Active Bones

Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation Newsletter

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Dear Readers,

As an orthopaedic surgeon dedicated to pushing the boundaries of sports medicine, I'm excited to share our latest innovations. For over two decades, I've been passionate about developing surgical techniques that restore mobility and hope for athletes of all abilities—from everyday athletes to competitive performers. In this issue, we'll explore groundbreaking approaches that are changing how we treat sports injuries and address mental health challenges, helping athletes return to the activities they love with greater confidence, faster recovery, and improved overall well-being.

Wishing you the best in health and wellness,

Dr. Steven Chudik
President OTRF
Orthopaedic Surgeon and Sports Medicine Physician

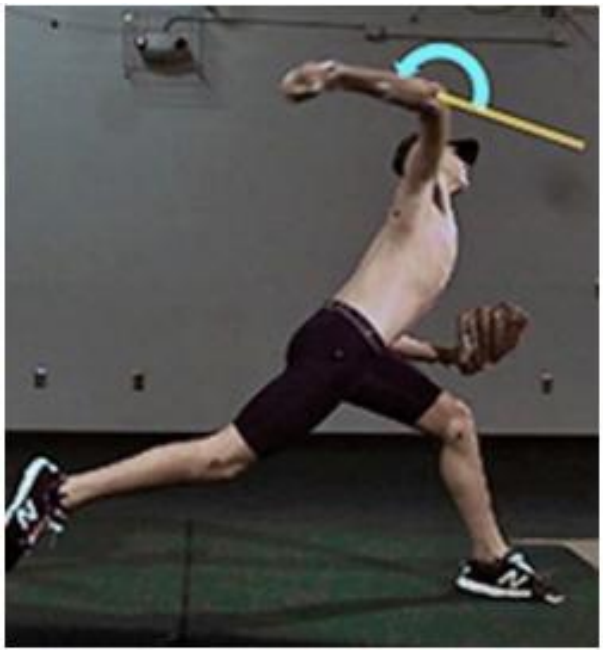
In This Issue:

"At the end of the day we're human too. We have to protect our mind and body, rather than just go out there and do what the world wants us to do."

- Simone Biles

Dr. Chudik's Tunnellness UCL Surgery
Sparing Bone, Restoring Hope

Ulnar collateral ligament sprains are tears of the ligament on the inner side of the elbow. The ulnar collateral ligament (UCL) is a structure that helps maintain the normal relationship of the humerus (upper arm bone) and the ulna (one of the forearm bones). This ligament can be injured in throwing activities or after elbow dislocations. It could happen as a sudden tear or gradually stretch with time and repetitive stress. This ligament is rarely injured in daily activities.



In the late cocking and early acceleration phases of an overhand pitch, the medial elbow endures as much as 64 Nm valgus, with the elbow in 90 to 100 degrees of flexion where the UCL is the most critical stabilizer.

For throwers, the UCL is the most vulnerable to injury during the late cocking and early acceleration phases of an overhand pitch because the medial elbow endures most of the force, as much as 64 Nm valgus, with the elbow in 90 to 100 degrees of flexion where the UCL is the most critical stabilizer. According to researchers, the mean maximum load to failure for a native UCL is 34.29 Nm and for a reconstructed UCL 30.55 Nm in the late cocking stage—or enough stress with every pitch in the late cocking phase to cause a UCL tear. Other sports with overhead motions, such as throwing a football, hitting a volleyball or tennis serve do not have the same mechanics and don't cause the same injuries as a baseball pitch.

The UCL can be torn after a single throw or stretched out over time from chronic overloading. When torn, the UCL usually does not heal or may heal in a lengthened position (loose). Surgery usually is indicated for people who wish to return to throwing and are having persistent pain and symptoms with a torn or incompetent UCL tear and have failed nonoperative options. Researchers report player return to sport rates with nonoperative treatments are less than 42 percent compared to 97 percent with only a 6.7 percent failure rate when surgery was performed.

The initial reconstruction of the UCL in athletes was reported in the Journal of Bone and Joint Surgery in 1986. It involved lifting the flexor muscles and drilling two holes in the ulna and three holes in the medial epicondyle to recreate the attachment point of the native UCL. The surgeon then passed a donor tendon making a figure eight and attached the two ends together. With this technique, more than 60 percent of elite throwing athletes returned to sport at their preinjury level. Since the creation of this initial technique, it has undergone many modifications. The main technique difference involves the treatment of the ulnar nerve, graft configuration and how the graft is attached. No studies have shown a clear benefit of one technique over another. All techniques involve drilling tunnels in the bones to fix the UCL graft in place.

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Dr. Chudik's Tunnellness UCL Surgery
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Dr. Chudik performs this surgery through one main limited incision on the inside of the elbow. Depending on the case, he also may arthroscopically inspect the elbow joint using a small camera. Typically, the original ligament is stretched out or torn and not repairable, so a tendon graft is needed to reconstruct the UCL. There are some patients that may benefit from a repair. For the reconstruction, a tendon usually is taken from the forearm or the knee through a small incision to make a new UCL. The primary difference with Dr. Chudik's surgical procedure is he does not drill large holes in the ulna (forearm bone) and the humerus (upper arm bone) to attach the new ligament graft.

MRI image of right elbow UCL tear

Instead, Dr. Chudik developed a technique that avoids drilling large holes/tunnels into the bone. He reattaches the UCL graft to the surface of the bone, restoring the correct anatomic position of the UCL and avoids the risk of fracture to the bone because of the bone tunnels. Return to sport with his procedure is excellent.

According to Dr. Chudik, using his technique keeps the bone strong and better able to endure the forces placed on the elbow when a thrower returns to sport. Return to sport for either procedure is the same. Heavy lifting requires a minimum of four to six months and overhead throwing and hitting sports requires nine months to one year recovery that includes completing a throwing program in addition to physical therapy.

One growing concern for orthopaedic surgeons is the increase in the number of high school pitchers with UCL injuries. Researchers noted an 11-fold increase in UCL reconstruction performed on high school pitchers between 1988 and 2003. Also, "there is a common myth that throwers' elbows are stronger after having a UCL reconstruction than they were prior to injury," Dr. Chudik said. "This is not true. Literature shows pitchers can return to their sport, but may not always achieve the same velocity and force with throwing after the injury and surgery. Prevention of an injury is always better," he added. "

Recovery time for nonoperative and operative treatment is significant with a gradual return to throwing. Nonoperative treatment requires a lengthy recovery, physical therapy and return to throwing protocols dependent upon the player position. According to Dr. Chudik, heavy lifting requires a minimum of four to six month's recovery after surgery and overhead throwing and hitting sports require nine months to one year recovery time.

America’s Fastest Growing Sport
Pickleball and Its Injury Conditions

Pickleball, combining elements of tennis, badminton, and ping-pong, has exploded in popularity across the United States as the game has captured the nation's attention. As of 2024, 48.3 million adult Americans have played pickleball at least once in the past 12 months[1].

The sport's appeal lies in its accessibility and simplicity. The court is significantly smaller than a tennis court, measuring 20 feet wide by 44 feet deep compared to a tennis court’s 36 feet wide and 78 feet deep, and the net is set two inches lower at the center. These differences make it easier for people of all ages and skill levels to play.

However, the rapid growth of pickleball has raised concerns about potential injuries. Dr. Chudik, an orthopaedic surgeon and sports medicine specialist, notes that while pickleball assumed to have similar injuries to other racquet sports, researchers have found some differences.

Dr. Chudik emphasizes that anyone experiencing pain, swelling, or loss of movement should seek prompt medical evaluation. He explains that while some injuries in pickleball and tennis can be similar, there are notable differences. For instance, pickleball is played more underhand than tennis, making shoulder injuries less common than falls on an outstretched hand or arm.

Common pickleball injuries include:

- Ankle sprains
- Calf strains
- Achilles tendon ruptures
- Wrist and finger fractures
- Acute knee injuries involving the meniscus and ligaments
- Hamstring, quadriceps, hip flexor adductor, and calf muscle strains

“Treatment for these injuries can range from rest, icing, compression, and elevation (RICE) to non-weight bearing, bracing, physical therapy, or possibly surgery, depending on the severity.”, Dr. Chudik stated.

Based on his 20+ years of treating athletes of all abilities and ages, Dr. Chudik recommends thorough warm-up before playing, including upper body and lower body exercises. As pickleball continues to grow in popularity, it's crucial for players to be aware of potential injuries and take necessary precautions to enjoy the game safely.

References:[1] (2024) New APP Research Reveals Nearly 50 Million Adult Americans Have Played Pickleball. The APP Global.

Breaking the Silence
Athletes' Mental Health Matters

The conversation about athlete mental health reached a global stage when Simone Biles, the most decorated American gymnast, withdrew from competition during the Tokyo Olympics. Citing mental health concerns and experiencing what gymnasts call "the twisties", Biles ignited a pivotal discussion regarding athletes mental well-being. This spotlight confirmed existing research that indicates that up to 35% of elite athletes face significant mental health challenges[1]. Biles' personal moment catalyzed a broader, groundbreaking shift in athlete mental health awareness.

Beyond the spotlight, a silent struggle unfolds in young athletes. Research indicates that elite youth competitors encounter performance anxiety and identity crises, particularly when sidelined by injuries[2]. These pressures can exacerbate mental health issues, with female athletes often experiencing higher stress-related injury rates compared to their male counterparts[3].

The sports community in return has been responding to these findings. According to the American Orthopaedic Society for Sports Medicine, major sports organizations have published nine mental health position statements since 2018, signaling a growing recognition of the issue's importance. Athletes like Biles and beyond have transformed the dialogue, demonstrating that mental health is as critical as physical performance.

As we look to the future, the integration of mental health support in sports is not just beneficial—it's essential. Athletes, coaches, and support staff should prioritize mental wellness alongside physical training. This holistic approach not only enhances performance but also ensures the long-term well-being of athletes beyond their competitive careers.

By embracing these insights and implementing supportive practices, we can foster a sports culture that values mental health as much as athletic performance, ultimately leading to healthier, happier, and more resilient athletes.

Mental Health Resources:

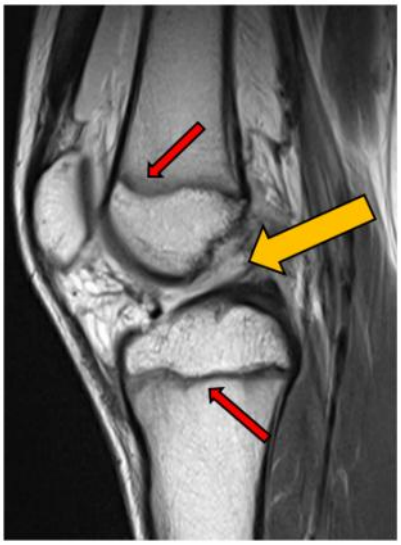
- National Alliance on Mental Illness Hotline: 1-800-950-NAMI
- 24/7 Crisis Text Line: Text 741741
- NCAA Mental Health Resources for Student Athletes (Click Link)
- Athletes for Hope Resource Hub (Click Link)

References:[1] (2019) Mental health in elite athletes: International Olympic Committee consensus statement. British Journal of Sports Medicine.[2] (2023) Current Findings on Student-Athlete Mental Health. NCAA Research.[3] (2024) Olympics Spotlight Gender-Informed Injury Prevention. Think Global Health.

Paving the Way for Young Athletes Dreams
Novel Procedures by Dr. Chudik

It is not unusual for young children involved in sports to dream of becoming a professional athlete when they grow up. Despite the odds of becoming a professional athlete, sports participation provides children many benefits such as staying active, being part of a team, discipline, focus, practice and being a good sport—win or lose—and most important, having fun.

One negative to playing sports is the potential for injuries. They happen at every age and in every sport. In his 20 years as an orthopaedic surgeon and sports medicine specialist, Dr. Steven Chudik has treated thousands of injuries—minor and serious, common and uncommon—and each with its own unique need. As Dr. Chudik explains, every person is different which makes every injury different. In his quest to provide the best treatment for his patients Dr. Chudik has developed new instruments, surgical procedures, post-surgery rehabilitation and return-to-sport testing protocols. He has authored countless research papers and seven US patents.



MRI showing a torn ACL indicated by the gold arrow on a patient with open growth plates (red arrows).

"Just because it's a common injury, like an anterior cruciate ligament (ACL) tear, doesn't mean it should be treated just one way," Dr. Chudik said. "Take a young child with an ACL tear and open growth plates, for example. Many used to tell the child his/her sports participation was over until the growth plates close because traditional surgical techniques for a torn ACL damages the growth plates and risk growth abnormalities," he added.

Fortunately, Dr. Chudik developed a special surgical procedure that preserves the growth plates and reconstructs the ACL allowing numerous young children to resume normal activities, including sports. Many of his patients have gone on to become collegiate and professional athletes. Below is another example of Dr. Chudik's commitment to advancing treatment—a football recruiting highlight video of an athlete who underwent his specialized ACL surgery during his pre-teen years.

Click the video below to see how Dr. Chudik's innovative ACL procedure helped this athlete return to sports and pursue a successful football career: Watch on Youtube

Thank You for Reading!

Active Bones

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Health & Wellness Tips

1. **Practice Mindfulness:** Incorporate daily mindfulness exercises, such as meditation or the 4-7-8 deep breathing technique - inhale for 4 seconds, hold for 7 seconds, exhale for 8 seconds. This helps athletes manage stress, improve focus, and reduce performance anxiety by activating the parasympathetic nervous system

2. **Prioritize Rest and Recovery:** Ensure adequate sleep and downtime between training sessions. This not only aids physical recovery but also supports mental well-being, reducing the risk of burnout and stress-related injuries.

3. **Seek Support:** Don't hesitate to reach out to coaches, teammates, or mental health professionals when feeling overwhelmed. Building a support network is crucial for maintaining both physical and mental health in sports.

UPCOMING: VIRTUAL SPORTS MEDICINE CONFERENCE

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