The modern era of sports medicine has on its shoulders the Sisyphean task of returning injured athletes back to play. Never before have surgeons been faced with such high patient expectations of functional recovery in conjunction with increasing demands placed on surgical procedures and rehabilitation. In addition, conflicts abound in the care of athletes as combined responsibilities to patients, trainers, teams, and the advancement of medicine can create a web of ethical, scientific, and legal dilemmas. Although balancing conflicts is essential to succeeding as a professional team physician, above all is our moral duty to guide what is best for the health of the patient first, with everything else being supplementary. Care of elite athletes has given us an unprecedented opportunity to develop advanced surgical techniques and therapy protocols while simultaneously reflecting on our outcomes and conflicts of interest. In the end, the question is: What lessons of medicine and morality have surgeons learned from taking care of athletes?

**The Renaissance and the Results**

Since the first Tommy John surgery performed by the late Dr Jobe in 1974, surgical techniques for sports injuries have experienced an explosion of new ideas, development, and research. The inherent paradox of sports surgery is that its growth is matched only by its desire for self-renewal. Surgeons are constantly striving to reinvent approaches, instrumentation, and implants with the goal of better restoring anatomy, function, and recovery. Preliminary outcomes in elite athletes are promising and encompass the entire human body, but studies are often limited due to heterogeneous cohorts and the inability to prospectively randomize or control treatments. Arguably, some of the most successful outcomes have stemmed directly from Dr Jobe’s original work on medial ulnar collateral ligament (UCL) reconstruction. Medial UCL tears are one of the most common injuries sustained by Major League Baseball (MLB) pitchers in the United States. In a series of 179 pitchers with UCL tears who underwent reconstruction, 148 (83%) were able to return to professional play an average of 20.5 months after surgery. Pitchers showed significantly improved performance postoperatively compared with preoperatively, as measured by fewer losses, lower losing percentage, and lower earned run average.

Outcomes of lower extremity injuries in elite athletes have proved more variable. Anterior cruciate ligament ruptures were once career-ending injuries in professional sports, but recent literature suggests that more than 60% of National Football League (NFL) players may be able to return to play an average of 10.8 months after reconstruction. Similarly, arthroscopic lateral meniscectomy has been shown to result in 61% of NFL athletes returning to previous levels of competition an average of 8.5 months postoperatively. However, speed-position players such as running backs, receivers, linebackers, and defensive backs were 4 times less likely to return to play than non-speed...
position players such as linemen and tight ends. Although one could argue that surgical advances now permit more than half of NFL players to return to high-demand play, the opposing argument of approximately 40% of athletes ending their careers could just as easily be made.

Achilles tendon ruptures in athletes have increased with longer playing times, shorter off-seasons, and greater eccentric-loading activities. In a series of 31 athletes, 77% were able to return to their pre-injury level of sports activity an average of 4.3 months after percutaneous repair or 5.9 months after open repair.

In our personal experiences treating 19 professional athletes with Achilles tendon tears using a percutaneous technique, we have anecdotally found faster recovery times and fewer wound-related complications compared with a similar group of athletes treated with traditional open repair. In a series of 18 NFL players with Lisfranc injuries, we found that 12 (67%) were able to return to competitive play. Fractures of the proximal fifth metatarsal metaphyseal-diaphyseal junction (Jones fracture) are particularly problematic in elite athletes due to high rates of nonunion and refracture without surgery. In a group of 21 elite athletes undergoing revision Jones fracture fixation, we found that all athletes were able to return to their previous level of competition an average of 12.3 weeks postoperatively with all fractures showing clinical and radiographic evidence of healing.

**PARTICIPATION AND PREVENTION**

Knowing when an athlete is ready to return to play can be the most daunting and subjective aspect of care. Despite guidelines and algorithms, the ultimate decision is based on experience, insight, and intuition, with all 3 variables vulnerable to bias. Experience is limited by anecdotal evidence and small patient cohorts with specific injuries. Insight can be influenced by previous successes and failures. Intuition can be marred by personal emotion. In an effort to standardize the evaluation of athletes, researchers have attempted to devise an orthopedic rating for players at the NFL combine using a combination of physical skills, medical history, and physical examination. Initial results showed that the orthopedic grade assigned at the combine correlated well with the probability of successfully playing in the league. Although preliminary in nature, these results may serve as the framework for creating grades for all sports to more objectively evaluate players, their participation in professional play, and their likelihood of injury.

Another area of promising research is injury rehabilitation and prevention. The rehabilitation period for athletes has now moved to presurgical initiation to better prepare patients for the demands of surgery and postoperative recovery. These practices have disseminated throughout orthopedics and have influenced the management of spinal pathology, traumatic injuries, and joint arthroplasty. Although accelerated earlier range of motion, strengthening, and functional exercises have anecdotally been beneficial for elite athletes, the literature remains inconclusive and in need of more high-quality studies. Injury prevention is another critical aspect of care for which research can help direct treatment. Structured prevention programs examining common types of injuries when they occur, the conditions in which they occur, time of year, type of athlete, and type of player can provide invaluable information regarding athletes at risk for injury. For the prevention of traumatic brain injuries, the National Hockey League (NHL) and the NFL have implemented rules for neuropsychiatric testing and return-to-play guidelines in concussion cases. These standards are increasingly important for the overall health of athletes, as NFL players who sustained at least 10 concussions during their professional careers were shown to have 6 times the risk for depression during a 9-year follow-up period compared with those who had not sustained concussions.

**TRUST AND TRANSPARENCY**

Regardless of the outcome of surgery for athletes and non-athletes, patients’ sense of trust in their physician is paramount to any outside influence. Elite athletes often have demands, goals, and abilities that exceed those of many patients we normally care for; as a result, we must be sensitive to and compassionate about their needs and must set reasonable expectations early on for the management of their care. Pressures from players themselves, family, agents and representatives, team management and ownership, and fans and the media may all serve as distractions from standards of care that we believe in and regularly use. Our fundamental guiding principal is that we must never lose sight of patients’ safety. We must always stand our ground with what we know to be the right thing to do. Gaining the trust of athletes comes with time and experience and can be significantly improved through complete physician honesty and transparency. Relationships with industry, agents, and organization management must be disclosed and apparent. This is true for surgeons as well as the entire team of specialists essential to athletic care, including primary care sports medicine physicians, physiatrists, therapists, and trainers.

**DEDICATION AND DILIGENCE**

As long as individuals play sports, they will continue to injure themselves. Although we cannot completely prevent injuries, we can dedicate ourselves to the pursuit of clinical care, independent learning, and research to further push the boundaries of surgery and to develop new techniques, protocols, and implants to improve outcomes. Caring for elite athletes is both humbling and rewarding. As surgeons, although we gravitate toward the details and nuances of technique and skill, we must never forget that our integrity and patient-focused moral compass are the
greatest tools we have to care for patients. We are always in the midst of renewal and change when treating sports injuries and understanding the unique factors and pressures that attempt to influence our decision-making. To move forward, surgeons need high-quality, evidence-based research to better educate and inform patients regarding the ability to recover and return to sport.

**References**


