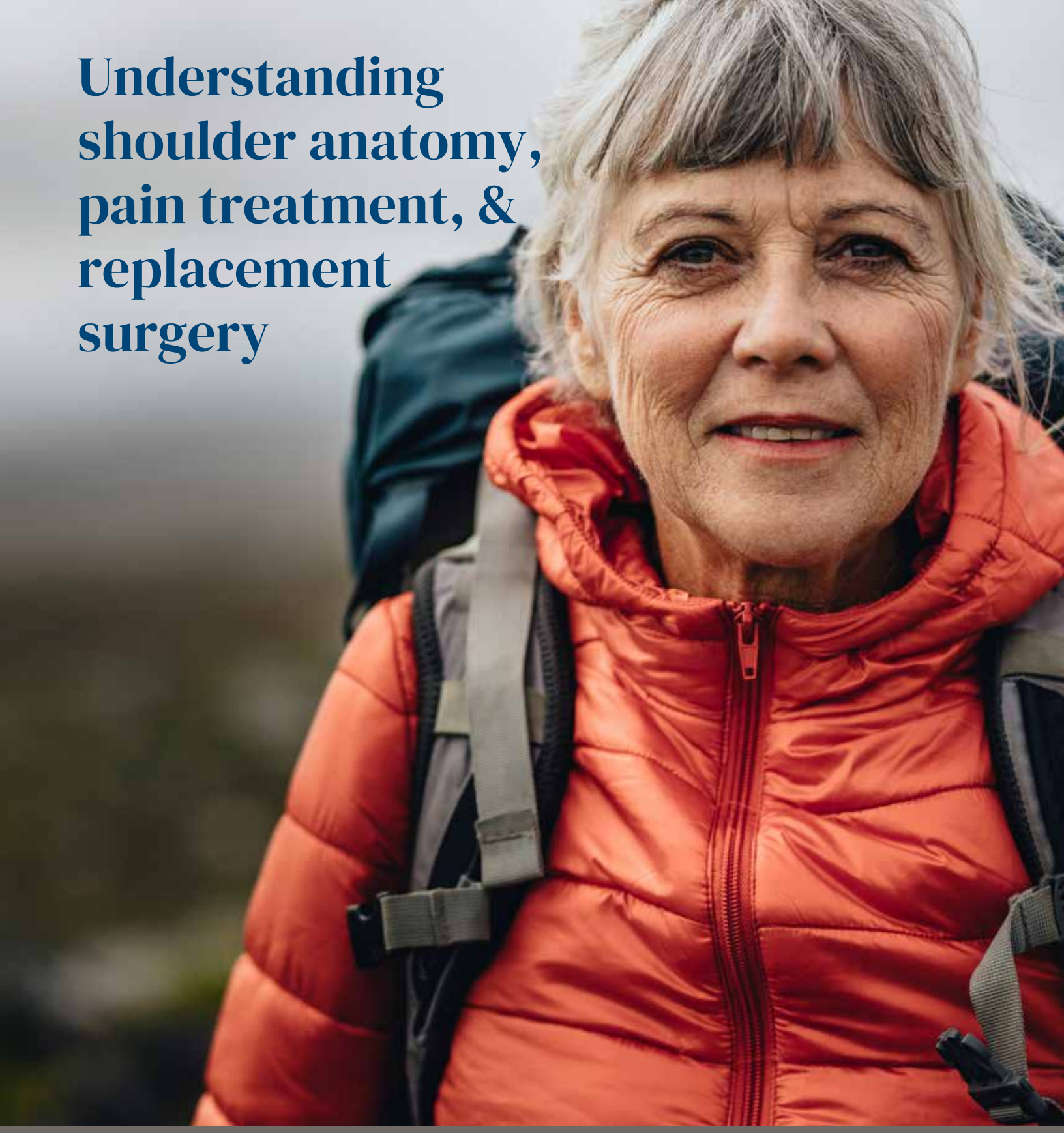
Understanding shoulder anatomy, pain treatment, & replacement surgery



FOI

FLORIDA ORTHOPAEDIC INSTITUTE®

YOUR SHOULDER

The shoulder is a unique joint with the greatest range of motion of any joint in the body. The shoulder, which is considered a ball-and-socket joint, can rotate, spin, and translate, allowing for a global movement to position the hand anywhere in space.

Unlike the hip joint (which is also considered a ball-and-socket joint), the shoulder is not as constrained within the bony anatomy. Over time, the shoulder may become painful and weak, requiring medical attention.

In this brochure, you will learn more about how the shoulder works and about some of the potential treatment options available to you.

UNDERSTANDING SHOULDER PAIN

Most people don't think about the movement of their joints until their joints become diseased and painful.

Normally, your shoulder joint moves easily, but when you have arthritis or a shoulder injury, the pain can severely limit your ability to move and enjoy life.

This brochure will help you understand shoulder anatomy, treatment options for your shoulder pain, and total shoulder replacement surgery. Understanding your options will help you choose the best course of treatment to relieve your pain.

Although shoulder replacement is less common than hip or knee replacement, it can relieve severe shoulder pain and restore function in many patients.

As you read, make a note of anything you don't understand. Your doctor will be happy to answer your questions so that you'll feel comfortable and confident with your chosen treatment plan.

HOW THE SHOULDER WORKS

The shoulder is a ball-and-socket joint with three main bones: the upper arm bone (humerus), shoulder blade (scapula) and collarbone (clavicle).

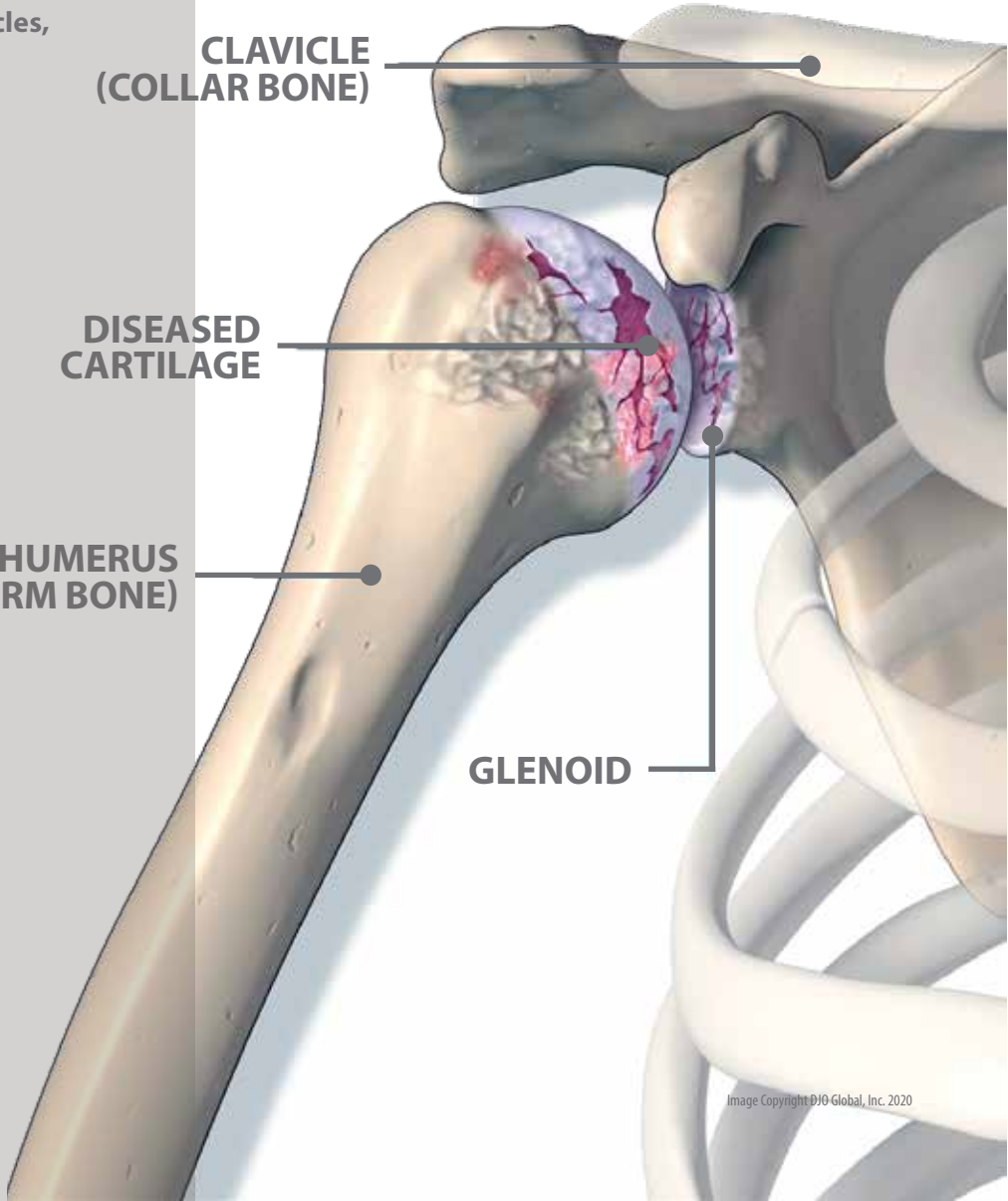
The glenohumeral joint, also known as the shoulder joint, is a ball-and-socket that connects the humerus to the shoulder blade. This joint allows free movement of the arm so that it can rotate in a circle. The acromioclavicular joint is the second joint of the shoulder made up of the clavicle (collar bone) and the acromion (the top ridge of the shoulder blade).

In a healthy shoulder, the joint is supported by the muscles that surround the shoulder. Shoulder movement is created and controlled by the delicate interactions of 30+ muscles, tendons, and ligaments.

The rotator cuff is a group of muscles and tendons that enable the arm to lift, reach overhead, and do activities such as throwing and swimming.

It is made up of four muscles and their tendons, which act to hold the upper arm (humerus) to the socket of the shoulder (glenoid fossa). The rotator cuff also provides mobility and strength to the shoulder joint.

A smooth substance called articular cartilage covers the surface of the bones where they touch each other within a joint. This articular cartilage acts as a cushion between the bones.



WHAT CAUSES SHOULDER JOINT PAIN?

One of the most common causes of joint pain is arthritis. Arthritis is a condition that affects the cartilage of the joints. As the cartilage lining wears away, the protective lining between the bones is lost. When this happens, painful bone-on-bone arthritis develops. Severe shoulder arthritis is quite painful and can cause restriction of motion. While this may be tolerated with some medications and lifestyle adjustments, there may come a time when surgical treatment is necessary. The most common types of arthritis are:

OSTEOARTHRITIS (OA): Sometimes called degenerative arthritis because it is a "wearing out" condition involving the breakdown of cartilage in the joints. When the cartilage wears away, the bones rub against each other, causing pain and stiffness.

Shoulder OA commonly occurs many years following a shoulder injury (such as a dislocation) that led to joint instability and repeated shoulder dislocations. These damage the shoulder joint so that OA develops.

RHEUMATOID ARTHRITIS (RA): Produces chemical changes in the joint space that cause it to become thickened and inflamed. In turn, the synovial fluid (fluid that reduces friction between the articular cartilage of synovial joints during movement) destroys cartilage. The result is cartilage loss, pain, and stiffness.

POST-TRAUMATIC ARTHRITIS: May develop after an injury to the joint in which the bone and cartilage do not heal properly. The joint is no longer smooth, and these irregularities lead to more wear on the joint surfaces.

OTHER CAUSES OF JOINT PAIN: Include avascular necrosis, which can result when a bone is deprived of its normal blood supply (for example, after organ transplantation or long-term cortisone treatment), and deformity or direct injury to the joint.

SEVERE ROTATOR CUFF DAMAGE

Cuff tear arthropathy may develop after a significant injury to the rotator cuff muscles. In the presence of cuff tear arthropathy, multiple bony and soft tissue changes are present, which may decrease the function and strength of your arm. In patients with severe rotator cuff damage, the joint can become unstable, severely restricting the range of motion. Over time, the out-of-balance joint can wear down the lubricating cartilage between bones. Bone starts to rub against bone, causing the pain we know as osteoarthritis.

HAVING AN ORTHOPAEDIC EVALUATION

While every orthopaedic evaluation is different, there are many commonly used tests that an orthopaedic specialist may consider in evaluating a patient's condition. The orthopaedic evaluation may consist of:

- A thorough review of your medical history.
- A physical examination.
- X-rays or other advanced imaging studies like a CT scan, or MRI to reveal loss of joint space, soft tissue (rotator cuff) damage, and bony changes.
- Additional tests as needed. These may include laboratory testing of blood, urine, or joint fluid or a bone scan of the joint and surrounding soft tissue.

Following an orthopaedic evaluation, the orthopaedic specialist will review and discuss the results with you. Based on their diagnosis, your treatment options may include:

- Medications, which may include cortisone injections for temporary pain relief.
- Physical therapy.
- Shoulder joint replacement.

TREATMENT OPTIONS

Shoulder replacement can be beneficial to individuals who have severe arthritis of the shoulder joint, rotator cuff damage, or a combination of both.

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

WHAT IS SHOULDER REPLACEMENT SURGERY?

Shoulder replacement surgery is intended to relieve pain, restore some function in the shoulder, and increase the range of motion. Total shoulder replacement surgery involves the replacement of the head of the upper arm bone (humerus) with a stem prosthesis and the socket (glenoid). A partial shoulder replacement or hemiarthroplasty involves the replacement of only the head of the humerus with a metal ball and stem prosthesis. The type of surgery performed depends on the patient's specific diagnosis.

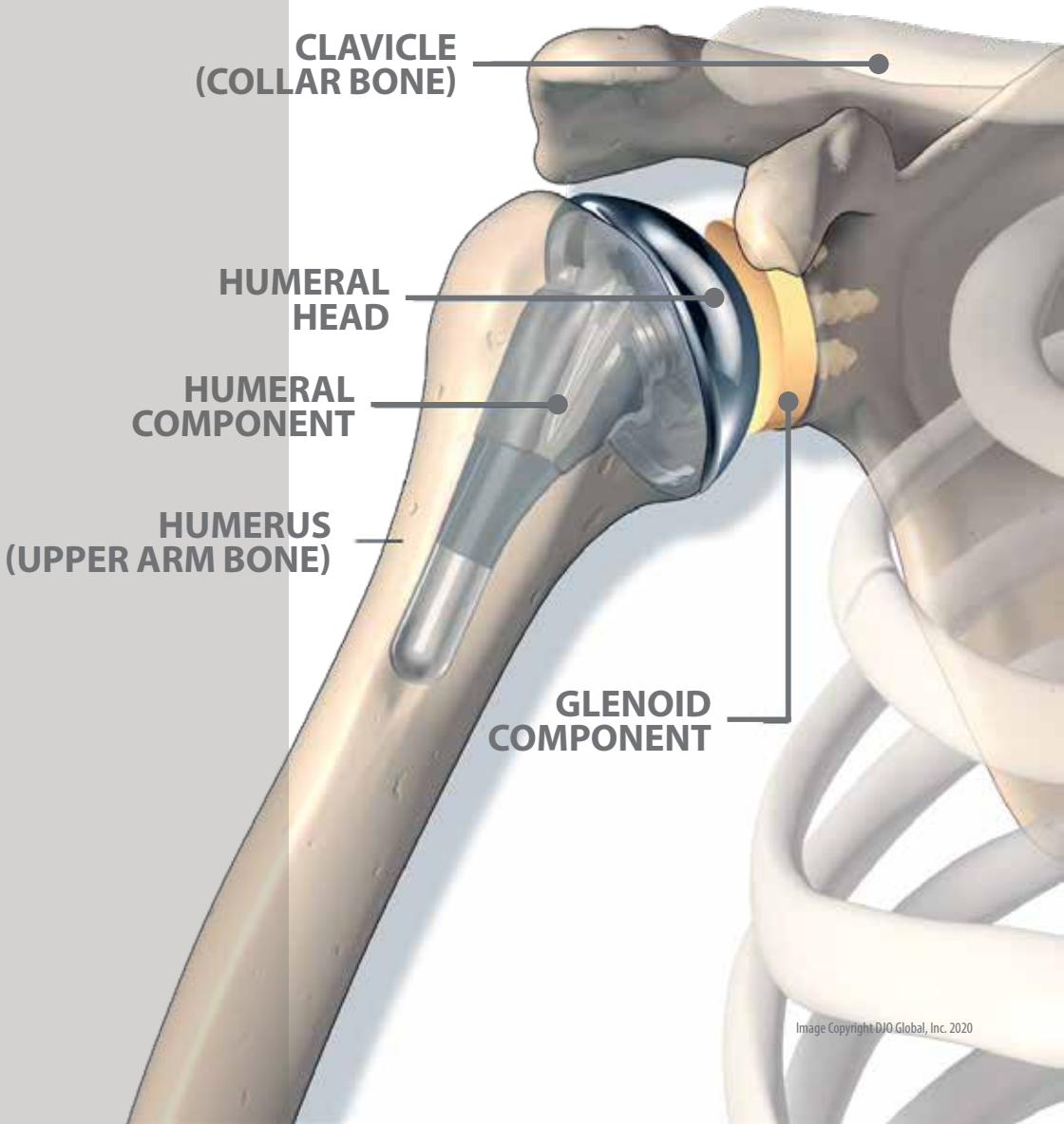
The surgical approach or incision for a TSA (Total Shoulder Arthroplasty) and RSA (Reverse Shoulder Arthroplasty) are very similar and involve the restoration of the ball (humeral head) and socket (glenoid implant).

TOTAL SHOULDER REPLACEMENT

Total shoulder replacement replaces both sides of the joint - the ball and the socket. It is recommended for patients who have severe arthritis that is causing pain, stiffness, and limited motion. With a total shoulder replacement, the humeral head is replaced with a spherical shaped component that fits onto a stem placed inside the humeral bone, and a special plastic (polyethylene) socket is cemented into the glenoid socket.

ALTIVATE® ANATOMIC SHOULDER PROSTHESIS

The AltiVate® Anatomic Shoulder is designed for patients with severe shoulder arthritis. It's designed to alleviate pain and limited mobility associated with osteoarthritis by replacing the worn-out surfaces of the shoulder with anatomic bone conserving implants.



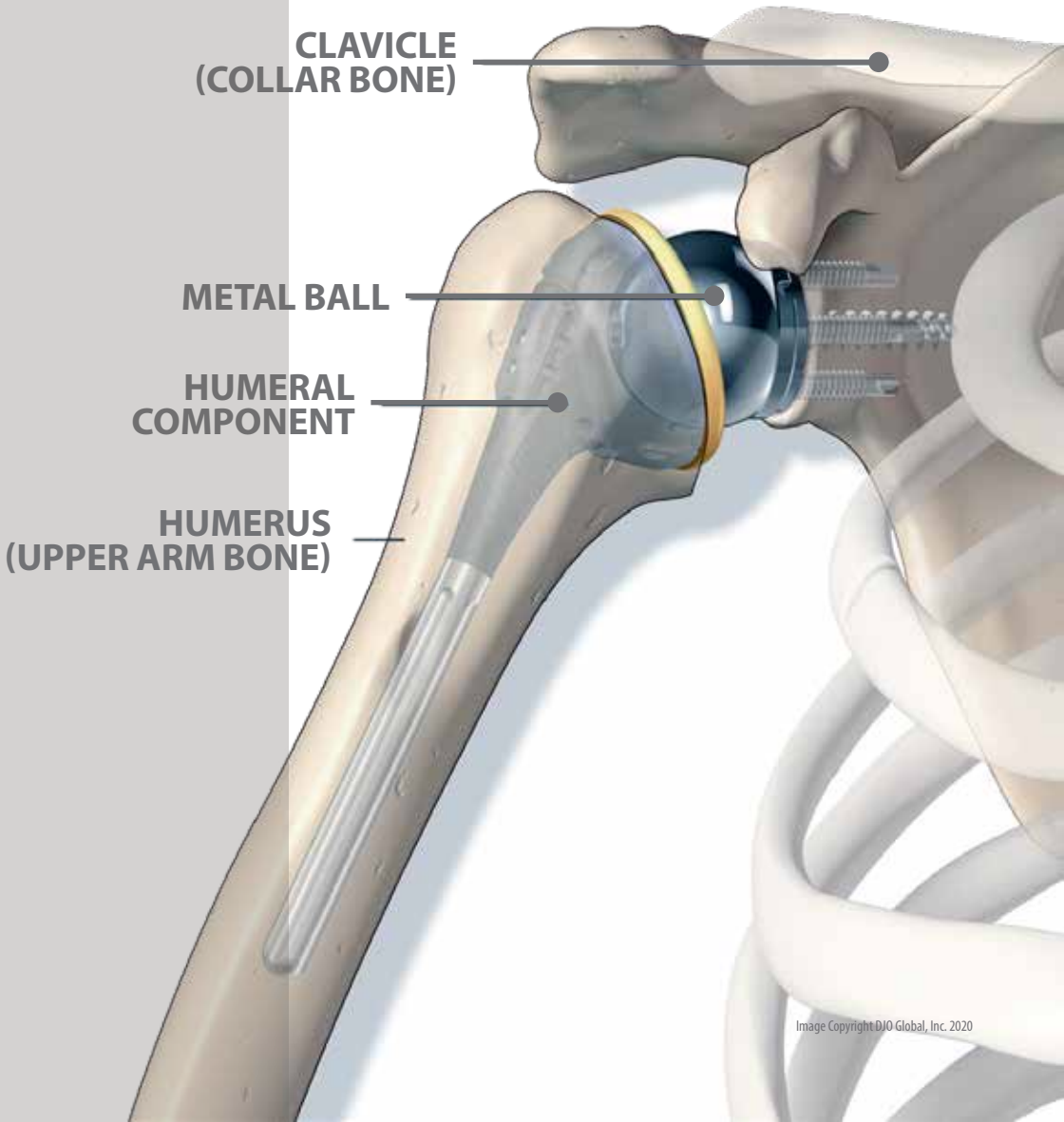
REVERSE TOTAL SHOULDER REPLACEMENT

Reverse shoulder replacement is 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. The metal and polyethylene implants mimic the anatomy of the natural shoulder but reverse it to stabilize the joint.

With a reverse shoulder replacement, the surgeon places a spherical shaped component onto a baseplate that is secured into the glenoid vault with three or more screws, reversing the joint. A new socket is placed on the humerus bone to complete the surgery.

ALTIVATE® REVERSE SHOULDER PROSTHESIS

For those patients with severe deterioration of their shoulder joint, anatomic shoulder implants cannot necessarily address both arthritis and rotator cuff damage. The AltiVate® Reverse® Shoulder is designed to compensate for the damaged rotator cuff and help reduce the painful symptoms of arthritis. The design is based on the clinically successful Reverse Shoulder Prosthesis (RSP®), whose clinical results show improved patient outcomes for at least ten years after surgery.



PREPARING FOR SURGERY

Preparing for shoulder replacement surgery begins weeks before the actual surgery. The checklist below outlines some tasks that your surgeon may ask you to complete in the weeks before your surgery date.

- **Exercise under your doctor's supervision.**
- **Have a general physical examination.**
- **Have a dental examination.**
- **Review medications.**
- **Stop smoking.**
- **Lose weight.**
- **Arrange a pre-operative visit.**
- **Get laboratory tests.**
- **Complete forms.**
- **Prepare meals.**
- **Confer with a physical therapist.**
- **Plan for post-surgery rehabilitative care.**
- **Fast the night before.**
- **Bathe surgical area with an antiseptic solution.**

THE DAY OF SURGERY

Every hospital has its own procedures but shoulder replacement patients may expect their day-of-surgery experience to follow this basic routine:

- **Arrive at the hospital at the appointed time.**
- **Complete the admission process.**
- **Final pre-surgery assessment of vital signs and general health.**
- **Final meeting with anesthesiologist and operating room nurse.**
- **Start IV (intravenous) catheter for administration of fluids and antibiotics.**
- **Transportation to the operating room.**
- **Joint replacement surgery.**
- **Transportation to a recovery room.**
- **Ongoing monitoring of vital signs until the condition is stabilized.**
- **Transportation to an individual hospital room.**
- **Ongoing monitoring of vital signs and surgical dressing.**
- **Pain Management-Your doctor may offer you pain medication to help you move around with less discomfort.**
- **Orientation to hospital routine.**
- **Evaluation by a physical therapist.**
- **Diet of clear liquids or soft foods, as tolerated.**
- **Begin post-op activities taught during the pre-operative visit.**

RECOVERING FROM SURGERY

Although the recovery process varies for each patient, here's what you might expect in the days following surgery.

Your orthopaedic surgeon, nurses, and physical therapist will closely monitor your condition and progress.

When you are medically stable, the physical therapist will recommend specific exercises for the affected joint.

To ease the discomfort, pain medication is recommended prior to therapy. Gradually, your pain medication will be reduced, the IV will be removed, your diet will progress to solids, and you will become increasingly mobile.

The physical therapist will discuss plans for rehabilitation following hospital discharge. Your physical therapist will also go over exercises to help improve your mobility.

Depending on your limitations, an occupational therapist may provide instruction on how to use certain devices that assist in performing daily activities, such as dressing, reaching for household items, and bathing.

Tips for post-op care:

1. **Call your surgeon to report or discuss any post-op concerns.**
2. **Ask your doctor about how to care for the wound.**
3. **Ask your doctor about any unusual symptoms that you should look out for after surgery.**

FREQUENTLY ASKED QUESTIONS

How do I know if I am ready for shoulder replacement surgery?

Generally, a patient who has tried the usual treatments for shoulder arthritis, but has not been able to find adequate relief, may be a candidate for shoulder replacement surgery.

Patients who have severe arthritis, irreparable rotator cuff damage, or both that cause unrelenting pain and stiffness in the shoulder, and who are unable to lift their arm for basic activities such as washing, dressing, or eating, may be a candidate for shoulder replacement.

Always consult with your surgeon on whether you are a candidate or ready for shoulder replacement surgery.

What are my expectations after the surgery, and are there any risks?

Patients considering the procedure should understand the potential risks of surgery, and understand that the goal of a joint replacement is to alleviate pain. Patients generally find improved motion after surgery, but these improvements are not as consistent as the pain relief following shoulder replacement surgery.

Risks of surgery include risks of general anesthesia, which tend to be dependent on other medical issues you may have. Consult your surgeon on the specific risks of shoulder replacement surgery that may include infection, dislocation/instability, loosening of the implant, or damage to the nerve or blood vessels.

What is involved in the surgical procedure?

The surgical procedure is conducted under general or local anesthesia and generally takes about a few hours to complete.

What is involved in the recovery process?

Patients will work with a physical therapist to resume daily activities and strengthen shoulder muscles.

How long before I can resume activities?

Most patients can return to activities within a few months.

How much pain will I have?

Shoulder replacement is manageable and well-tolerated for the majority of patients. Consult your surgeon about the specifics to post-surgery pain management.

Will the alarms go off at the airport?

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

DJO Surgical offers Patient ID cards to help inform security, medical, and other related agency or personnel about your shoulder replacement.

Why is the AltiVate™ Reverse• product important news?

The AltiVate Reverse addresses severe shoulder arthritis, irreparable rotator cuff damage, and complex upper arm fractures. However, the AltiVate Reverse was anatomically designed with extended size options to fit a broader range of patients.

What makes the DJO Reverse Systems unique?

The RSP systems are built upon an exclusive design that reverses the shoulder anatomy to resist the pull of the shoulder deltoid muscle effectively. For patients, this could mean a greater range of motion and relief from pain.

What are the benefits of the DJO Reverse Systems to the patient?

When indicated for cuff tear arthropathy (CTA) with one of the DJO Reverse systems, the patient has the potential for a greater range of motion compared to conventional shoulder implants.

What are the benefits of the DJO Surgical AltiVate™ Portfolio to the patient?

With the DJO Surgical AltiVate™ Portfolio, patients have greater options in their shoulder replacements to address severe shoulder arthritis and irreparable rotator cuff damage compared to conventional shoulder replacement implants.

IMPORTANT INFORMATION

General indications: Shoulder joint replacement is intended for use in individuals with joint disease resulting from degenerative, rheumatoid, and post-traumatic arthritis. The joint must be anatomically and structurally suited to receive the selected implant(s), and a functional deltoid muscle is necessary to use the device.

Contraindications: Shoulder joint replacement surgery is not appropriate for patients with certain types of infections, any mental or neuromuscular disorder which would create an unacceptable risk of prosthesis instability, prosthesis fixation failure or complications in post-operative care, compromised bone stock, skeletal immaturity, patients whose anticipated activities would impose high stresses on the prosthesis, and obesity.

Common side effects of shoulder joint replacement surgery: As with any surgery, shoulder joint replacement surgery has serious risks which include, but are not limited to, peripheral neuropathies (nerve damage), circulatory compromise (including deep vein thrombosis), genitourinary disorders, gastrointestinal disorders, vascular disorders (including thrombus (blood clots), blood loss, or changes in blood pressure or heart rhythm), bronchopulmonary disorders (including emboli, stroke or pneumonia), heart attack, and death.

Implant related risks which may lead to a revision include dislocation, loosening, fracture, nerve damage, heterotopic bone formation (abnormal bone growth in tissue), wear of the implant, metal sensitivity, osteolysis (localized progressive bone loss), and reaction to particle debris. Shoulder implants may not provide the same feel or performance characteristics experienced with a normal healthy joint.

Complications: As with any surgery, joint replacement carries certain risks. Your surgeon can explain all the possible complications and risks associated with the surgery, as well as side effects in greater detail. It is important to discuss both surgery and implant-related risks with your physician. A list of some potential risks associated with shoulder replacement surgery includes, but is not limited to infection, blood clots, lung congestion, or pneumonia, metal allergies, glenoid loosening, erosion of unresurfaced glenoid, humeral loosening, stress fracture, dislocation, and persistent pain.

FLORIDA ORTHOPAEDIC INSTITUTE®

Keeping you active.

Appointment line
(813) 978-9797