

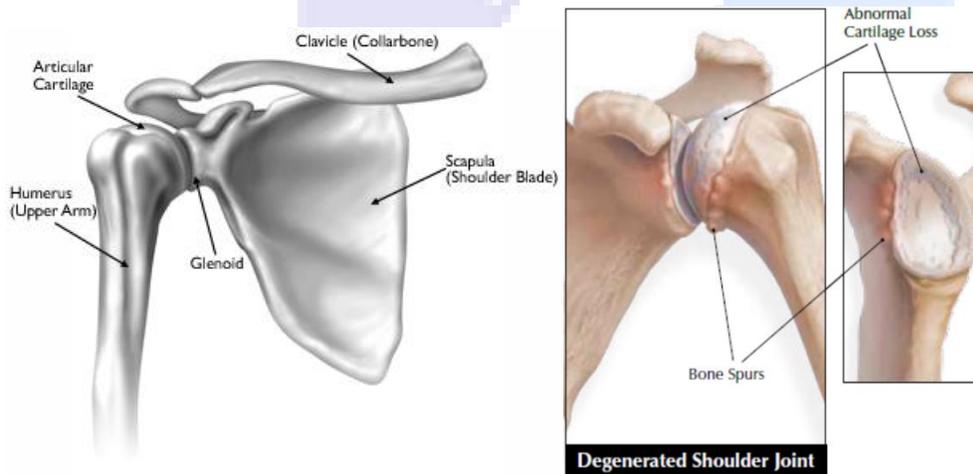
# Patient's Guide to Shoulder Replacement Surgery

## I. UNDERSTANDING SHOULDER REPLACEMENT

Shoulder replacement surgery has been recommended for the treatment of your shoulder problem. This operation is usually performed for arthritis or fractures of the shoulder, but other conditions involving the shoulder can also be successfully treated with shoulder replacement surgery. The purpose of this booklet is to give you information about the surgery, as well as answer the most common questions patients typically ask. This handout should help you prepare for your surgery, your hospital stay, as well as your return home. If you have any additional questions after reading this handout, please contact your surgeon's team.

### The Normal Shoulder

The shoulder joint is very complex and involves three bones and more than one joint. These bones are the clavicle (collar bone), the scapula (shoulder blade), and the humerus (upper arm bone). Numerous muscles, ligaments, and tendons surround the joint (Figure 1). The upper end of the arm bone (humerus) and the outside edge of the scapula bone (glenoid) form a 'ball-and-socket joint'. This joint is remarkable because it typically allows greater range of motion than any other joint in your body.



### Who Needs Shoulder Replacement Surgery?

Shoulder replacement surgery is a result of degeneration of the ball-and-socket joint. When the smooth surfaces (cartilage) of the ball and socket become rough, they rub against each other rather than glide. This rubbing causes pain, stiffness and swelling.

### The two most common reasons for shoulder replacement are:

- Severe degenerative joint disease (osteoarthritis) – The cartilage has worn away resulting in bone-on-bone contact (Figure 3). When the smooth surfaces of the head of the humerus (ball) and glenoid (socket) become rough, they rub against each other rather than glide.
- Fractures involving the shoulder joint.

Other reasons for shoulder replacements include:

- Inflammatory arthritis/rheumatoid arthritis – Cartilage is destroyed by the inflammation commonly found in these joint processes.
- Avascular necrosis – “Bone death” caused by loss of the blood supply to the humeral head (ball).

### Is Shoulder Joint Replacement for You?

The decision to have shoulder replacement surgery should be a cooperative one between you, your family, your family physician, and your orthopaedic surgeon.

There are several reasons why your doctor may recommend shoulder replacement surgery. People who benefit from surgery often have:

- Severe shoulder pain that interferes with everyday activities, such as reaching into a cabinet, dressing, toileting, and washing.
- Moderate to severe pain while resting. This pain may be severe enough to prevent a good night's sleep.
- Shoulder stiffness also interferes with the use of their arm for everyday activities.
- Loss of motion and/or weakness in the shoulder.
- Failure to substantially improve with other treatments such as anti-inflammatory medications, cortisone injections, or physical therapy.

**A shoulder replacement is performed to alleviate shoulder pain. It often helps to improve the range of motion of your shoulder joint, which also improves your function and the quality of your life.**

### Orthopaedic Evaluation

An evaluation with an orthopaedic surgeon consists of several components:

- A medical history. Your orthopaedic surgeon will gather information about your general health and ask you about the extent of your shoulder pain and your ability to function.
- A physical examination. This will assess shoulder motion, stability, and strength.
- X-rays. These images help to determine the extent of damage in your shoulder. They can show loss of the normal joint space between bones, flattening or irregularity in the shape of the bone, bone spurs, and loose pieces of cartilage or bone that may be floating inside the joint.
- Other tests. Occasionally blood tests, a magnetic resonance imaging (MRI) scan, or a bone scan may be needed to determine the condition of the bone and soft tissues of your shoulder.



**(Left)** An x-ray of a healthy shoulder joint. **(Right)** Osteoarthritis of the shoulder. Note the the decreased joint space in the x-ray (arrow).

## The Surgery

The essential part of the surgery is to remove the damaged area and replace it with a shoulder prosthesis (artificial joint). To get to the shoulder joint an incision is made on the front of your shoulder. After exposing the shoulder joint, the damaged ends of the bone, humerus (ball) and glenoid (socket) are removed. The bone is prepared for the replacement with the artificial joint. The artificial joint is made of metal, usually a titanium or a cobalt-chrome alloy. The stem is placed inside the humerus bone. Bone cement may be used to secure the stem in the humerus. The glenoid component is made of a special plastic (polyethylene). The glenoid (socket) is cemented into place. Not all patients require a glenoid component and the final decision to use a glenoid component is made during the surgery. After the components are in place, the shoulder joint is checked to make sure it is stable and has the potential for good motion after rehabilitation.

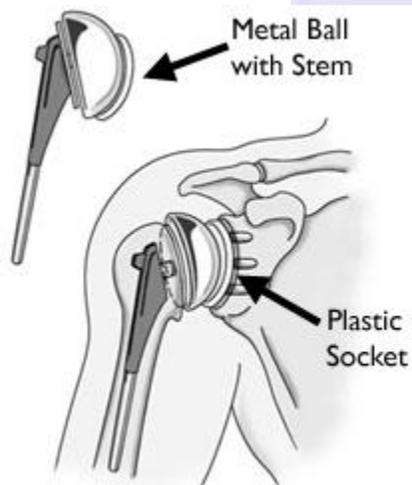
### Shoulder Replacement Options

Shoulder replacement surgery is highly technical. It should be performed by a surgical team with experience in this procedure.

There are different types of shoulder replacements. Your surgeon will evaluate your situation carefully before making any decisions. He or she will discuss with you which type of replacement would best meet your health needs. Do not hesitate to ask what type of implant will be used in your situation, and why that choice is right for you.

#### **Total Shoulder Replacement**

The typical total shoulder replacement involves replacing the arthritic joint surfaces with a highly polished metal ball attached to a stem, and a plastic socket.



#### **A total shoulder joint replacement.**

These components come in various sizes. They may be either cemented or "press fit" into the bone. If the bone is of good quality, your surgeon may choose to use a non-cemented (press-fit) humeral component. If the bone is soft, the humeral component may be implanted with bone cement. In most cases, an all-plastic glenoid (socket) component is implanted with bone cement.

Implantation of a glenoid component is not advised if:

- The glenoid has good cartilage
- The glenoid bone is severely deficient
- The rotator cuff tendons are irreparably torn

Patients with bone-on-bone osteoarthritis and intact rotator cuff tendons are generally good candidates for conventional total shoulder replacement.

#### **Stemmed Hemiarthroplasty**

Depending on the condition of your shoulder, your surgeon may replace only the ball. This procedure is called a hemiarthroplasty. In a traditional hemiarthroplasty, the head of the humerus is replaced with a

metal ball and stem, similar to the component used in a total shoulder replacement. This is called a stemmed hemiarthroplasty.



Some surgeons recommend hemiarthroplasty when the humeral head is severely fractured but the socket is normal. Other indications for a hemiarthroplasty include:

- Arthritis that only involves the head of the humerus with a glenoid that has a healthy and intact cartilage surface

- Shoulders with severely weakened bone in the glenoid
- Some shoulders with severely torn rotator cuff tendons and arthritis

**Sometimes, surgeons make the decision between a total shoulder replacement and hemiarthroplasty in the operating room at the time of the surgery.**

### ***Resurfacing Hemiarthroplasty***

Resurfacing hemiarthroplasty involves replacing just the joint surface of the humeral head with a cap-like prosthesis without a stem. With its bone preserving advantage, it offers those with arthritis of the shoulder an alternative to the standard stemmed shoulder replacement.



Resurfacing hemiarthroplasty may be an option for you if:

- The glenoid still has an intact cartilage surface
- There has been no fresh fracture of the humeral neck or head
- There is a desire to preserve humeral bone

For patients who are young or very active, resurfacing hemiarthroplasty avoids the risks of component wear and loosening that may occur with conventional total shoulder replacements in this patient population. Due to its more conservative nature, resurfacing hemiarthroplasty may be easier to convert to total shoulder replacement, if necessary at a later time.

### ***Reverse Total Shoulder Replacement***

Another type of shoulder replacement is called reverse total shoulder replacement. Reverse total shoulder replacement is used for people who have:



- Completely torn rotator cuffs with severe arm weakness
- The effects of severe arthritis and rotator cuff tearing (cuff tear arthropathy)
- Had a previous shoulder replacement that failed

For these individuals, a conventional total shoulder replacement can still leave them with pain. They may also be unable to lift their arm up past a 90-degree angle. Not being able to lift one's arm away from the side can be severely debilitating.

In reverse total shoulder replacement, the socket and metal ball are switched. That means a metal ball is attached to the shoulder bone and a plastic socket is attached to the upper arm bone. This allows the patient to use the deltoid muscle instead of the torn rotator cuff to lift the arm.

### **The Risks of Surgery**

Some risks come with every operation and they differ for each person depending on the person's age, health, and the type of surgery performed. The risks of shoulder replacement surgery are relatively low for major reconstruction of a joint. Potential risks include but are not limited to infection, excessive blood loss, instability of the components (the ball will not stay in the socket), nerve injury and blood clots. The chance of having a complication related to your surgery is increased if this is a revision surgery or if there is a complex deformity of the shoulder joint, which often times occurs in the treatment of old fractures that have gone on to develop arthritis. There are also risks related to anesthesia which will be discussed on the day of your surgery by the anesthesiologist who will be caring for you. If you have a history of medical problems, particularly problems with your heart or lungs, please notify your surgeon in advance of your planned surgery. In addition to medical clearance by a physician, you may need to have additional evaluation by the anesthetist in preparation for your surgery. A blood transfusion may be necessary in shoulder replacement surgery, but is uncommon. Your surgeon will decide during your preoperative evaluation whether it is necessary to donate your own blood (autologous blood donation). Most patients do not require donation or transfusion.

## **II. THE SURGICAL JOURNEY**

**To help prepare you for surgery the following steps will be taken:**

1. The following information will be discussed with you in your surgeon's clinic.
  - Preoperative teaching about the surgical procedure
  - Surgical risks
  - Preparation for surgery
  - What to bring to the hospital
  - Discharge planning
  - Home preparation for after surgery
2. Your surgeon's team will provide you with the information to schedule the required tests. These usually include:
  - Blood tests
  - Urinalysis
  - ECG and chest x-ray
3. You need to continue your usual medicine unless told.

Do not take aspirin-containing medications and nonsteroidal anti-inflammatory medications ten days prior to your surgery.

4. You may perform your usual activities, but should refrain from smoking.

5. Carefully review this information booklet to learn more about your surgery and what you can do to help insure the best possible experience.

### ***Before Your Operation***

Wear loose-fitting clothes and a button-front shirt when you go to the hospital for your surgery. After surgery, you will be wearing a sling and will have limited use of your arm.

You will most likely be admitted to the hospital on the day of your surgery. After admission, you will be taken to the preoperative preparation area and will meet a doctor from the anesthesia department.

You, your anesthetist, and your surgeon will discuss the type of anesthesia to be used. You may be provided a general anesthetic (you are asleep for the entire operation), a regional anesthetic (you may be awake but have no feeling around the surgical area), or a combination of both types.

### ***Surgical Procedure***

The procedure to replace your shoulder joint with an artificial device usually takes about 2 to 2 and half hours. After surgery, you will be moved to the recovery (anaesthetic ICU) room, where you will remain for several hours while your recovery from anesthesia is monitored. After you wake up, you will be taken to your hospital room.

### ***Recovery***

Your medical team will give you several doses of antibiotics to prevent infection. Most patients are able to eat solid food and get out of bed the day after surgery. You will most likely be able to go home on the first, second or third day after surgery.

### ***Pain Management***

After surgery, you will feel some pain, but your surgeon and nurses will provide medication to make you feel as comfortable as possible. Pain management is an important part of your recovery. Physical therapy will begin soon after surgery, and when you feel less pain, you can start moving sooner and get your strength back more quickly. Talk with your surgeon if postoperative pain becomes a problem.

### ***Rehabilitation***

A careful, well-planned rehabilitation program is critical to the success of a shoulder replacement. You usually start gentle physical therapy soon after the operation. Your surgeon or physical therapist will provide you with a home exercise program to strengthen your shoulder and improve flexibility.

## **Your Recovery At Home**

When you leave the hospital, your arm will be in a sling. You will need the sling to support and protect your shoulder for the first 2 to 4 weeks after surgery.



Wearing a sling will protect your shoulder after surgery.

**Wound care.** You will have suture beneath your skin. A suture beneath your skin will not require removal and might give a better cosmetic effect.

Avoid soaking the wound in water until it has thoroughly sealed and dried. You may continue to bandage the wound to prevent irritation from clothing.

**Activity.** Exercise is a critical component of home care, particularly during the first few weeks after surgery. Follow your surgeon's home exercise plan to help you regain strength. Most patients are able to perform simple activities such as eating, dressing and grooming within 2 weeks after surgery. Some pain with activity and at night is common for several weeks after surgery.

Driving a car is not allowed for atleast 4 weeks after surgery.

### **Do's and Don'ts**

The success of your surgery will depend largely on how well you follow your orthopaedic surgeon's instructions at home during the first few weeks after surgery. Here are some common do's and don'ts for when you return home:

- Don't use the arm to push yourself up in bed or from a chair because this requires forceful contraction of muscles.
- Do follow the program of home exercises prescribed for you. You may need to do the exercises 2 to 3 times a day for a month or more.
- Don't overdo it! If your shoulder pain was severe before the surgery, the experience of pain-free motion may lull you into thinking that you can do more than is prescribed. Early overuse of the shoulder may result in severe limitations in motion.
- Don't lift anything heavier than a glass of water for the first 2 to 4 weeks after surgery.
- Do ask for assistance. Your physician may be able to recommend an agency or facility if you do not have home support.
- Don't participate in contact sports or do any repetitive heavy lifting after your shoulder replacement.
- Do avoid placing your arm in any extreme position, such as straight out to the side or behind your body for the first 6 weeks after surgery.

**Many thousands of patients have experienced an improved quality of life after shoulder joint replacement surgery. They experience less pain, improved motion and strength, and better function.**