

Total shoulder arthroplasty, or total shoulder replacement, is an effective treatment for advanced glenohumeral disease. It is most commonly used for advanced osteoarthritis of the glenohumeral joint. It is also used in patients who have joint pain and destruction from rheumatoid arthritis, avascular necrosis, posttraumatic arthrosis, and inflammatory arthropathies. Patients with glenohumeral joint pathology who present with shoulder pain that limits their function and impedes their daily activities are candidates for total shoulder replacement.

Unlike the hip and knee, which are joints with extensive bony congruity and stability, the shoulder relies very little on joint congruity for stability; the most important stabilizing factors of the shoulder are the soft tissues. The deltoid muscle and the muscles of the rotator cuff are essential in providing stability to the shoulder joint. This becomes even more important in stabilizing a prosthetic implant. If the soft tissues are deficient, the humeral head will rock on the edges of the glenoid and result in loosening of the glenoid, and eventual failure of the implant. This is often referred to as the “rocking horse” effect. So how much of a soft tissue deficit is too much? A small rotator cuff tear can be repaired at the time of the arthroplasty. Isolated supraspinatus tears have better long term results than those shoulder with rotator cuff tears that include the infraspinatus and other muscles of the cuff. Therefore, a tear of two or more tendons of the rotator cuff (there are a total of four) may have a worse outcome for patients.

Certain patients who are low demand, and who have a rotator cuff deficient shoulder, may be candidates for a reverse polarity implant. The idea behind this implant is to utilize the deltoid as the primary motor for the glenohumeral joint. This is done by shifting the center of rotation inferior and medial to increase the lever arm of the deltoid. In a reverse polarity implant, the glenoid component is convex and the humeral component is concave, exactly the opposite the normal anatomy. This allows the aforementioned shift in the center of rotation. Reverse polarity implants are not recommended for active individuals.

Total shoulder arthroplasty provides pain relief and increased function in patients with severely arthritic glenohumeral joints. Whether the joint destruction has occurred secondary to trauma, inflammation, past surgeries, medications, systemic disease, or other inciting factors, shoulder arthroplasty provides a good option for treatment. An adequate soft tissue envelope is imperative for long term success with this implant.