

NewYork-Presbyterian Columbia **ORTHOPAEDICS**

A Patient’s Guide
to **Shoulder
Replacement
Surgery**

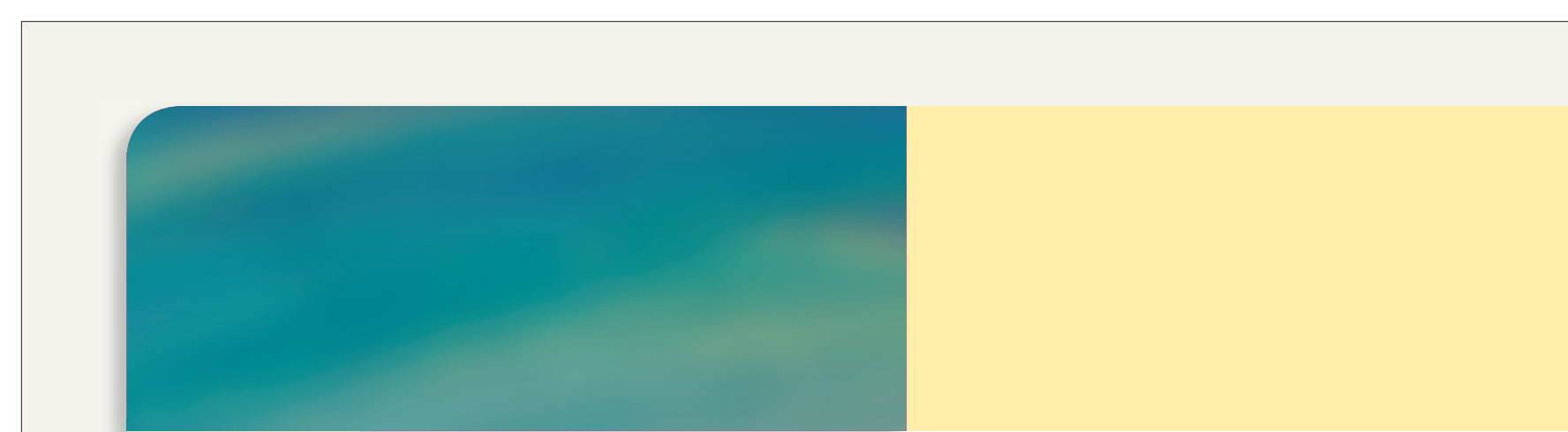
NewYork-Presbyterian Columbia ORTHOPAEDICS



About Shoulder Replacement

Columbia Orthopaedics has been a pioneer in the field of shoulder replacement surgery dating back to the 1950s when Charles S. Neer, MD performed his first shoulder arthroplasty. Dr. Neer pioneered total shoulder replacement and dramatically changed the direction of shoulder arthroplasty surgery and is referred to as the “father of modern shoulder surgery”. Today, our orthopaedic surgeons continue to advance shoulder replacement with new prostheses and techniques to improve the quality of life for patients with degenerative joint disease (“arthritis”) and other disorders of the shoulder.

A Patient's Guide
to **Shoulder
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The shoulder is a ball-and-socket that permits the arm to be moved in many directions, especially overhead, and allows many of the most basic activities of daily living. Shoulder replacement, also called shoulder arthroplasty, involves replacing the ball and socket of the shoulder joint with a metal ball and plastic socket prosthesis.

Non-Surgical Treatment First

Before patients with degenerative arthritis of their shoulder are considered candidates for surgery, they may be helped by non-surgical management.

Our physicians will prescribe physical therapy to maintain flexibility and range of motion. NSAIDs (non-steroidal anti-inflammatory drugs) such as ibuprofen are often recommended to decrease inflammation and pain. Rarely, cortisone injections may be used to treat acute pain from arthritis, but do not have long-term effects. Multiple injections are not recommended.

Indications for Surgery

Shoulder replacement can be extremely helpful to individuals suffering with severe pain, stiffness, and loss of motion due to osteoarthritis – a degenerative joint disease generally occurring in an older population. Osteoarthritis of the shoulder can be evaluated by X-ray, CT scan or MRI to reveal loss of joint space and bony changes.

In addition, patients with complex shoulder or upper arm fractures resulting from trauma or osteonecrosis (a condition in which the bone can crumble due to lack of blood supply) may also require a shoulder replacement.

Our orthopaedic surgeons perform shoulder replacement surgery in four primary areas:

- Total shoulder replacement surgery for patients who have severe arthritis to relieve pain and stiffness and regain their mobility
- Reverse shoulder replacement surgery for patients who have severe arthritis and a large chronic rotator cuff tear that cannot be repaired
- Revision shoulder replacement for patients who have previously undergone a shoulder replacement surgery that has failed
- Surface replacement for younger patients with arthritis

Understanding Shoulder Anatomy

The Procedure: Shoulder Replacement

The goals of shoulder replacement surgery are to relieve pain and increase the range of motion. Total shoulder replacement surgery involves replacement of the head of the upper arm bone (humerus) with a metal ball and stem prosthesis and the socket (glenoid) with a plastic prosthesis. A shoulder hemiarthroplasty involves replacement of only the head of the humerus. The type of surgery performed depends on the patient's specific diagnosis.

Total Shoulder Replacement Surgery

A total shoulder replacement is performed through an incision that is approximately five to six inches in length. The surgeon removes the part of the humeral head that has lost the surface cartilage and prepares the shaft to create a cavity that can accommodate the implant stem. Bone cement, if needed, is applied to the prepared cavity before the artificial stem is implanted. In addition, bone cement is typically used to implant the artificial socket (glenoid).

The prosthesis contains:

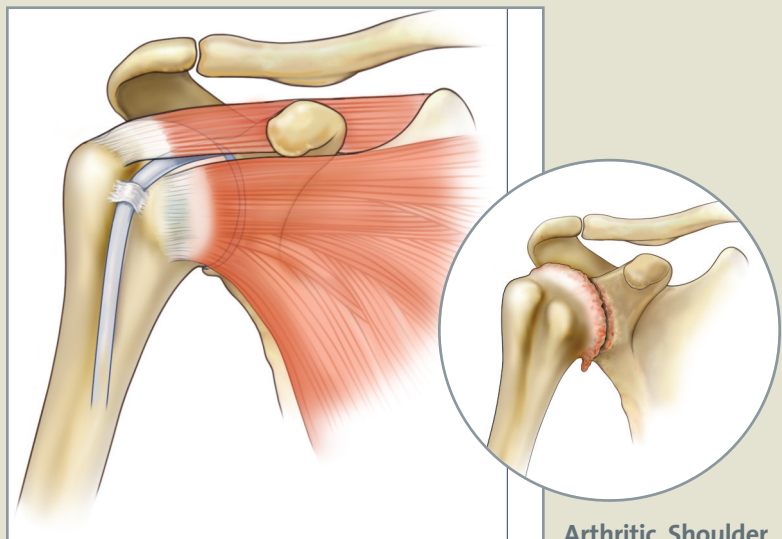
The *humeral component* – usually made of cobalt chromium-based alloys or titanium replaces the head of the humerus (ball).

The *glenoid component* – made of high-density polyethylene (plastic) replaces the socket (glenoid).

The shoulder is one of the most flexible joints in the body, and it can achieve a global range of motion. It is comprised of three bones – the upper arm bone (humerus), the shoulder blade (scapula), and the collarbone (clavicle). Two joints are responsible for shoulder movement – the scapulothoracic and the glenohumeral joint, which is the familiar ball-and-socket structure that allows complete range of motion.

The bones of the shoulder are held in place by muscles, tendons, and ligaments. Tendons are tough cords of tissue that attach the shoulder muscles to bone and assist the muscles in moving the shoulder. Ligaments attach shoulder bones to each other, providing stability. The head of the upper arm bone (humeral head) rests in a shallow socket in the shoulder blade called the glenoid. A firm cartilage rim (labrum) surrounds the socket to help stabilize the joint and serves as an attachment site for several ligaments.

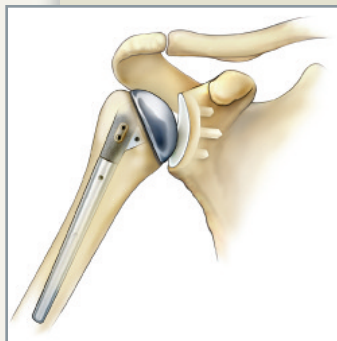
The deltoid muscle is a thick triangular muscle covering the shoulder joint and is used to raise the arm from the side. The rotator cuff is composed of four tendons that attach to the top of the humerus and provide mobility and strength to the shoulder. The glenoid socket and humeral head are both cushioned by articular cartilage (surface cartilage).



Normal Anatomy of the Shoulder

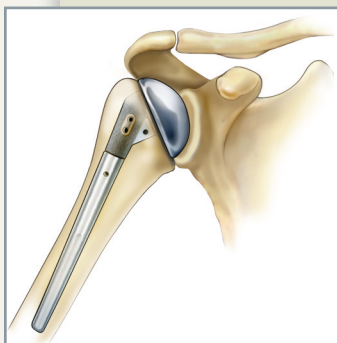
Arthritic Shoulder

Shoulder Replacement: Today's Options



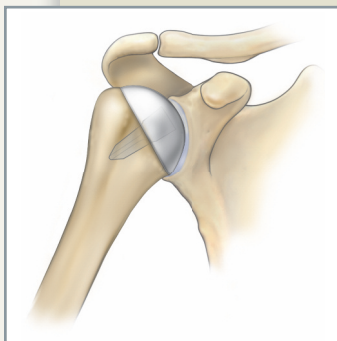
Total Shoulder Replacement

Total shoulder replacement, which involves replacing both sides of the joint – the ball and the socket, is recommended for patients who have severe arthritis that is causing pain, stiffness, and limited motion.



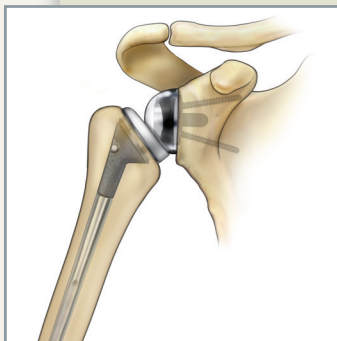
Hemiarthroplasty

This less invasive procedure involves replacement of the ball only. The socket portion is left intact. The procedure is for patients who do not have severe degeneration of the socket (glenoid).



Surface Replacement

Surface replacement removes less bone than a traditional hemiarthroplasty as only cartilage is removed.



Reverse Shoulder Replacement

Reverse shoulder replacement is reserved for patients who have arthritis and a chronic rotator cuff tear or in some instances a failed prosthesis and have no other treatment alternatives. In this procedure, the location of the prosthetic ball and socket components are switched to make use of healthy deltoid muscle rather than the damaged rotator cuff muscles to lift the arm.

A total shoulder replacement procedure can take up to two and a half hours to perform, depending on the severity of shoulder damage.

Shoulder Hemiarthroplasty or Surface Replacement

Hemiarthroplasty (hemi refers to half) is a partial shoulder replacement. This less invasive procedure can be performed if the shoulder's socket (glenoid) is relatively healthy and the surrounding soft tissues are intact. In this procedure, only the humeral head is replaced with a prosthesis. In surface replacement, more of the head is preserved as only the surface cartilage is removed. This can be accomplished through a smaller incision, reducing the soft-tissue trauma to the shoulder.

Reverse Shoulder Replacement

Older patients with arthritis and a chronic rotator cuff tear may be helped by a newer procedure called a reverse shoulder replacement. This procedure can also be used to revise a previous shoulder surgery that failed.

A reverse shoulder prosthesis is exactly how it sounds – the artificial implant is designed so that the ball and socket components are switched – the ball portion is attached to the shoulder socket rather than the humerus head and the socket is placed at the upper end of the humerus where the ball usually goes. This allows the patient to use the deltoid muscle covering the shoulder joint instead of the torn rotator cuff muscles to lift the arm.

Role of Anesthesiology

The surgeons of Columbia Orthopaedics work closely with a highly skilled anesthesiology team that has a great deal of experience in managing patients having shoulder/upper extremity surgery using an interscalene block – a procedure that selectively anesthetizes the extremity. General anesthesia may be necessary, but the majority of patients do well with just the regional block. The block also provides pain relief up to eighteen hours after the operation.

In addition, our anesthesiologists are available for consultation if needed in administering post-operative pain management.

The Road to Recovery

Patients who have total shoulder replacement remain in the hospital for about two days. It is important to maintain motion in the shoulder, and physical therapy is begun on the first post-operative day and continued throughout the hospital stay.

Patients return home with their arm in a sling to be worn for three weeks. The arm is removed from the sling for physical therapy and home exercises. The sling should also be worn during sleep, and the arm should be elevated using a pillow. Patients are advised to ice the site three times a day and continue with formal physical therapy two to three times a week to increase range of motion. Patients can shower on the second post-operative day.

The majority of patients undergoing shoulder replacement will have excellent pain relief and start active range of motion within six weeks. At six weeks, patients begin strengthening exercises with light weights and resistance bands. By twelve weeks, both strength and function of the shoulder should be dramatically improved.

Q&A

There are many questions on the minds of our patients who are candidates for shoulder replacement surgery. This Q & A addresses some of the issues you will want to discuss with your orthopaedic surgeon as you prepare for your procedure and recovery.

Why do I need shoulder replacement?

If you have severe arthritis causing unrelenting pain and stiffness in your shoulder, and you are unable to lift your arm for such basic activities as washing, dressing, or eating, you may be a candidate for shoulder replacement.

Can cortisone injections help?

Injections can only provide short-term relief, but multiple injections are not recommended.

Am I a candidate for minimally invasive shoulder replacement?

Today, orthopaedic surgeons can perform a partial shoulder replacement (hemiarthroplasty or surface replacement) if the joint socket is not damaged and only the ball of the shoulder joint needs to be replaced. Your doctor will discuss the various options open to you.

What type of anesthesia is used?

Most patients receive a regional block. While you will be sedated, it is unlikely you will require general anesthesia and therefore your recovery will be quicker and easier. Your anesthesiologist will speak with you before the procedure and address any of your questions or concerns.

How will my pain be managed?

Your surgical team will also oversee your pain management needs. Throughout your hospital stay, you will be given either intramuscular, intravenous, or oral pain medications to keep you comfortable. Upon discharge, you will be given a prescription for oral narcotics to be taken at home. As your pain level decreases, you will be able to decrease the doses.

How long will my recovery take?

With regular physical therapy, range of motion should be nearly restored within six weeks. With continued strengthening exercises, both strength and function of your shoulder should be dramatically improved at three months, with complete recovery within a year after surgery.

How long is my shoulder replacement expected to last?

Your shoulder replacement should last 15 to 20 years, depending on the quality of your bone and soft tissue at the time of surgery and your current activity level.

For more information, please visit our website
www.nyp.org/columbiaortho

When can I begin driving?

You should be able to drive once you are out of the sling (~three weeks) and no longer need oral narcotics for pain relief. First, you must check with your surgeon.

When can I remove the sling?

You can take the sling off for showering and to do your elbow, wrist, and finger exercises on post-op day 1. However, you must wear your sling in public and at night for sleeping for the first three weeks.

When can I return to work?

This really depends on the individual patient specifically with respect to job demands (labor vs. desk job). Some patients return to work as soon as ten days post-operatively and others require a longer time away from work if “limited duty” is not available.

How long will I have physical therapy after the surgery?

A typical therapy program will last three months. The first phase of therapy is designed to safely regain your range of motion while the second phase of therapy is directed at regaining function, strength and endurance.

How much pain will I have?

Shoulder replacement is very manageable and well tolerated for the majority of patients. Usually oral pain medications are used as needed for a short period of time.

When should I call the office with concerns?

If you experience any signs of infection (increased swelling, redness, drainage from the incisions (not clear fluid from the arthroscopy but yellowish, thick fluid like pus), warmth, fever >101.8, chills, or severe pain unrelieved by prescribed medications), you should contact our office immediately.

Will the alarms go off at the airport?

Your shoulder replacement may activate metal detectors required for security in airports and some buildings. Tell the security agent about your shoulder replacement if the alarm is activated.

Why should I choose ...

NewYork-Presbyterian Columbia ORTHOPAEDICS

NewYork-Presbyterian Hospital/Columbia University Medical Center in conjunction with its academic partner Columbia University College of Physicians and Surgeons comprise one of the leading academic medical centers in the nation. NewYork-Presbyterian/Columbia provides state-of-the-art inpatient, ambulatory and preventive care in all areas of medicine, and is committed to educating and training future generations of health care professionals, as well as conducting basic research with the goal of translating discoveries into new therapies for fighting disease and improving health. NewYork-Presbyterian Hospital is rated one of the top hospitals in America by *U.S. News and World Report*.

Outstanding Care for Orthopaedic Conditions

NewYork-Presbyterian Columbia Orthopaedics provides care through services focused on the following specialty areas:

- Foot and Ankle
- Hand and Microvascular
- Hip and Knee
- Pediatric Orthopaedics
- Shoulder, Elbow and Sports Medicine
- Spine
- Sports Therapy
- Trauma
- Tumor and Bone Disease

At the Forefront of Research

The department's Center for Orthopaedic Research investigates novel therapeutic concepts through translational studies that bridge basic science and clinical practice. Current and prior research activities include research on the molecular pathophysiology of shoulder rotator cuff disorders, molecular mechanism of osteolysis, osteoblast biology, sarcoma research, molecular mechanism of bone regeneration, normal function of diarthrodial joints, osteochondral healing, and growth plate abnormalities.

Decades of Distinction

The origins of NewYork-Presbyterian Columbia Orthopaedics date back to the founding of the New York Orthopaedic Hospital, which opened in the mid-1800's to treat needy children afflicted by diseases of the musculoskeletal system. In 1950, New York Orthopaedic Hospital – which is also home to one of the nation's oldest orthopaedic training programs – joined Columbia Presbyterian Medical Center, now NewYork-Presbyterian/Columbia, in upper Manhattan.

Over the years, our surgeons have advanced the discipline through pioneering work and groundbreaking research in the diagnosis and treatment of orthopaedic conditions. Their achievements have profoundly influenced the techniques that are today helping to restore mobility and function to patients of all ages.

Affiliated with Columbia University College of Physicians and Surgeons, one of the most prestigious medical schools in the country, NewYork-Presbyterian Columbia Orthopaedics remains dedicated to providing the highest quality musculoskeletal care, pursuing innovative research, and training top orthopaedic surgeons of the future.