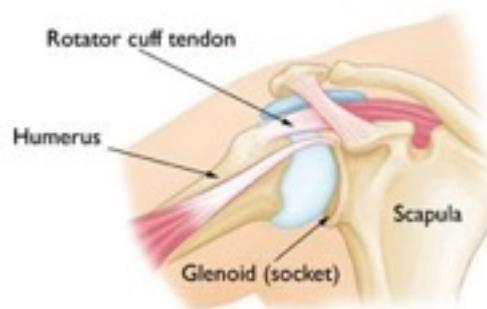


## Reverse Total Shoulder Replacement

Every year, thousands of conventional total shoulder replacements are successfully done in the United States for patients with shoulder arthritis. This type of surgery, however, is not as beneficial for patients with large rotator cuff tears who have developed a complex type of shoulder arthritis called "cuff tear arthropathy." For these patients, conventional total shoulder replacement may result in pain and limited motion, and reverse total shoulder replacement may be an option.

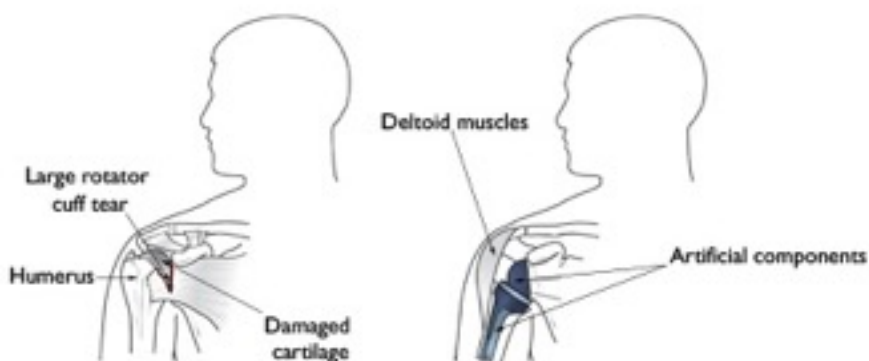
### Description

A conventional shoulder replacement device mimics the normal anatomy of the shoulder: a plastic "cup" is fitted into the shoulder socket (glenoid), and a metal "ball" is attached to the top of the upper arm bone (humerus). In a reverse total shoulder replacement, the socket and metal ball are switched. The metal ball is fixed to the socket and the plastic cup is fixed to the upper end of the humerus.



In a healthy shoulder, the "ball" of the humerus is held in the shoulder socket by several muscles and tendons, including the rotator cuff tendon.

A reverse total shoulder replacement works better for people with cuff tear arthropathy because it relies on different muscles to move the arm. In a healthy shoulder, the rotator cuff muscles help position and power the arm during range of motion. A conventional replacement device also uses the rotator cuff muscles to function properly. In a patient with a large rotator cuff tear and cuff tear arthropathy, these muscles no longer function. The reverse total shoulder replacement relies on the deltoid muscle, instead of the rotator cuff, to power and position the arm.



**(Left)** Rotator cuff arthropathy. **(Right)** The reverse total shoulder replacement allows other muscles — such as the deltoid — to do the work of the damaged rotator cuff tendons.

This surgery was originally designed in the 1980s in Europe. The Food and Drug Administration (FDA) approved its use in the United States in 2003.

### Candidates for Surgery

Reverse total shoulder replacement may be recommended if you have:

- A completely torn rotator cuff that cannot be repaired
- Cuff tear arthropathy
- A previous shoulder replacement that was unsuccessful
- Severe shoulder pain and difficulty lifting your arm away from your side or over your head
- Tried other treatments, such as rest, medications, cortisone injections, and physical therapy, that have not relieved shoulder pain

## Preparing for Surgery

Your orthopaedic surgeon will help you plan and prepare for your shoulder surgery.

### Medical Evaluation

Most patients must have a complete physical by their primary care doctor before surgery. This is needed to make sure you are healthy enough to have the surgery and complete the recovery. Many patients with chronic medical conditions, like heart disease, must also be evaluated by a specialist, such as a cardiologist, before the surgery.

### Medications

Be sure to talk to your orthopaedic surgeon about the medications you take. Some medications may need to be stopped before surgery. For example, the following over-the-counter medicines may cause excessive bleeding and should be stopped 2 weeks before surgery:

- Non-steroidal anti-inflammatory medications, such as aspirin, ibuprofen, and naproxen sodium
- Most arthritis medications

If you take blood thinners, either your primary care doctor or cardiologist will advise you about stopping these medications before surgery.

### Home Planning

Making simple changes in your home before surgery can make your recovery period easier.

For the first several weeks after your surgery, it will be hard to reach high shelves and cupboards. Before your surgery, be sure to go through your home and place any items you may need afterwards on low shelves.

When you come home from the hospital, you will need help for a few weeks with some daily tasks like dressing, bathing, cooking, and laundry. If you will not have any support at home immediately after surgery, you may need a short stay in a rehabilitation facility until you become more independent.

## Your Surgery

### 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.



The components of a reverse total shoulder replacement include the metal ball that is screwed into the shoulder socket, and the plastic cup that is secured into the upper arm bone.

You, your anesthesiologist, 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

This procedure to replace your shoulder joint with an artificial device usually takes about 2 hours.

Your surgeon will make an incision either on the front or the top of your shoulder. He or she will remove the damaged bone and then position the new components to restore function to your shoulder.

## Surgical Complications

Reverse total shoulder replacement is a highly technical procedure. Your surgeon will evaluate your particular situation carefully and discuss the risks of surgery with you.

Risks for any surgery include bleeding and infection. Complications specific to a total joint replacement include wear, loosening, or dislocation of the components. If any of these occur, the new shoulder joint may need to be revised, or re-operated on.

## Recovery



A typical follow-up x-ray of a reverse total shoulder replacement.

After surgery, your medical team will give you several doses of antibiotics to prevent infection, and pain medication to keep you comfortable. 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 second or third day after surgery.

### Rehabilitation

When you leave the hospital, your arm will be in a sling. Your surgeon may instruct you to do gentle range of motion exercises to increase your mobility and endurance. A formal physical therapy program may also be recommended to strengthen your shoulder and improve flexibility.

You should be able to eat, dress, and groom yourself within a few weeks after surgery.

Your surgeon may ask you to return for office visits and x-rays in order to monitor your shoulder.

## Do's and Don'ts After Surgery

- Do follow the home exercise program prescribed by your doctor.
- Do avoid extreme arm positions, such as behind your body or your arm straight out to the side for the first 6 weeks.
- Don't overdo it.
- Don't lift anything heavier than 5 lbs. for the first 6 weeks after surgery.
- Don't push yourself up out of a chair or bed, as this requires forceful muscle contractions.
- Don't participate in repetitive heavy lifting after shoulder replacement.

## Long-Term Outcomes

After rehabilitation, you will most likely be able to lift your arm to just above shoulder height and bend your elbow to reach the top of your head or into a cupboard. Reverse total shoulder replacement provides outstanding pain relief and patient satisfaction is typically very high.

Early studies of the results of this surgery have been very promising, but currently no long-term studies exist. This is an area for future research.