Anatomic vs Reverse Total Shoulder Replacement

Patient Handout

University of Colorado Anschutz Medical Campus

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Introduction:

Shoulder arthritis or injury can cause pain, stiffness, and loss of function. When non-surgical treatments don't provide relief, shoulder replacement surgery may be recommended. Two common types of shoulder replacement are Anatomic Total Shoulder Replacement (ATS) and Reverse Total Shoulder Replacement (RTS). Each type is designed for different conditions and has unique benefits. This handout explains the differences between the two and helps you understand which might be the best option for you.

What is Anatomic Total Shoulder Replacement (ATS)?

An **Anatomic Total Shoulder** is the more traditional form of shoulder replacement. It is designed to mimic the natural anatomy of the shoulder joint, which is a ball-and-socket joint. In an anatomic shoulder replacement:

- **The ball (humeral head)** is replaced with a metal ball.
- **The socket (glenoid)** is replaced with a plastic liner.

The components are designed to work in the same way as your natural shoulder, using the rotator cuff muscles to allow smooth movement.

Best for:

- Patients with **intact rotator cuff muscles** (those muscles that stabilize and move the shoulder).
- Conditions like **primary osteoarthritis**, **post-traumatic arthritis**, or **rheumatoid arthritis**.

Expected Benefits:

- Restores a natural range of motion.
- Can improve strength and function in patients with healthy rotator cuff muscles.
- More predictable results for patients with intact shoulder muscles.

What is Reverse Total Shoulder Replacement (RTS)?

A **Reverse Total Shoulder** replacement is a specialized design that changes the normal anatomy of the shoulder. In this procedure:

- **The ball** is placed on the **glenoid** (socket).
- **The socket** is placed on the **humerus** (upper arm bone).

This design essentially "reverses" the anatomy, which allows the **deltoid muscle** (the large muscle on top of your shoulder) to take over the role of moving the arm, instead of the rotator cuff muscles.

Best for:

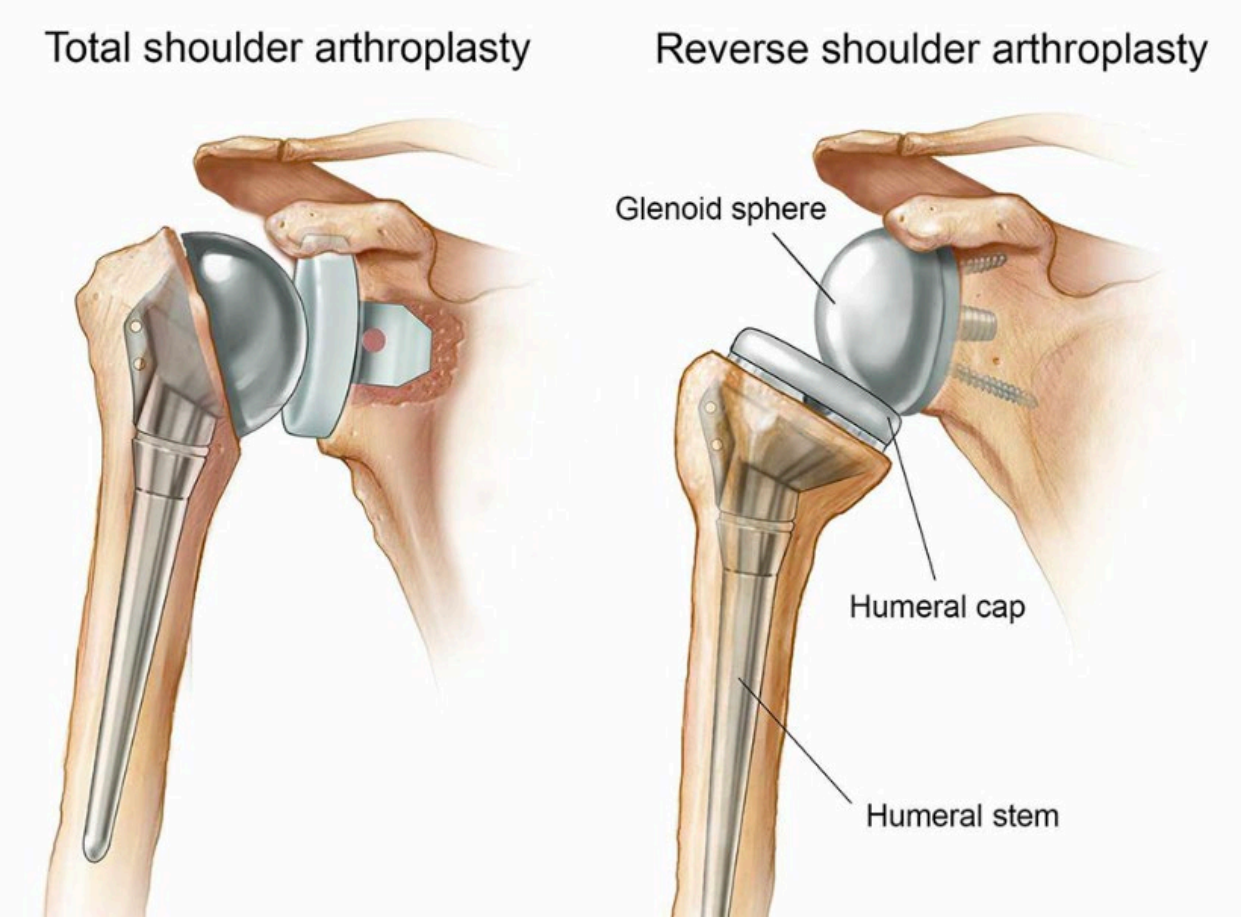
- Patients with **irreparable rotator cuff tears**, where the rotator cuff muscles are no longer functioning or have been damaged beyond repair.
- Conditions like **shoulder arthritis with rotator cuff deficiency**, **rotator cuff tear arthropathy**, or **post-traumatic arthritis with massive rotator cuff tears**.

Expected Benefits:

- Restores function and mobility even if the rotator cuff muscles are damaged.
- The **deltoid muscle** compensates for the lack of rotator cuff function, allowing for improved arm movement and strength.
- Can relieve pain and improve daily function for patients who cannot undergo a traditional anatomic shoulder replacement due to rotator cuff issues.

Key Differences Between Anatomic and Reverse Shoulder Replacement

Feature	Anatomic Total Shoulder (ATS)	Reverse Total Shoulder (RTS)
Anatomy	Maintains normal ball-and-socket anatomy.	Reverses the ball and socket to rely on the deltoid muscle.
Rotator Cuff	Requires intact rotator cuff muscles.	No need for functioning rotator cuff muscles.
Ideal Candidates	Healthy or intact rotator cuff muscles.	Rotator cuff tear or damage, arthritis with rotator cuff deficiency.
Movement	Relies on the rotator cuff muscles for movement.	Deltoid muscle compensates for lack of rotator cuff function.
Pain Relief	Restores pain-free motion if the rotator cuff is intact.	Relieves pain even with massive rotator cuff damage.
Expected Recovery	Typically in sling for 6 weeks. Most functional recovery occurs in first 4-6 months, strength can continue to improve for up to 1 year	Slightly faster initial recovery with less time in sling. Most functional recovery in first 4-6 months, strength can continue to improve for up to 1 year



How is the Surgery Performed?

1. **Anatomic Shoulder Replacement (ATS):**
    - The surgeon removes the damaged parts of the humeral head (ball) and glenoid (socket).
    - New components made of metal and plastic are placed to mimic the natural ball-and-socket joint.
    - The rotator cuff is preserved and the surgery focuses on restoring normal anatomy.
2. **Reverse Shoulder Replacement (RTS):**
    - The surgeon removes the damaged humeral head and glenoid.
    - The components are "reversed"—the ball is placed on the glenoid and the socket on the humerus.
    - The surgery helps shift the workload to the deltoid muscle, bypassing the need for functioning rotator cuff muscles.

What to Expect After Surgery:

- **Recovery Time:**
    - Both surgeries typically require **physical therapy** for rehabilitation.
    - Both surgeries rely on return and improvement of muscle function for full recovery which can take several months
    - ATS requires slightly longer time in a sling after surgery, usually about 6 weeks. RTS typically has slightly faster initial recovery with less time in a sling, usually 2-4 weeks.
    - The majority of functional improvement (~90%) occurs within the first 4-6 months after surgery
    - You may continue to improve in terms of function for up to one year after surgery
- **Pain Management:**
    - Pain usually improves significantly after surgery, but it may take several months to achieve full relief.

    - Expect to work closely with your healthcare team to manage pain and discomfort post-surgery.

- **Outcome Expectations:**
    - Both surgeries can improve function, strength, and reduce pain, but the outcome depends on factors like your age, activity level, and the severity of your shoulder condition.

Conclusion:

- Choosing between **Anatomic Total Shoulder Replacement** and **Reverse Total Shoulder Replacement** depends on the condition of your shoulder joint and the health of your rotator cuff muscles. Your surgeon will carefully evaluate your individual needs and recommend the procedure that will give you the best chance for pain relief and improved function.
- If you have any further questions about the procedure or the recovery process, be sure to discuss them with your orthopedic surgeon.