

Anatomic Total Shoulder Replacement

WHY MIGHT I NEED AN ANATOMIC TOTAL SHOULDER ARTHROPLASTY?

An anatomic total shoulder arthroplasty (TSA) is a traditional shoulder replacement that is used to treat osteoarthritis of the glenohumeral (shoulder) joint. Less commonly, it can also be used to treat conditions such as posttraumatic arthritis, rheumatoid arthritis, or avascular necrosis (collapse of the ball due to disruption of blood supply).

HOW DOES AN ANATOMIC TSA IMPROVE MY CONDITION?

In an anatomic TSA, the painful surfaces of the damaged shoulder are replaced with artificial parts. The “ball” (humeral head) is replaced with a round metal head (usually cobalt chrome or titanium) which is attached to the bone by a metal stem. The “socket” (glenoid) is replaced by a smooth plastic (polyethylene) concave shell. Although the plastic is not visible on x-ray, it does give the shoulder a visible joint space again. By removing the arthritic surfaces, pain is improved. Additionally, at the time of surgery, stiff and inflamed tissue is released in order to improve shoulder motion and pain.

WHAT DOES AN ANATOMIC TSA LOOK LIKE AND ARE THERE DIFFERENT TYPES?

On the humeral side, a metal stem is placed inside the bone. Attached to the stem is a metal ball. In general, the largest differences in implant options for a TSA are related to the humeral stem. The most common options include stemless (canal sparing) implants (Figure 1) or short-stemmed implants (Figure 2). The decision to use one type of implant over the other is typically based on patient-specific factors, which Dr. Schuette will discuss with you.



Figure 1: Stemless
anatomic TSA



Figure 2: Short
stem anatomic TSA

DO I NEED ANY SPECIAL TESTS BEFORE MY ANATOMIC TSA?

In addition to normal preoperative labs, Dr. Schuette will obtain a CT scan of your shoulder. This allows him to virtually plan and perform your surgery ahead of time. This is done by using a special computer program (Figure 3). By doing this, Dr. Schuette is able to better understand each patient's individual anatomy, plan for the appropriate implant sizes, and in some cases, order patient specific instrumentation and guides. This has been a great tool in Dr. Schuette's practice and allows him to personalize each patient's shoulder replacement.

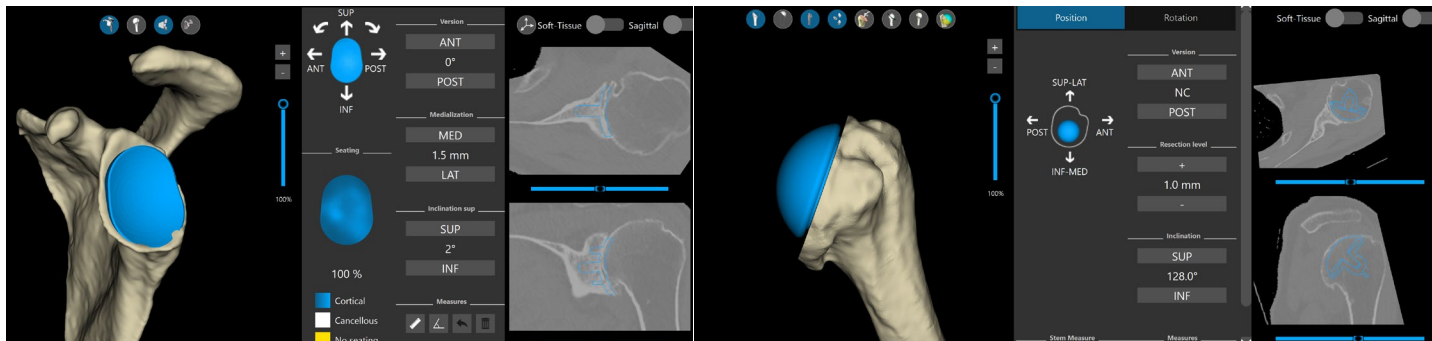


Figure 3: A virtual plan for an anatomic TSA

HOW LONG WILL MY ANATOMIC TSA LAST?

Several factors will impact how long your implant will last. In general, patients who are older, do not frequently participate in high demand activities, and have a healthy rotator cuff will have a longer lasting implant. The survivorship, or likelihood that you will still have your original anatomic TSA is about 90-95% at 10 years, 85-90% at 15 years, and 70-85% at 20 years.¹ However, in patients under the age of 60, the 10-year survivorship has been reported to range between 62-85%.²⁻⁴

WHAT PERCENT OF PATIENTS ARE SATISFIED AFTER AN ANATOMIC TSA?

According to our internal data, as well as published data, about 90-95% of patients are very satisfied or satisfied following aTSA.⁷

WHAT ARE THE MOST COMMON COMPLICATIONS AFTER AN ANATOMIC TSA?

The most common complications following anatomic TSA include glenoid component (plastic) loosening, rotator cuff dysfunction, and a deep shoulder infection known as a periprosthetic joint infection (PJI). However, these all occur at very low rates.

Clinical glenoid loosening occurs when the plastic component becomes loose in the bone and results in pain or dysfunction. This occurs in about 2-3% of patients per year following anatomic TSA.^{1,5} This most commonly occurs due to increased stress on the component from overuse or a rotator cuff tear. Many patients tolerate glenoid loosening without significant issues; however, if pain or dysfunction becomes an issue, a revision (redo) surgery may be needed.

Like a normal shoulder, rotator cuff tears can negatively affect the function and outcomes of patients with an anatomic TSA. Rotator cuff tears and dysfunction after anatomic TSA occur in about 3% of patients in the short term but may occur in up to 16% of patients at longer-term follow up.^{5,6} Similar to glenoid loosening, many

patients with rotator cuff dysfunction may function without significant issues; however, revision surgery may be needed if pain or dysfunction becomes an issue.

PJI, or deep shoulder infection, occurs in about 1% of patients following an anatomic TSA.⁸ While rare, if a PJI does occur following anatomic TSA, revision surgery may be needed to remove and then reimplant a new shoulder replacement. Because of this, we take several preoperative, intraoperative, and postoperative measures to minimize our patients' risk of PJI.

FREQUENTLY ASKED POSTOPERATIVE QUESTIONS

How long will I stay in the hospital or surgery center after an anatomic TSA?

Most patients will stay in the hospital or care suite for 1 night. If needed, a hospital stay more than 1 night may be appropriate. Occasionally, patients may go home the same day of surgery.

What type of anesthesia is used for an anatomic TSA?

An interscalene brachial plexus nerve block along with general anesthesia is typically used for shoulder replacement surgery. You can discuss options for anesthesia with your anesthesiologist prior to surgery. A nerve block numbs the shoulder and arm during and after surgery. Depending on the type of block, this may last between 12 hours and 3 days.

How is surgical pain managed?

Pain after a surgical procedure is unavoidable but appropriate medication and ice therapy is implemented to manage pain. Additionally, your interscalene brachial plexus nerve block will help with immediate post operative pain. Most patients successfully manage pain with narcotics, Tylenol, anti-inflammatory medication, and ice. It is our goal to wean patients off narcotic medication within 1-2 weeks.

How long do I need to wear a sling?

The sling is meant to protect, not strictly "immobilize" the arm. The sling should be used intermittently for approximately 6 weeks after surgery. It is especially important to sleep in the sling and use it when out in a public place the first 6 weeks after surgery. Unless instructed otherwise, the sling should be removed at least 3 times a day in order to bend and straighten the elbow as well as perform passive shoulder motion exercises. Performing gentle hand exercises such as lightly squeezing a ball helps minimize swelling that can occur in the hand and fingers.

What are common problems experienced immediately after surgery?

Most people have some difficulty sleeping after shoulder surgery. In most cases, though, patients have also experienced sleep disturbances from their shoulder prior to surgery. Sleeping in a recliner or propped up on pillows can help. Over time, most people are able to sleep on the side that was operated on and will find that their overall sleep is significantly improved compared to prior to surgery.

Is physical therapy necessary after my shoulder replacement?

During the first week following surgery, physical therapy (PT) will not be needed. However, you will be instructed on gentle passive shoulder range of motion exercises that may be performed during the first few weeks. At your first postoperative visit, you will be provided with a PT order. We believe seeing a physical therapist is important, so the progression of activity is done in a safe manner, leading to the best possible result.

When can I start strengthening after my shoulder replacement?

While you will be able to progress your active motion and progressively return to daily activities at 6 weeks, we refrain from any strengthening until 3 months. At 3 months, light strengthening will be allowed with progressive strengthening at 4.5 months.

During anatomic TSA's, the subscapularis tendon (rotator cuff tendon in the front of the shoulder) is repaired at the end of the procedure. Healing of the subscapularis tendon is paramount to having a successful outcome following anatomic TSA. As a guideline, one can assume that the strength of the repair is only 30% of normal at 6 weeks postop, 50% of normal at 3 months postop, and improves to 80% of normal at 6 months postop.⁹ Because of this, we take a slow and gradual approach to strengthening in order to maximize our patients' outcomes.

When can I go back to my regular daily and physical activity?

The answer to this question varies for every individual depending on the activity. Cardiovascular exercise is important and encouraged after surgery; walking or riding a stationary bike without putting pressure on the operated arm are good activities to begin within the days or weeks after surgery. Most patients are able to independently perform all activities of daily living at 2-3 months following surgery.

When can I go back to work?

If work is more sedentary, such as computer-based work, returning a few days or weeks after surgery may be reasonable. For more physically demanding jobs it is important to discuss job requirements with Dr. Schuette to fully understand how the surgery may impact returning to work. Returning to a physically demanding job may take 4-6 months.

When can I return to activities such as golf, racket sports, jogging, and swimming?

In general, you will be allowed to chip and putt 3 months after surgery and return to full golf activities at 6 months. A similar progressive return to racket sports is recommended. Light jogging is allowed about 2-3 months after surgery. Swimming is allowed once full active shoulder range of motion has been achieved and light strengthening has begun; this is typically 3 months after surgery.

What is the typical rehab protocol following anatomic TSA?

Please see Dr. Schuette's "Universal Shoulder Protocol" on his website: TCOmn.com/Hayden-Schuette

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