# Hughston Health Alert

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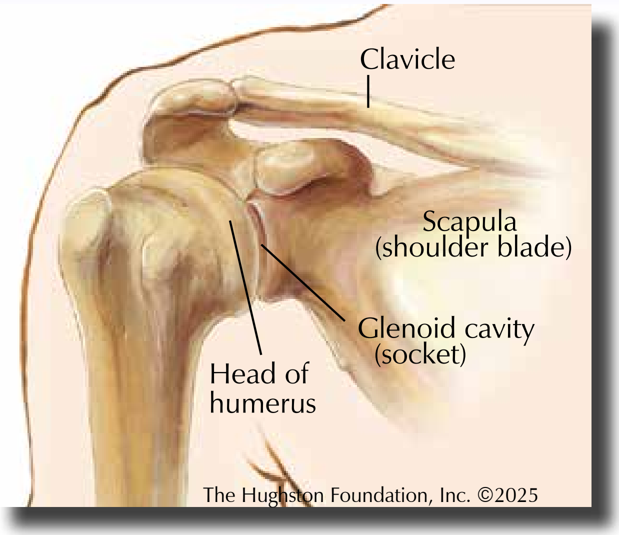
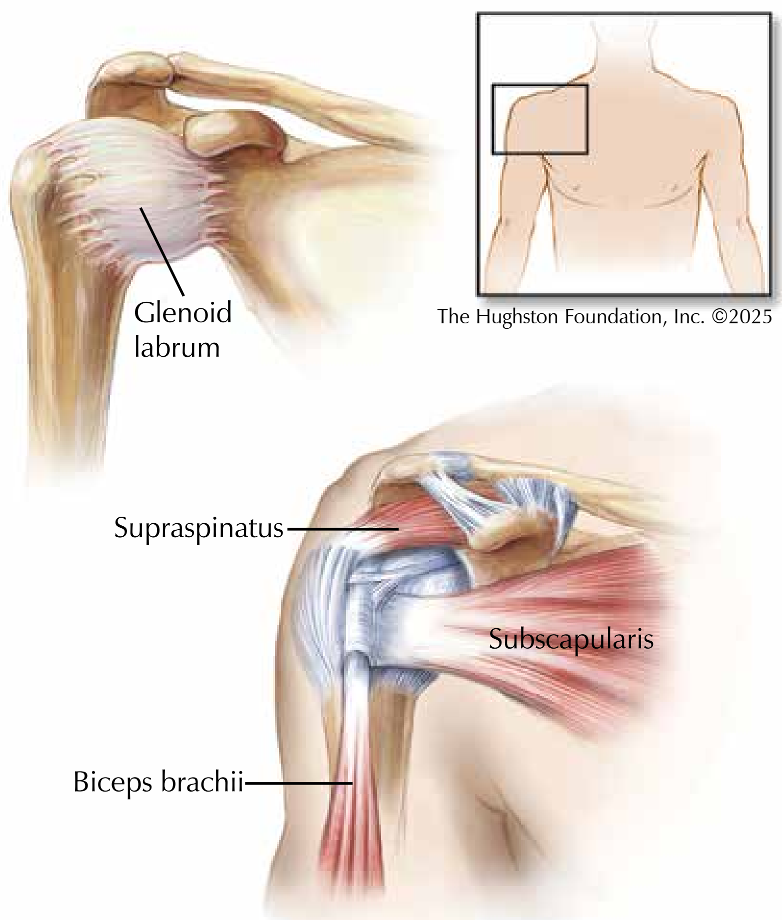
## Inside...



**Fig. 1.** Front view of normal shoulder anatomy




## Shoulder Arthroplasty Surgery

Shoulder arthroplasty, also known as shoulder replacement surgery, is a procedure used to relieve pain, improve function, and restore mobility in patients with severe damage to the joint. The surgery can be life-changing for patients suffering from arthritis, fractures, or rotator cuff tears. Just like hip and knee replacements, shoulder arthroplasty has become increasingly popular over the years as technology and outcomes improve.

### Shoulder anatomy

The glenohumeral joint, or shoulder, is a ball-and-socket joint. It is formed by the articulation of the head (ball) of the humerus, or upper arm bone, with the glenoid cavity (socket) of the scapula (shoulder blade) (**Fig. 1**). Since the cavity is shallow, there is little contact between the bones, but the glenoid labrum, a ring of cartilaginous fiber that lines its circumference, deepens the cavity by about 50%, allowing for a better fit. The joint capsule, which is the fibrous connective tissue that seals the joint space and provides stability, is very loose. This makes the glenohumeral joint the most mobile of the body, capable of flexion (bending), extension (straightening), adduction (pulling toward the body), abduction (pulling away from the body) medial and lateral rotation (turning toward or away from the midline of the body), and circumduction (moving in a circle). Because it lacks strong ligaments (tissues that connect bone to bone) to support it, the glenohumeral joint is a muscle-dependent joint. It is primarily stabilized by the biceps brachii, or muscle on the anterior (front) side of the upper arm, and the tendons of the supraspinatus, subscapularis, infraspinatus, and teres minor muscles that are called the rotator cuff muscles (**Figs. 2 & 3**).

Many factors can contribute to joint damage and pain, including trauma, disease, such as rheumatoid arthritis or osteonecrosis, infection, or chronic wear and tear resulting in osteoarthritis. The main indications for shoulder arthroplasty are arthritis, rotator cuff tears, and extreme proximal humerus fractures that cannot be surgically repaired or failed prior shoulder surgeries.

**Fig. 2.** Muscular anatomy of the shoulder (front view)

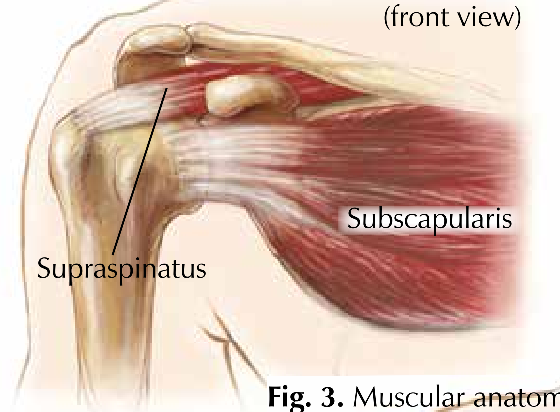
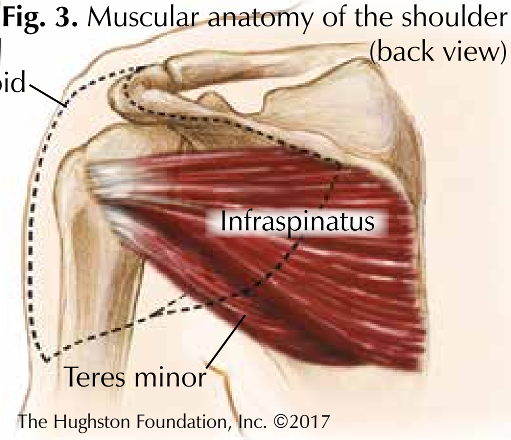



**Fig. 3.** Muscular anatomy of the shoulder (back view)




## Types of shoulder arthroplasty

The 3 different types of shoulder replacements include total shoulder arthroplasty (TSA), hemiarthroplasty, and reverse shoulder arthroplasty (RSA) (**Fig. 4**). Total shoulder arthroplasty involves replacing the humeral head with a ball component and the glenoid with a socket component. It is ideal for patients who have an intact and functioning rotator cuff with good glenoid bone stock. Hemiarthroplasty involves replacing only the humeral ball of the joint with a component. It is ideal for patients with severe proximal humerus fractures, inadequate glenoid bone stock, or a deficient rotator cuff. Reverse shoulder arthroplasty includes replacing the humeral head with a socket component and the glenoid with a ball component. It is ideal for patients who have rotator cuff damage, elderly patients with proximal humerus fractures, and failed previous shoulder arthroplasty; however, it is essential to have a functioning deltoid muscle and axillary nerve to function properly.

## Surgical procedure overview

Surgeons perform shoulder replacement surgery under general anesthesia. The procedure can last anywhere from 1 to 2 hours on average. The surgical approach and type of implants used vary depending on the patient's anatomy and other factors. During surgery, the surgeon removes the damaged bone and articular cartilage (covering on the ends of bones) and replaces it with prosthetic components.

## Recovery

The postoperative hospital stay is dependent on the patient and the type of procedure performed. The recovery process is also patient-dependent and multifactorial. Typically, the patient's shoulder will be immobilized in a sling or brace for a couple of weeks. Often, physicians prescribe physical therapy to work on passive or active-assisted motion during the early rehabilitation process, and then the patient progresses according to the postoperative protocol. Full recovery normally takes 4 to 6 months with continued improvements over a year.

## Outcomes and prognosis

Most patients experience significant pain relief and improved function following shoulder arthroplasty. Long-term outcomes are favorable, especially with adherence to rehabilitation and activity guidelines. Modern implants' survivability can last 10 to 20 years or more, depending on specific patient factors and use. Some patients may be limited in specific things like heavy lifting or high-impact activities; however, shoulder replacement is a practical solution to restore a patient's quality of life that may have otherwise been limited by debilitating pain or loss of function.

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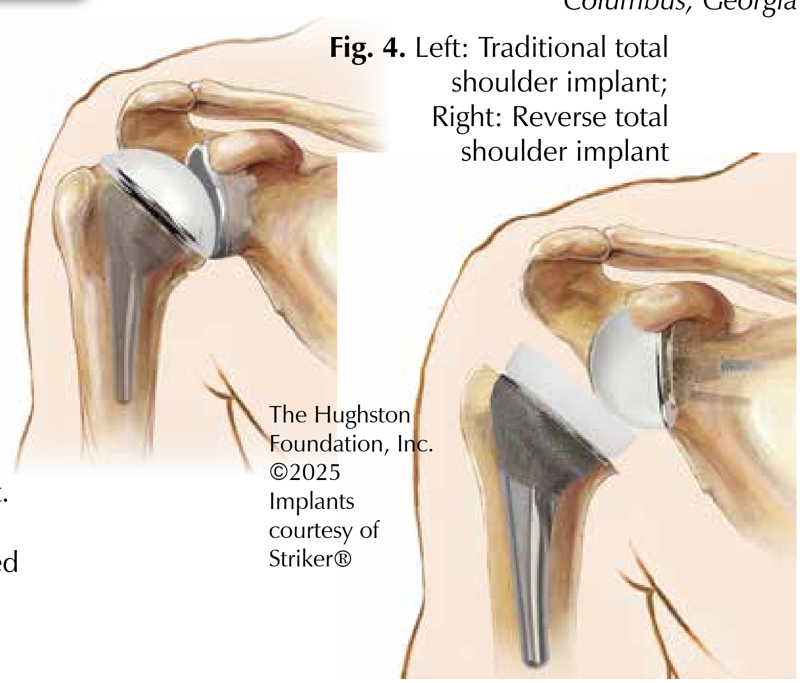
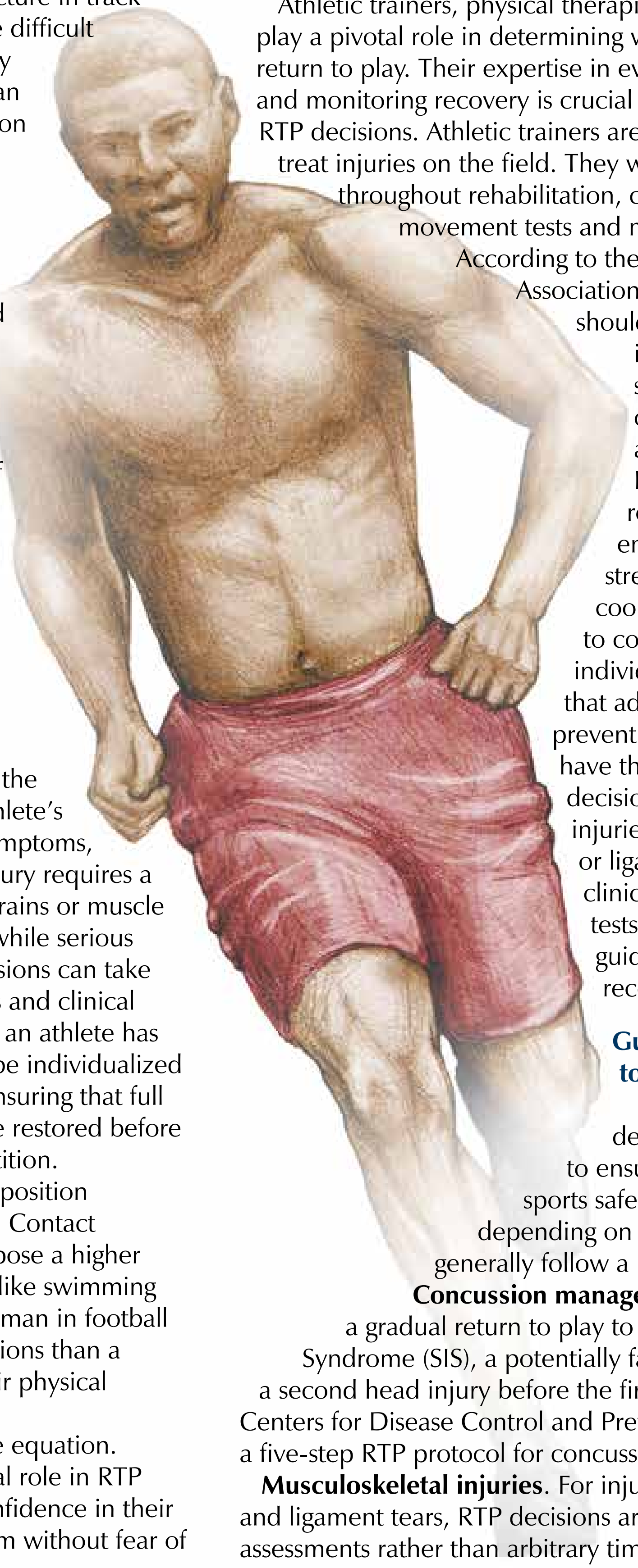



**Fig. 4.** Left: Traditional total shoulder implant; Right: Reverse total shoulder implant

# Return to Play

In high school sports, injuries are an inevitable part of the game. Whether it's a concussion in football, a torn ACL in basketball, or a stress fracture in track and field, athletes frequently face the difficult process of recovery and return to play (RTP). The decision regarding when an athlete can safely return to competition is a complex one, involving coaches, parents, athletic trainers, medical professionals, and, most importantly, the athlete. If an athlete returns too soon, they risk reinjury or long-term health consequences. If they are held out for too long, they may suffer setbacks in performance, frustration, and team-related challenges. This article explores the factors influencing RTP decisions, the role of healthcare professionals, guidelines for safe return, legal and ethical considerations, and the impact on student-athletes' long-term health.



### Factors influencing return to play decisions

Several factors must be considered before an athlete is cleared to return to play. These include the severity of the injury, the nature of the sport, the athlete's position, the presence of lingering symptoms, and psychological readiness. Each injury requires a different recovery timeline. Minor sprains or muscle strains may take a few days to heal, while serious injuries like torn ligaments or concussions can take weeks or months. Medical guidelines and clinical assessments help determine whether an athlete has fully recovered. RTP decisions must be individualized based on the severity of the injury, ensuring that full strength, mobility, and endurance are restored before allowing an athlete back into competition.

The type of sport and the athlete's position significantly impact the RTP timeline. Contact sports, such as football or wrestling, pose a higher reinjury risk than non-contact sports like swimming or golf. Additionally, an offensive lineman in football may require different RTP considerations than a quarterback due to the nature of their physical demands.

Physical recovery is only part of the equation. Psychological readiness plays a crucial role in RTP decisions, as athletes must regain confidence in their bodies and trust that they can perform without fear of reinjury. Fear of reinjury can impact performance and increase the likelihood of compensatory movements, potentially leading to additional injuries.

### Role of healthcare professionals

Athletic trainers, physical therapists, and team physicians play a pivotal role in determining when an athlete can safely return to play. Their expertise in evaluating physical readiness and monitoring recovery is crucial in preventing premature RTP decisions. Athletic trainers are often the first to assess and treat injuries on the field. They work closely with athletes throughout rehabilitation, conducting functional movement tests and monitoring progress. According to the National Athletic Trainers' Association (NATA), RTP decisions should be evidence-based and include objective measures such as strength tests, range of motion assessments, and sport-specific drills. Physical therapists focus on rehabilitation and recovery, ensuring that athletes regain strength, flexibility, and coordination before returning to competition. They design individualized exercise programs that address weaknesses and prevent reinjury. Team physicians have the final authority in RTP decisions, particularly for severe injuries like concussions, fractures, or ligament tears. They rely on clinical evaluations, imaging tests, and standardized RTP guidelines to make informed recommendations.

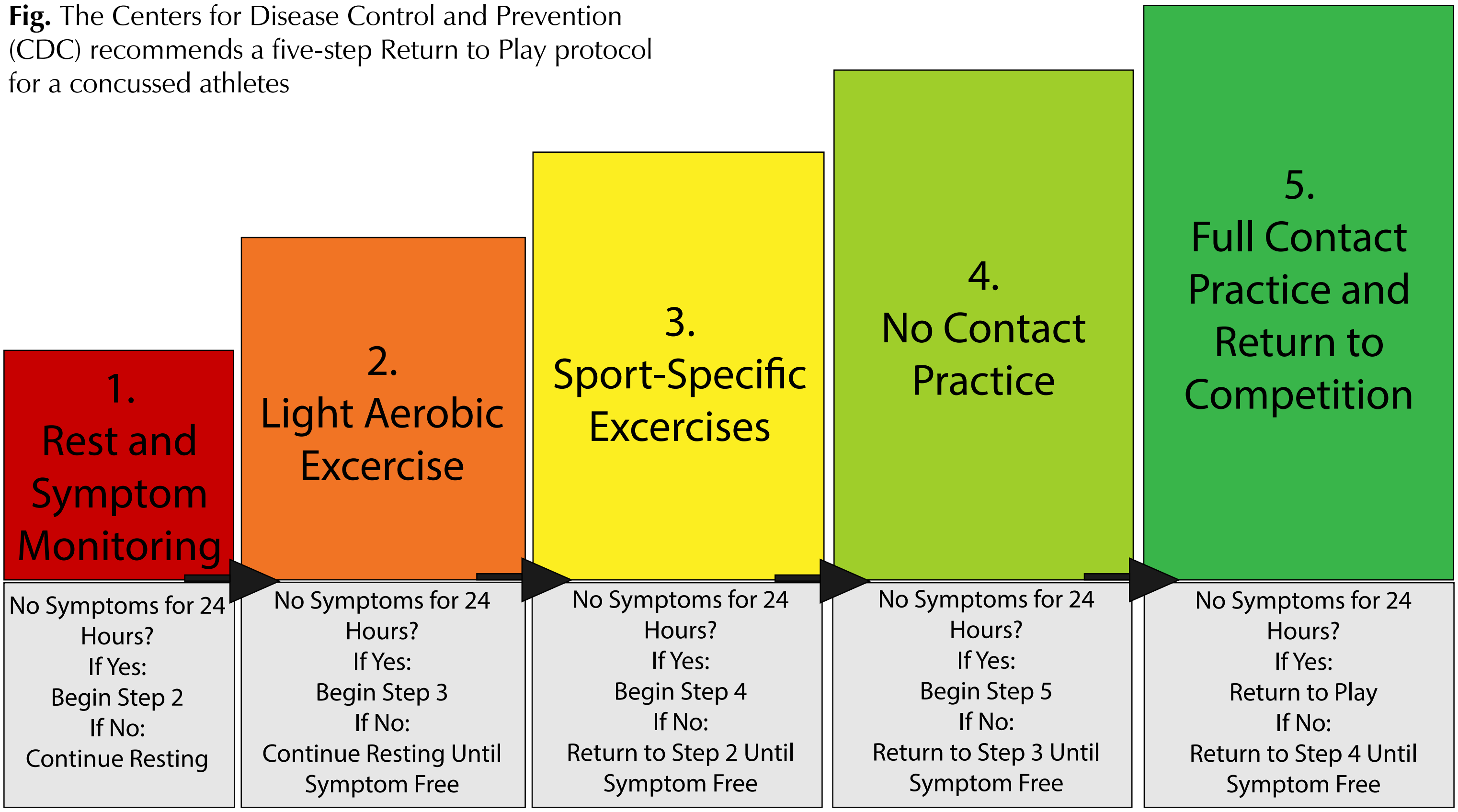
### Guidelines for safe return to play

Several organizations have developed RTP guidelines to ensure athletes return to sports safely. These guidelines vary depending on the type of injury but generally follow a progressive approach.

**Concussion management**. Concussions require a gradual return to play to prevent Second Impact Syndrome (SIS), a potentially fatal condition caused by a second head injury before the first one has healed. The Centers for Disease Control and Prevention (CDC) recommends a five-step RTP protocol for concussed athletes (**Fig.**).

**Musculoskeletal injuries**. For injuries like sprains, fractures, and ligament tears, RTP decisions are based on functional assessments rather than arbitrary timelines. An athlete must

**Fig.** The Centers for Disease Control and Prevention (CDC) recommends a five-step Return to Play protocol for a concussed athletes




demonstrate full strength, mobility, and pain-free performance in sport-specific movements before clearance. The American Academy of Orthopaedic Surgeons (AAOS) emphasizes progressive strengthening exercises and functional movement testing before RTP.

### Pressure from coaches and parents

RTP decisions are not just medical; they also carry legal and ethical implications. Schools, coaches, and medical professionals must ensure that decisions prioritize athlete safety over competitive pressures. High school athletes often feel pressure from coaches, teammates, and parents to return to play quickly. This pressure can lead to premature RTP, increasing the risk of reinjury. Coaches and parents must trust the medical professionals involved and prioritize long-term health over immediate competition. Effective communication between athletic trainers, physicians, coaches, and parents is essential to ensure informed and responsible RTP decisions.

If an athlete is cleared too soon and sustains further injury, schools and medical professionals may face legal consequences. Parents have sued schools for negligence when improper RTP decisions resulted in long-term health complications for their child. To mitigate liability, schools should enforce strict adherence to evidence-based RTP protocols and maintain thorough documentation of the decision-making process.

### Athlete autonomy and long-term health

High school athletes may downplay symptoms to expedite their return. However, allowing them to make RTP decisions without medical oversight can have devastating consequences. Premature RTP can lead to chronic injuries, arthritis, and post-concussion syndrome later in life. Educating athletes about the risks of returning too soon is critical to long-term health.

### A careful balance

Return to play decisions in high school sports require a careful balance between physical recovery, psychological readiness, and medical best practices. Athletic trainers, physicians, and physical therapists play crucial roles in evaluating athletes and ensuring a safe return to competition. RTP guidelines, particularly for concussions and musculoskeletal injuries, help standardize the decision-making process and minimize reinjury risks. Legal and ethical considerations further emphasize the importance of prioritizing athlete well-being over external pressures. Ultimately, ensuring a safe and responsible RTP process protects young athletes from long-term harm and supports their future in sports and overall health.

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# ACL Repair vs. ACL Reconstruction: Understanding the Surgical Options

There are 4 major ligaments that stabilize the knee joint: the medial collateral, lateral collateral, anterior cruciate, and posterior cruciate. The anterior cruciate ligament (ACL) is a key stabilizer of the knee joint, and its injury is among the most common in sports medicine. When it comes to treating a torn ACL, surgical options fall into the categories of ACL repair or ACL reconstruction. While both aim to restore knee stability and function, they differ in technique, indications, and outcomes (**Figs. 1 & 2**).

### Who injures their ACL?

ACL injuries often occur in young, active individuals, particularly athletes involved in pivoting sports like soccer, basketball, football, and skiing (**Fig. 3**). Females are at higher risk than males due to anatomical and hormonal factors. The typical mechanism of injury involves noncontact movements such as sudden deceleration, change in direction, or landing from a jump.

### Surgical treatment options

The choice between repair and reconstruction depends on tear type, tissue quality, and patient-specific factors. Nonoperative treatment may suffice for partial tears or low-demand individuals; however, physicians often recommend surgery for:

- Complete ACL tears in active individuals
- Combined ligament injuries
- Instability during daily activities
- Young patients at high risk for future injury

### ACL repair: restoring native tissue

ACL repair involves reattaching the torn ends of the ligament to the bone. During the procedure, surgeons use an arthroscopic approach (surgery through small incisions) to re-anchor the torn ligament to the femur (thighbone) using suture anchors. Biological augmentation, using materials like platelet-rich plasma, stem cells, and growth factors, can also be used to encourage healing. This technique is most suitable for proximal (femoral-sided) avulsion-type tears with good tissue quality, typically in younger patients, and often performed early after injury. The advantages of this procedure are shorter surgical time and preservation of the native ACL structure and proprioception (body orientation). Limitations of the procedure include higher rates of retear, and it is not ideal for partial mid-ligament or chronic tears.

### ACL reconstruction: the gold standard

ACL reconstruction is the most common surgical treatment, especially for midsubstance tears. It involves removing the torn ACL and replacing it with a tendon graft. A graft can be an autograft (from the patient's body) or an allograft (donor tissue). The most common graft choices

**Fig 1.** Normal left knee anatomy

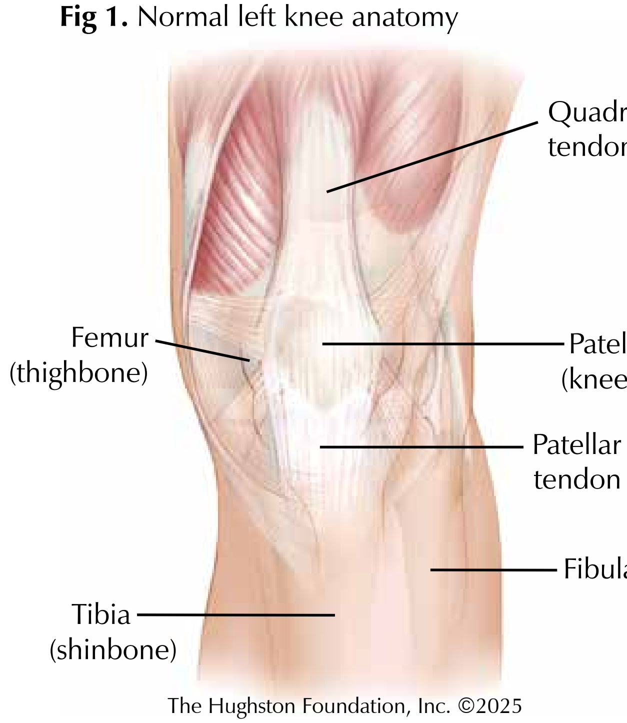



**Fig. 2.** Normal left knee anatomy (front view)

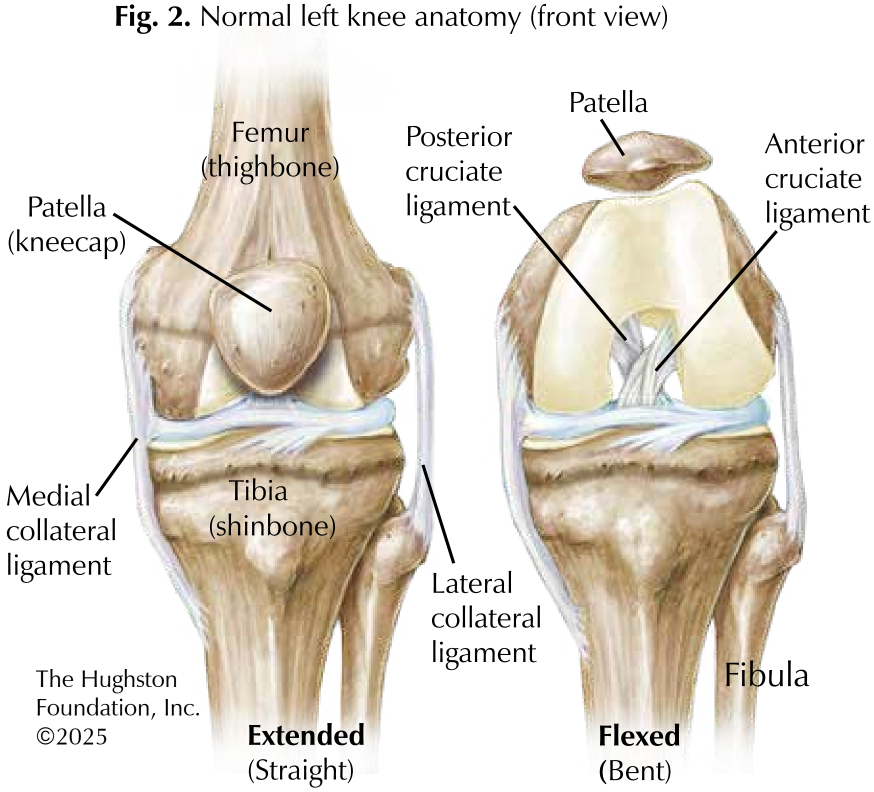
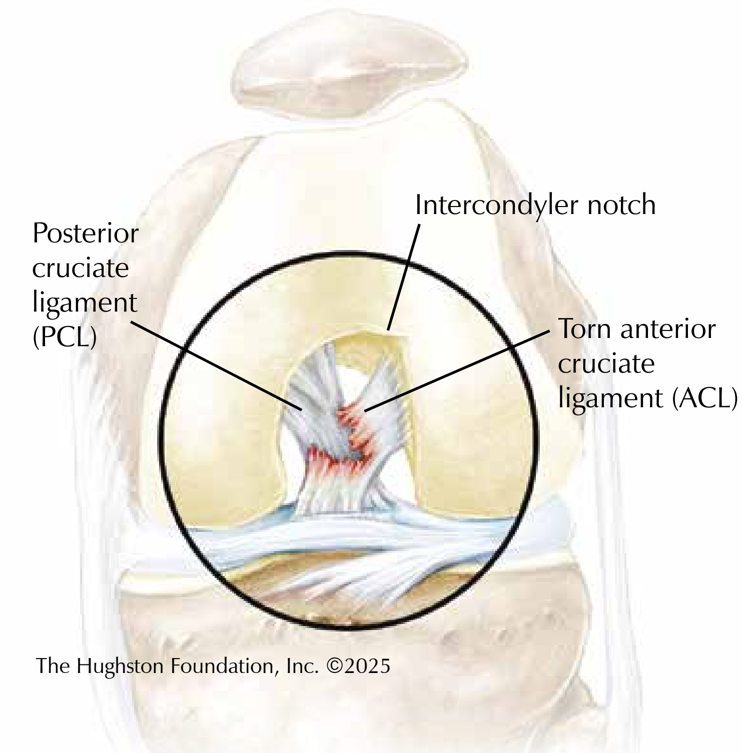


**Fig. 3.** Injured anterior cruciate ligament (ACL)




for this procedure include bone-patellar tendon-bone (BPTB), hamstring, or quadriceps tendon. The advantages of this procedure include broad applicability for all tear types, and it has been successful and stable with long-term follow-up. This procedure is more invasive, has a longer recovery time, and carries a risk of donor site complications for autografts. The procedure itself uses arthroscopic techniques to make tunnels into the femur and tibia to anchor the new graft in place.

### Complications & recovery

With each procedure, there is a risk of tearing the ACL again; however, the risk is higher after repair surgery. Other complications for both procedures include stiffness, donor site pain for autograft reconstruction, graft failure with reconstruction, and a rare risk of postoperative infection in both surgical procedures. The recovery timeline for both procedures is similar, with return to work or school at 1 to 2 weeks, independent ambulation at 2 to 4 weeks, jogging at 3 to 4 weeks, and return to sport requiring 7 to 12 months.

Both ACL repair and reconstruction have valuable roles in orthopaedic practice. While reconstruction remains the standard for most ACL injuries, repair is gaining popularity for select tear types, particularly in young athletes with favorable tissue and early intervention. Shared decision-making between the patient and surgeon—based on activity level, injury pattern, and goals—is essential for optimal outcomes.

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## Medial Epicondylitis: Diagnosis, Prevention, and Treatment of Golfer’s Elbow

Medial epicondylitis, or golfer’s elbow, is a condition characterized by pain and tenderness on the inside of the elbow, where the tendons (tissue connecting muscle to bone) of the forearm muscles attach to the bony prominence of the medial epicondyle of the humerus (upper arm bone) (**Fig. 1**). It was termed “golfer’s elbow” because novice golfers who repeatedly use improper mechanics place excess stress on the pronator teres (forearm muscle) during the acceleration phase of the golf club swing. Although the condition often plagues golfers, it can be seen in baseball pitchers, tennis players, weightlifters, and individuals performing repetitive gripping or throwing motions.

Patients who have golfer's elbow often report pain on the inside of the elbow that worsens with activities involving wrist bending and forearm rotation, such as holding or lifting objects. For baseball pitchers, the pain can worsen during the late cocking phase—when the lead foot makes contact with the ground, and the throwing shoulder reaches maximum external rotation—or during the early acceleration phase of the throwing motion (**Fig. 2**). Often, the patient feels tenderness at the medial epicondyle of the humerus, and pain may radiate along the forearm. In some cases, discomfort and tendon dysfunction cause poor grip strength. Diabetics, smokers, and obese patients who endure repetitive stress on the tendon can also be affected by the condition.

### Diagnosis

A physical examination serves as the primary method for diagnosing the medial epicondylitis. Focused examination of the medial epicondyle and the point at which the flexor tendon attaches to the bone can help pinpoint the pain. Resisted wrist flexion and forearm pronation can reproduce symptoms, confirming the diagnosis. The physician can also test the range of motion in the affected arm to identify any limitations.

Although medial epicondylitis is primarily a clinical diagnosis, imaging such as ultrasound (uses sound waves to view inside the body) or MRI (magnetic resonance imaging scan that shows bones, muscles, tendons, and ligaments) can be used to rule out other conditions. Ultrasound can help assess tendon thickening, tears, or calcification, while MRI is beneficial for evaluating chronic cases with extensive degeneration.

### Prevention

Preventative strategies for medial epicondylitis focus on minimizing the repetitive stress on the tendon.

Ensuring proper mechanics to minimize strain and strengthening the forearm flexor and pronator muscles through resistance exercises can help to increase tendon durability. Incorporating stretching and warm-ups before engaging in strenuous activities, and modifying equipment to improve movement efficiency, reduces tendon stress and lowers the risk of injury.

## Treatment

Initial management of medial epicondylitis includes nonoperative treatments aimed at reducing pain while promoting tendon healing. Activity modification, nonsteroidal anti-inflammatory drugs (NSAIDs), bracing, physical therapy focusing on stretching and strengthening exercises, and corticosteroid injections can encourage healing and reduce pain.[1,2] If symptoms persist despite nonoperative management for at least 6 months, surgical intervention may be considered. Surgical treatment typically involves removing the damaged tendon tissue and reattaching the healthy tendon to the bone. If the ulnar nerve is affected, the surgeon can release it during the procedure.[2]

**Fig. 1.** Normal elbow anatomy and medial epicondylitis, or golfer's elbow

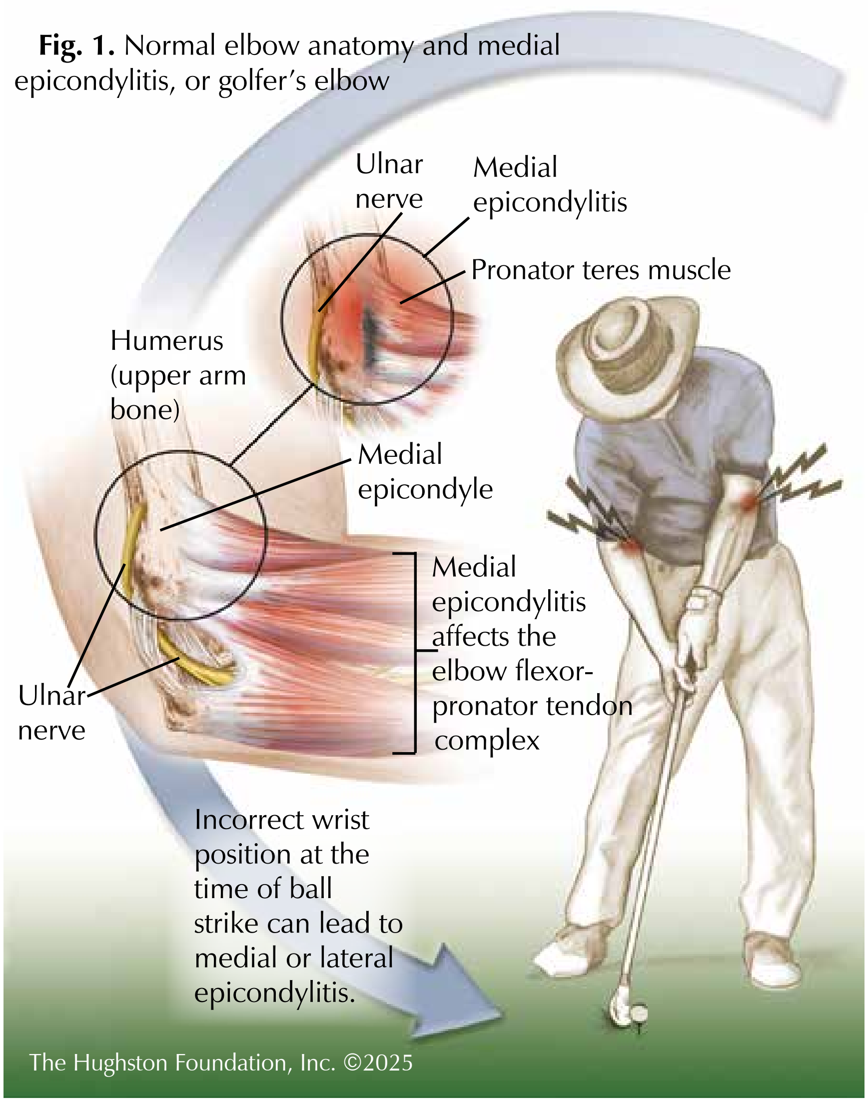
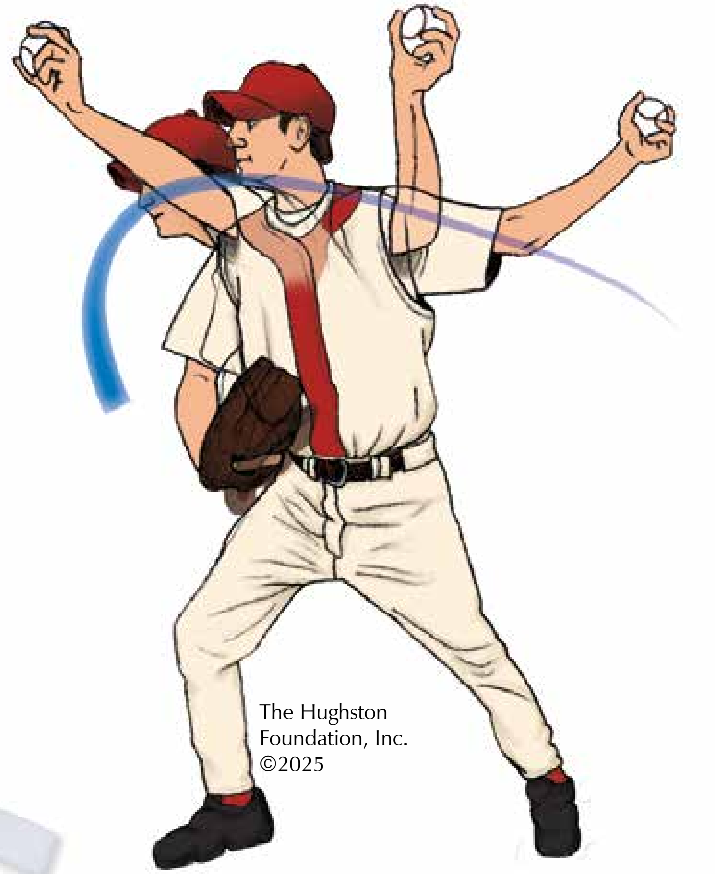



**Fig. 2.** Late cocking and acceleration phases during pitching




Untreated medial epicondylitis can also result in progressive tendon degeneration, leading to structural breakdown. The degeneration can further exacerbate pain and functional impairment.[1] Additionally, due to the proximity of the ulnar nerve to the medial epicondyle, there is a risk of developing ulnar neuritis, which can manifest as numbness or tingling in the ring and little fingers.[3] In severe cases, untreated medial epicondylitis may lead to partial or complete tendon rupture, which would necessitate surgical intervention for tendon debridement and repair.[4] If you experience persistent elbow pain that lasts longer than 2 weeks, contact an orthopaedist for a thorough examination and treatment plan.

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