



Main Line Health[®]

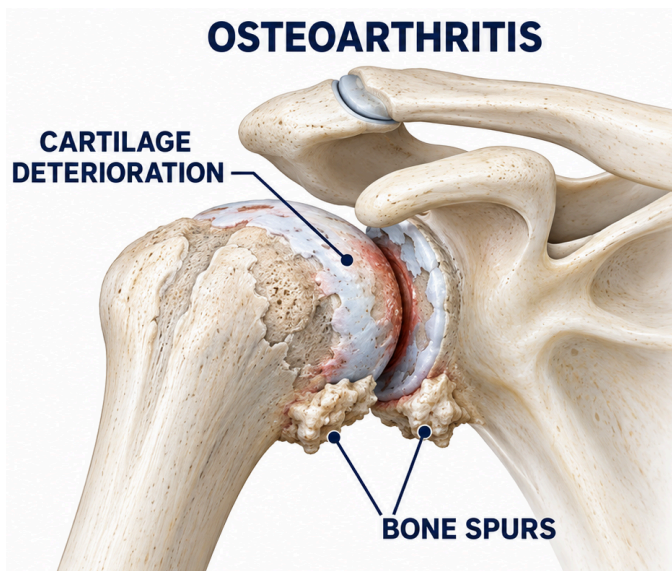
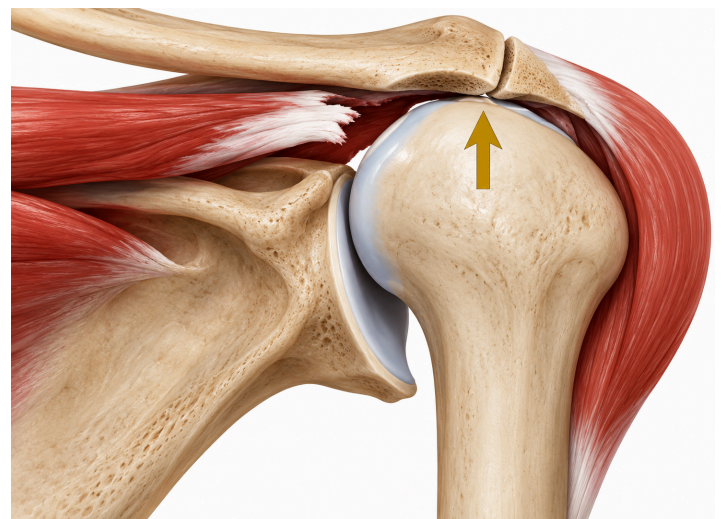
Orthopaedics & Spine

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REVERSE TOTAL SHOULDER ARTHROPLASTY

Understanding the Injury

Reverse shoulder replacement "reverses" the normal ball-and-socket relationship of the joint. A metal ball replaces the glenoid (socket), and a plastic cup replaces the end of the humerus (upper arm bone). This design allows the deltoid muscle to compensate for a deficient rotator cuff, making it the gold-standard treatment for rotator cuff tear arthropathy.



Rotator Cuff Arthropathy

Unlike anatomic total shoulder replacement, which requires an intact rotator cuff, reverse shoulder replacement can restore function and relieve pain even when the rotator cuff is severely damaged or absent — the altered biomechanics rely on the deltoid muscle to power shoulder movement. Dr. Fliegel will thoroughly evaluate your condition using physical examination and advanced imaging to determine which type of shoulder replacement is best for you.

Who Is a Candidate?

Reverse shoulder replacement is recommended for patients with rotator cuff tear arthropathy (a massive rotator cuff tear with arthritis), severe degenerative joint disease with rotator cuff deficiency, pseudoparalysis (an inability to actively lift the arm), a failed rotator cuff repair with arthritis, or a complex fracture in an older patient.

The Surgical Procedure

The surgical procedure for reverse shoulder replacement is very similar to anatomic total shoulder replacement — only the implants differ. The ball is made of stainless steel, titanium, and cobalt-chrome, and the plastic cup is made of ultra-high molecular weight polyethylene.

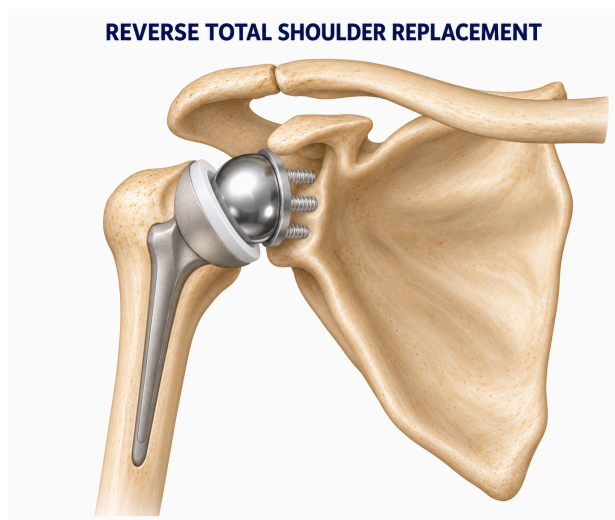
Key Advantages

Compared to anatomic shoulder replacement, reverse shoulder replacement does not require a subscapularis repair, allows for earlier motion and a less restrictive post-operative protocol, can restore function even with severe rotator cuff damage, and relies on the deltoid muscle for shoulder movement.

Anesthesia and Pain Management

You will receive a nerve block on the day of surgery to help manage postoperative pain. This numbs the shoulder for 18–24 hours, minimizing immediate pain and reducing narcotic requirements. We use a multimodal pain management approach, including Tylenol, anti-inflammatory medications, and a low-dose steroid, to optimize your comfort.

Expected Outcomes and Surgical Risks



Reverse shoulder replacement performed for osteoarthritis generally yields more favorable outcomes than other conditions treated with the same procedure — patients with osteoarthritis tend to have more predictable outcomes due to preserved deltoid and soft tissue integrity, whereas those with complex indications often face higher complication rates and less consistent functional gains.

Potential risks and complications include:

- Instability or dislocation of the prosthesis
- Stiffness or loss of motion
- Infection, blood clot, or nerve injury
- Component loosening or wear over time
- Acromial or scapular spine fracture

Most patients recover well when the protective rehabilitation protocol below is followed closely. Recovery takes up to a full year, with approximately 90% of progress made by 6 months.

PRE-OPERATIVE INSTRUCTIONS

Surgery Preparation Guide

Your preparation before surgery plays an important role in a smooth procedure and recovery. Please review the timeline below carefully.

Several Weeks Before Surgery

(As directed by Dr. Fliegel and the surgical team)

- Attend your pre-operative visit for a full history, physical examination, and surgical counseling.
- Continue any home exercises for shoulder flexibility that your surgeon recommends before surgery.
- Establish care with a physical therapist before surgery if possible, in case formal therapy is needed afterward.

Arrange your home: confirm your sling, an ice machine or ice packs, and a recliner or extra pillows for sleeping are in place before surgery.

Several Days Before Surgery

- Wash the shoulder and arm with Hibiclens (chlorhexidine) surgical soap twice daily for 3 days before surgery.
- Avoid cuts, scrapes, sunburn, or any skin irritation near the shoulder. Do not shave the surgical area.

The Day Before Surgery

- Confirm your hospital arrival time with our office.
- Arrange for a responsible adult to drive you home and stay with you for the first 24 hours.

The Day of Surgery

- Bring any MRI, CT, or X-ray studies performed outside our system.
- Bring your sling if previously provided.
- Bring insurance cards, photo identification, a list of your current medications, and a loose-fitting, button-front or zip-front shirt that will be easy to put on over your sling after surgery.

REVERSE TOTAL SHOULDER ARTHROPLASTY REHABILITATION PROTOCOL

This protocol is both criteria-based and patient-specific; progression from one phase to the next is determined by meeting the stated goals, not calendar time alone. Recovery from

shoulder replacement takes up to a full year, with approximately 90% of progress made by 6 months. Exercises are physician-directed and largely patient-led – formal physical therapy is not required for every patient, but please provide your therapist with a copy of this protocol if one is involved in your care.

The primary goals are to:

Protect the shoulder while it heals

Control pain and swelling

Restore shoulder motion and strength

Safely return to daily activities and sport

PHASE I: MAXIMUM PROTECTION (0–6 Weeks)

Goals

- Control pain and swelling
- Achieve passive shoulder elevation to 90° in the plane of the scapula (110° acceptable by week 6), and external rotation to 30°
- Restore full motion of the hand, wrist, and elbow
- Become independent with the home exercise program, sling use, and light activities of daily living

Immobilization

- Sling worn at all times except when exercising or performing light activities of daily living, typically for about 4 weeks as directed by Dr. Fliegel
- No internal rotation, hyperextension, or adduction of the shoulder
- Avoid painful positions or ranges of motion

Range of Motion (Protected)

- Hand, wrist, forearm, and elbow motion exercises immediately
- Pendulum exercises out of the sling
- Passive shoulder elevation in the plane of the scapula: 0°–90° for the first 4 weeks, progressing to 0°–120° in weeks 5–6 as tolerated
- Passive external rotation of the shoulder, and scapular mobilization

Exercises

- Scapular strengthening (side-lying with manual resistance, and sitting)
- Cryotherapy or TENS for pain and swelling as directed
- Physical therapy may begin earlier than with anatomic replacement, since there is no subscapularis repair to protect

Advancement Criteria

- Pain controlled, with shoulder flexion to 100°–110° and external rotation to 30°
- Independent with the home exercise program and light activities of daily living

PHASE II: EARLY MOTION AND INITIAL STRENGTHENING (6–12 Weeks)

Goals

- Achieve pain control of 0–3/10 with activities of daily living
- Passive shoulder elevation to 110°–130° and external rotation to 30°–45°
- Become independent with a progressed home exercise program

Immobilization

- Discontinue the sling as directed by Dr. Fliegel, typically around 4 weeks after surgery

Range of Motion

- Advance from passive to active-assisted range of motion for shoulder elevation
- External rotation with a cane in the plane of the scapula, as tolerated
- Place-and-hold exercises for shoulder elevation at 90°, performed lying on your back

Strengthening

- Sub-maximal deltoid isometrics (anterior and middle deltoid)
- Scapular strengthening with light elastic bands, and manual scapular PNF patterns
- Internal/external rotator strengthening beginning around 8 weeks; isotonic shoulder flexion in the plane of the scapula beginning around 7–8 weeks
- Rhythmic stabilization; aquatic therapy or arm ergometry if available

Precautions

- Avoid reaching horizontally across the body
- Avoid reaching behind your back toward your back pocket
- Avoid pushing off the arm of a chair to stand up

Advancement Criteria

- 0/10 pain with activities of daily living
- Passive shoulder elevation to 110° and active elevation to 90°
- Good humeral head control and scapular stability, with biceps/triceps strength of 4/5

PHASE III: STRENGTH AND NEUROMUSCULAR CONTROL (12–16 Weeks)

Goals

- Pain-free (0/10) with all activities
- Passive shoulder elevation to 130°–140° and active elevation to 90°–130°
- Internal rotation sufficient to reach your back pocket and manage self-care
- Good scapular stability with minimal shoulder shrugging, and full functional independence

Range of Motion

- Active-assisted range of motion exercises for shoulder elevation and external rotation, performed lying on your back
- Aquatic therapy if available

Strengthening

- Progressive resistive scapular strengthening; internal/external rotator strengthening with light isotonic or an elastic band
- Isotonic deltoid strengthening; biceps and triceps strengthening
- Light latissimus pull-downs (using weights or an elastic band); rhythmic stabilization

Precautions

- Avoid lifting more than 10 pounds above shoulder level, and lift bilaterally when possible
- Avoid reaching horizontally across the body, and avoid jerking or sudden pushing/pulling motions

Advancement Criteria

- Pain-free with daily activities and full functional independence
- Good scapular stability with minimal shoulder shrugging
- Independent with the home exercise program

PHASE IV: ADVANCED STRENGTH AND RETURN TO ACTIVITY (16–22 Weeks)

Goals

- Continue to maximize shoulder strength, endurance, and flexibility
- Advance functional independence for higher-demand daily activities
- Become independent with a home or gym therapeutic exercise program

Strengthening

- Tailor any remaining deficits in range of motion, strength, and flexibility with continued active and passive range-of-motion exercises
- Continue deltoid, scapular, and rotator cuff strengthening with progressive resistance
- Progressive resistive exercises using resistance bands and dumbbells, gradually increasing weight as tolerated
- Rhythmic stabilization and proprioceptive neuromuscular facilitation drills

Sport-Specific Training and Discharge Planning

- Begin sport- or activity-specific training as directed by Dr. Fliegel
- Discharge planning focuses on maintaining and advancing the gains made during rehabilitation

Avoid

- Painful activities of daily living
- Lifting weights significantly above shoulder level without your surgeon's approval
- Jerking motions or sudden, forceful push/pull movements

PHASE V: RETURN TO SPORT AND FULL RECOVERY (22 Weeks–1 Year)

Goals

- Maximize range of motion, independence in daily activities, and scapulohumeral rhythm greater than 100° of elevation
- Safely and gradually return to sport in a graduated fashion
- Continue to improve strength and function up to one year after surgery

Progression

- 4 months: start golf chipping and light tennis ground strokes
- 5 to 5.5 months: full golf swings without hitting the ball
- 6 months: full, unrestricted golf and tennis
- Continue daily stretching to maximize function

Return-to-Sport Criteria

- Maximized range of motion and independence with activities of daily living
- Normal scapulohumeral rhythm above 100° of elevation
- Cleared by Dr. Fliegel to proceed gradually and with caution back to sport

Key Rehabilitation Principles

- Reverse shoulder replacement is generally less restrictive than anatomic replacement, since there is no subscapularis repair to protect – most patients find it less painful, and physical therapy may begin earlier. While reverse replacement provides excellent pain relief and functional improvement, rotation may be somewhat limited compared to normal; most patients are still extremely satisfied with their ability to perform daily activities pain-free.
- Many patients continue to improve significantly up to one year after surgery. Long-term, Dr. Fliegel does not place formal restrictions on activity or weightlifting; a good rule of thumb is that if you cannot perform a lift or activity 20 times, it is likely too much.
- Most patients are discharged home the same day or the day after surgery, without the need for a rehab facility. Many patients have increased shoulder discomfort lying flat – sleeping in a recliner, or reclined in bed with wedge pillows, is often more comfortable, with a pillow between your body and arm and behind your elbow as needed. It is never safe to drive while taking narcotic pain medication, and it is generally not advisable to drive while in your sling; Dr. Fliegel will discuss this with you at your postoperative visits.
- Contact our office for fever, increasing redness or drainage from the incision, significant swelling or pain, or a new inability to move the hand, wrist, or elbow.
- Please arrange to return to Dr. Fliegel's office 10 to 14 days after surgery, again at 6 weeks, and again at 3 to 4 months.

