

# PATIENT EDUCATION

## The Hip Joint and Osteoarthritis

The hip joint is a ball and socket joint for which the “ball” is the head of the femur and “socket” is the part of the pelvis, the acetabulum. These surfaces are covered with a thin layer of cartilage that cushions the hip joint and allows for normal hip motion. Bands of tissue called ligaments (the hip capsule) connect the ball to the socket and, in conjunction with muscles, provide stability to the joint (Figure 19).

Osteoarthritis is the wearing away or loss of the cartilage layer, similar to the way the tread on a car tire wears away. When cartilage in the hip joint wears away, the joint becomes “bone-on-bone”. These rough bone on bone surfaces cause friction, resulting in swelling, pain, loss of motion and function. Osteoarthritis is the most common type but other less common causes of arthritis do exist including rheumatoid arthritis, post-traumatic arthritis, and avascular necrosis. Regardless of the type of arthritis, they all lead to loss of articular cartilage and resulting pain (Figure 20 & 21).



**Figure 19**  
Normal Hip Joint



**Figure 20**  
Femoral Head with no Cartilage

### Treatment Options

Conservative treatment options can help patients with early arthritis maintain their quality of life and minimize pain. These include the use of anti-inflammatories (i.e. Ibuprofen, Aleve, Advil, Motrin, etc.), Tylenol, activity modification, injections, and physical therapy.

Once conservative measures are no longer effective, hip replacement can be considered. A total hip replacement is where the femoral head is removed and replaced with an artificial head. This is connected to a stem that is inserted into the thigh (femur) bone. The acetabulum (socket) is replaced with an artificial socket as well. A liner is placed into the acetabulum and accepts the new artificial femoral head.



**Figure 21**  
X-ray progression of hip arthritis from normal (left) to severe (right).

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## Total Hip Replacement: The Basics

We use state-of-the-art hip replacement components supported by decades of clinical data substantiating their safety and effectiveness (Figure 22). We commonly use either a ceramic or metal ball and a surgical-grade plastic liner for the acetabulum (bearing surfaces). Most implants rely on the bone to grow into and onto the metal surface (Figure 23). Occasionally, the femoral stem can be cemented if needed. The procedure takes between 60 and 90 minutes and is completed through an anterior (from the front) approach.

There are numerous surgical approaches to the hip joint. We use an anterior approach for the majority of our hip replacement surgeries. This approach has been shown to promote a faster postoperative recovery, a lower dislocation rate, and less postoperative pain as no muscles are cut. Your recovery from a total hip replacement will continue for more than one year, but a large proportion of your recovery happens in the first three months. More than 90% of people who have total hip replacement surgery experience a dramatic reduction of hip pain and a significant improvement in quality of life.

The components of the replaced hip joint are artificial and can wear out with time and use. Excessive activity or increased body weight can speed up this normal wear process and may cause the hip replacement to become painful. Therefore, activities to avoid are running and jumping from a height greater than 3 feet.

As with all major surgeries, there are risks. Your surgical team will do everything in their power to decrease these risks and get you the best possible outcome. Sometimes surgery is postponed while known risk factors are optimized before surgery. Body weight must be under control as measured by body mass index (BMI). Diabetes must be well-controlled, as measured by HbA1c. If you use tobacco or nicotine products, you will need to quit before surgery. All these measures are put in place to decrease your risk and improve your outcome.



**Figure 22**  
Implants commonly used for total hip replacement surgery.



**Figure 23**  
Most commonly used bearing surfaces with ceramic head, treated plastic liner and press-fit acetabular component

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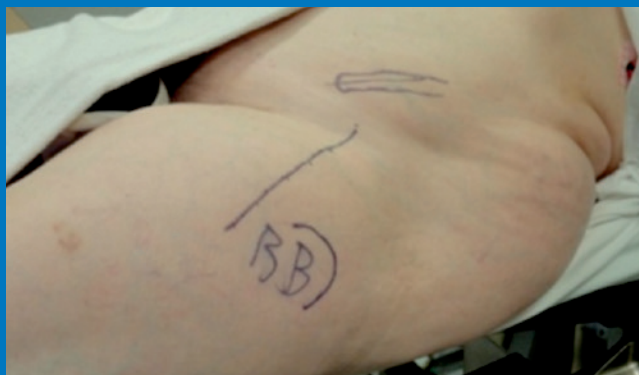
## Total Hip Replacement: The Surgery

After the anesthesiologist has administered your anesthetic, your feet are placed into boots (similar to ski boots) and you are positioned on a specialized table for your hip replacement (Fig. 24). Prior to surgery your team reviewed your X-rays and developed a surgical plan. Surgery begins with a time out where everyone pauses to confirm the patient, procedure, correct leg, and that the appropriate antibiotics and other preop medicines have been given. A yellow iodine-based adhesive drape is placed on the skin, and a straight incision is made over the front of your upper thigh (Fig. 25). The length varies depending on your height and weight. Muscles are moved out of the way but are not cut as the hip joint is exposed and replaced. Surgical tools called retractors help your surgical team see the hip joint (Fig. 26) and the specialized table facilitates placement of the leg into different positions for each part of the operation (Fig. 24). Technology, such as intraoperative X-ray and computer measuring programs, are used to help your surgical team get the hip replacement components in position for your specific anatomy. Proper component placement is critical for a long lasting, well-functioning total hip replacement. Once the bone cuts are made and the final components are inserted, the soft tissues around the hip joint are injected with numbing medicine and anti-inflammation medicine to help with post-operative pain control. Typically, the surgery takes 60 to 90 minutes. Your skin will be closed with buried sutures, a waterproof mesh and skin glue. A silver-impregnated waterproof large band-aid will be placed over the incision. After the dressings are on your hip, you will be transported to the recovery area.



**Figure 24**

Example patient positioned for total hip replacement surgery.



**Figure 25**

Surgical marker demonstrates the position of a planned skin incision for total hip replacement. The surgeon (Dr. Barrett in this case) places their initials on the skin in the preoperative area to ensure correct site of surgery.



**Figure 26**

Intraoperative placement of acetabular component with retractors in place to optimize visualization.



**Figure 27**

Intraoperative placement of femoral stem within the bone of the femur.