance running and hard pivoting sports such as soccer, basketball, squash, and racquetball, are not recommended as they may cause loosening and premature failure of your implants requiring revision surgery.

## Frequently Asked Questions

### What are other common symptoms after partial knee replacement surgery?

**Numbness** – The area to the outside of your kneecap and the incision will be numb. Due to the position of the sensory nerves running from the inside to the outside of the knee, they are cut when we make the incision expose the knee. This is normal, and may or may not resolve, but will continue to improve over the next 12 months.

**Swelling** – Everyone heals differently post-operatively. It is normal for your knee to be swollen, and maybe even bruised up to 4 weeks post-operatively. In most people the swelling begins to subside in 4 weeks. In some people, the knee will remain swollen up to 3-6 months. If the swelling does not hinder your range of motion and isn't painful, it is not a concerning sign.

**Stiffness** – Stiffness due to pain is normal post-operatively and can be improved with early movement and physical therapy. You will be encouraged to move your knee as much as you can tolerate, and you will receive physical therapy in the hospital. A stiff knee is a painful knee, and the more you move it, the better your overall outcome will be.

**When will I start physical therapy?** You will start physical therapy beginning the day after surgery in the hospital. You will continue physical therapy once you are discharged at an outpatient clinic.

**What will I do during physical therapy?** The primary goal of physical therapy is to initially increase ROM, so that you do not get stiff following surgery. You will then begin to work on increasing strength after surgery.

**How long will I need to use my crutches?** Depending on how quickly your muscle strength returns, you will likely only need to use your walker or crutches for a period of approximately 1-2 weeks. You may come off your walker/ crutches sooner than 2 weeks if you feel comfortable to do so. You will transition to 1 crutch/cane for weeks 2-4, and then work your way to walking normally by weeks 4-6.

**When can I shower?** You can remove the ACE wrap and gauze/ foam dressing 24 hours following surgery. Under the ACE wrap and gauze/foam dressing, you will have a large plastic bandage covering your incision. You can shower directly on the large plastic bandage and allow water to run over the bandage. This bandage can be removed 7 days after surgery at home. You can then shower normally with the incision uncovered. Do not submerge your operative knee in a bathtub, pool, ocean, etc., until cleared by the surgeon.

**When can I go back to work?** This will be different for each patient and depends largely on the type of work you do. Most patients who work in a sedentary position or desk work will be back to work by 6 weeks. Those patients who work in more labor-intensive jobs may be out of work for up to 12 weeks.

**When can I resume my regular activity?** Return to regular activity depends highly on each individual patient's definition of regular activity. Non-impact activity such as walking, swimming, bike riding, and elliptical trainer can all be resumed by 3-4 months. Higher level activity, such as hiking and skiing, may require 6-9 months before they can safely be resumed.

**Will I need to stay in the hospital?** Most patients require a 1–2-night stay in the hospital.

**I don't like how narcotic pain medication makes me feel, can I take something else?** You may use Tylenol (acetaminophen) for pain control following surgical intervention. Anti-inflammatories are also effective including Advil, Aleve, Ibuprofen, Naproxen, and Celebrex. A continuous ice flow machine such as PolarCare™ is very effective for pain and swelling of the knee without sedating side effects, but the skin should be checked regularly, every ½ hour to ensure you do not get frost bite.

**How long do I take my anticoagulation medicine for?** Anticoagulation medicines prescribed are commonly Aspirin or Lovenox, and less commonly, Xarelto or Coumadin. Aspirin is usually 81 mg twice daily x 3 weeks. Lovenox is usually 40mg injected subcutaneously x 3 weeks. These medications are subject to change from patient to patient and are evaluated on a case-by-case basis. Follow the instructions given to you when you are discharged from the hospital.

**Will I need antibiotics for dental procedures?** Yes, you will be given your first prescription for 2 grams of Amoxicillin/Ampicillin, (1 gm Erythromycin if you have a penicillin allergy), one hour prior to any dental procedure. After that, your PCP or dentist can cover the prescription. Currently, we have you take the antibiotics for life after joint replacement.

**Who do I call if I have a question prior to my appointment?** If you have questions regarding your upcoming surgery, you may call your surgeon's nurse practitioner or research assistant.

**Medial Unicompartmental Replacement**



**Fig. 1.** Preoperative (top) and post-operative (bottom) x-rays of patient who underwent a medial unicompartmental replacement. The system used was a Zimmer Persona®.



**Fig. 2.** Preoperative (top) and post-operative (bottom) x-rays of patient who underwent a lateral unicompartmental replacement. The system used was a Conformis iUni®.

**Medial Bicompartamental Replacement**



**Fig. 3.** Preoperative (top) and post-operative (bottom) x-rays of patient who underwent a medial bicompartamental replacement. The system used was a Conformis iDuo®.