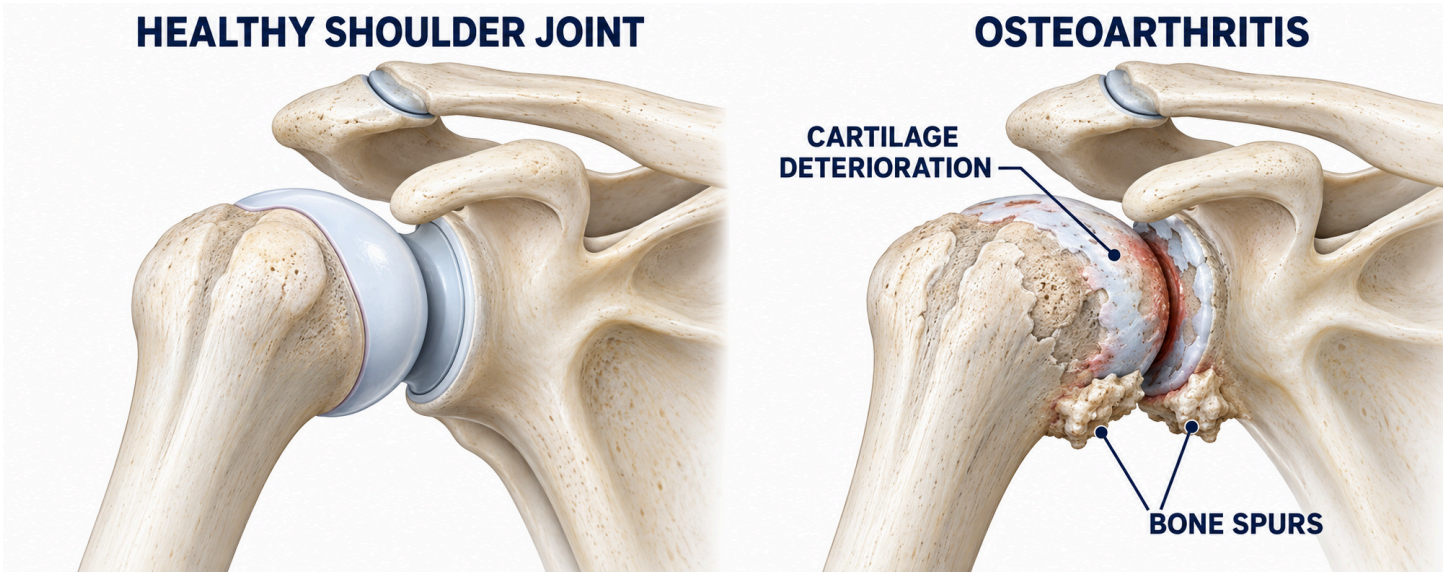
Main Line Health®
Orthopaedics & Spine

Brian E. Fliegel, DO
255 W Lancaster Ave
Paoli, PA 19301
(866) 225-5654
www.drbrianfliegel.com

ANATOMIC TOTAL SHOULDER ARTHROPLASTY

Understanding the Injury

Anatomic total shoulder replacement maintains the natural anatomy of your shoulder. A metal ball replaces the end of the upper arm bone (humerus), and a plastic cup replaces the socket (glenoid). This procedure is designed for patients with shoulder arthritis who have an intact rotator cuff.



Anatomic total shoulder replacements are performed less commonly than reverse shoulder replacements, both in the United States and internationally. However, in the right patient this remains a very effective option, providing excellent pain relief and restoration of function. The main determining factors are the quality and strength of the bone in the glenoid, and the quality of your soft tissues and rotator cuff tendons. 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?

Anatomic total shoulder replacement is best suited for patients with shoulder arthritis (osteoarthritis or inflammatory arthritis) who have an intact or reparable rotator cuff, good bone quality in the glenoid, and adequate soft tissue integrity.

The Surgical Procedure

Anatomic total shoulder replacement is performed through an incision on the front of the shoulder. The bone surfaces are prepared and the prosthetic components are implanted with precision to restore the natural anatomy of the joint.

Subscapularis Repair

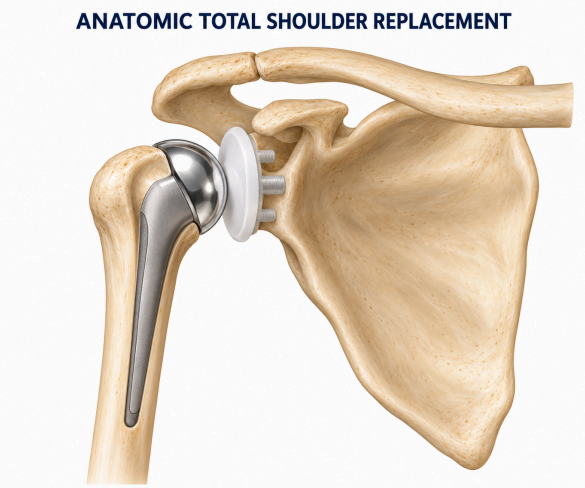
A critical aspect of anatomic total shoulder replacement is repair of the subscapularis, the front rotator cuff tendon. Protecting this repair after surgery is essential to a successful outcome — you must remain "in the box," avoiding rotation of the arm away from the body, reaching behind your back, or pushing yourself up out of a chair with the operative arm.

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

[Insert total shoulder arthroplasty illustration here]



Benefits of anatomic total shoulder replacement include excellent pain relief, restoration of shoulder motion and function, and preservation of the natural ball-and-socket anatomy of the joint.

Potential risks and complications include:

- Failure or re-tear of the subscapularis repair
- Stiffness or loss of motion
- Infection, blood clot, or nerve injury
- Component loosening or wear over time
- Glenoid or humeral fracture

Most patients recover well when the protective rehabilitation protocol below is followed closely, since protecting the subscapularis repair while it heals is essential to a successful outcome. 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.

ANATOMIC 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 subscapularis repair 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
- Protect the subscapularis repair
- Achieve elevation in the plane of the scapula to 120° and external rotation to 30°
- 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, as directed by Dr. Fliegel
- External rotation limited to 30° or less
- 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
- Active-assisted external rotation (supine, using a wand in the scapular plane)

Exercises

- Scapular strengthening (side-lying with manual resistance, and sitting)
- Cryotherapy or TENS for pain and swelling as directed
- Physician-directed exercises begin around 4 weeks; until then, focus on protecting the repair and staying within the ranges above

Advancement Criteria

- Elevation in the plane of the scapula to 120° and external rotation to 30°
- Independent with the home exercise program and light activities of daily living
- Minimal pain or inflammation

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

Goals

- Achieve pain control with daily activities
- Elevation in the plane of the scapula to 150° and external rotation to 45°
- Become independent with a progressed home exercise program
- Begin to restore scapular and rotator cuff strength

Immobilization

- Discontinue the sling as directed by Dr. Fliegel, typically once you are 2–4 weeks out from surgery and demonstrating good comfort and control
- Avoid painful positions

Range of Motion

- Passive and active-assisted range of motion for forward flexion and external rotation, using a wand
- Pulley exercises once motion exceeds 120° with good humeral head control
- Active range of motion, including internal-rotation towel-pass exercises

Strengthening

- Humeral head control exercises (rhythmic stabilization at 120° of elevation)
- Sub-maximal isometrics for flexion, extension, external rotation, and internal rotation
- Closed-chain stabilization (ball stabilization against a wall), scapular stabilization, scapular retraction and extension with elastic bands, and cane-assisted extension
- Internal rotation stretch using a strap; stationary bike (such as an Airdyne) if available

Precautions

- Avoid painful positions and pushing through pain

Advancement Criteria

- Minimal pain with activities of daily living
- Elevation in the plane of the scapula to 150° and external rotation to 45°
- Independent with the home exercise program

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

Goals

- Elevation in the plane of the scapula to 160° and external rotation to 60°; internal rotation to the level of T12
- Restore normal scapulohumeral rhythm below 90° of elevation
- Upper extremity strength of 4/5 and improving endurance
- Independent with the home exercise program

Range of Motion

- Progress range of motion as appropriate, taking care to avoid a stiff posterior capsule
- Flexibility exercises: internal rotation stretch using the opposite hand, and posterior capsule stretch

Strengthening

- Strengthening of the periscapular and rotator cuff muscles: scaption, and external/internal rotation with an elastic band
- Rhythmic humeral head stabilization drills
- Progressive resistive exercises for the scapula and elbow, such as biceps curls, elevation in the scapular plane, and progressive resistive equipment (rowing, chest press)

Precautions

- Avoid painful activities of daily living
- Avoid movements that encourage shoulder shrugging (scapular hiking) or poor body mechanics

Advancement Criteria

- Minimal pain and inflammation
- Elevation in the plane of the scapula to 160° and external rotation to 60°; internal rotation to T12
- Muscle strength of 4/5 and normal scapulohumeral rhythm below 90° of elevation

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

Goals

- Restore normal neuromuscular function and maximize range of motion, strength, and flexibility
- Achieve normal scapulohumeral rhythm above 100° of elevation
- 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
- Flexibility program: posterior capsule stretch and internal-rotation towel stretch
- Progressive resistive exercises using resistance bands and dumbbells
- 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
- Movements that encourage shoulder shrugging (scapular hiking) or poor body mechanics
- A stiff, tight posterior capsule — continue stretching to help prevent this

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

- Protecting the subscapularis repair takes priority throughout early rehabilitation — remaining "in the box" by avoiding rotation of the arm away from the body, reaching behind your back, or pushing yourself up out of a chair with the operative arm protects the repair while it heals.
- 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.