

Active Bones

Orthopaedic Surgery and Sports Medicine
Teaching and Research Foundation Newsletter



otrfund.org

Spring/Summer 2020

Dear Readers:

Spring and nice weather are here. It won't be long until outdoor activities are in full swing and people eagerly abandon their indoor facilities in favor of getting outside. Some may find it is a little harder getting back "into the swing of things" than they did in the past and early season injuries can be quite the spoiler. This is a good reason to keep up a good resistance and flexibility conditioning program as we transition to outdoor athletic activities and sports.

Two spring activities we'll soon be watching and/or playing are baseball and softball. Much has been published about head injuries in football and soccer, but softball also has its share of head injuries. There's been a push by many to get protective headgear required for infield players. We researched this and I think you'll be interested to read what we learned.

For young throwing athletes, overuse is always a concern and we try to remind coaches, parents and players every year about the injuries that can develop from overuse and poor pitching mechanics. However, there's a condition that doesn't see as much press as elbow ulnar collateral ligament injuries (UCL), frequently called a Tommy John injury, but it is quite complex and a serious injury for young pitchers. The injury is osteochondritis dissecans (OCD) of the elbow and we present an overview of the symptoms, treatment options and prevention on page six.

Another injury I'm seeing more and more in my practice is pectoralis major tendon rupture. Weightlifters, football players, professional bodybuilders, other athletes and many laborers rely greatly on the pectoralis major muscle during maximum upper extremity pressing and pushing movements. Pectoralis major tendon ruptures are often misdiagnosed so we've also included an article describing the symptoms, treatment options and rehabilitation required for this injury on page four.

Thank you for reading **Active Bones**.

Steven Chudik, MD
President OTRF
Orthopaedic Surgeon and Sports Medicine Physician



Making time for daily activity provides multiple benefits as you age

by James Wolf, PT, DPT

Everyone knows it is best for their health to exercise regularly. It is hard to overstate the benefits of being physically active. Many people choose sports as their outlet for physical activity. However, according to the 2015 Sports and Health in America report, only 25 percent of adults played sports last year despite nearly 75 percent of these same individuals reported they played sports when they were children. Moreover, only half of these adults who play sports do so more than once a week. Maybe, you are one of these people who play sports, but even if that is the case, most could benefit from some additional exercise. The real question is how much exercise is sufficient to see significant health benefits.



The Department of Health and Human Services (HHS) released their updated “Physical Activity Guidelines for Americans” based on significant additional research in 2018. They extensively cover topics such as why to exercise, how much to exercise, and what are the health benefits of exercise. The base recommendations for adults are as follows:

“For substantial health benefits, adults should do at least 150 to 300 minutes a week of moderate-intensity, or 75 to 150 minutes a week of vigorous-intensity aerobic physical activity. Adults also should do muscle-strengthening activities of moderate or greater intensity that involve all major muscle groups on two or more days a week, as these activities provide additional health benefits.”

They note that additional physical activity beyond this level can create greater health benefits. Probably the best-known benefits of physical activity are reduced risk of coronary heart disease, stroke, and hypertension. We also know exercise can reduce the risk of cancer at multiple sites and type 2 diabetes. Staying active improves brain health and conditions that affect cognition like depression and anxiety. Of course, physical activity improves your fitness level and functional capacity to handle the challenges of everyday life. Despite the significant evidence for benefit, only 26 percent of men and 19 percent of women met the activity level recommendations for both strengthening and aerobic activity.

Being sedentary, prolonged sitting and inactivity during work or leisure activities, carries its

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Upping the head, face protection in softball

by Taylor Patton, ATC

Softball is a popular sport in the United States with an estimated 10 to 12 million people participating annually. Just like other sports, softball has its own unique risks for injury. Particularly, head injuries are becoming a prevalent and controversial topic in softball. The National Electronic Injury Surveillance System (NEISS) database reported 3,324 head and face injuries at 100 hospitals nationwide over the time span of five years, resulting in a nationwide estimate of 121,802 injuries. The prevalence of these injuries led softball organizations to investigate and try instituting various actions to decrease the number of athlete head and face injuries.



Protective head gear is one safety precaution becoming popular for softball infielders. This infield headgear is similar to a batting helmet without the padded hard shell helmet. The headgear is simply the facemask with some padding behind the protective bars and straps to keep it securely on the head. This headgear is available in many models made by numerous companies but there is a lack of data determining its effectiveness.

The National Operating Committee on Standards for Athletic Equipment (NOCSAE) specializes in certification of protective gear for numerous sports nationwide. NOCSAE certified protective softball headgear for both the hitters and catchers, but they have not certified protective headgear for infielders. NOCSAE chose not to develop a standard for a facemask because

mask-only headgear in their opinion does not provide enough protection to prevent head injury. NOCSAE will not certify a head injury preventative mask for softball infielders without a heavily padded shell that encompasses the head like a catcher's mask.

However, across the nation, softball athletes are starting to use protective face masks by choice in attempt to help prevent injury. Research shows this type of mask does not eliminate the risk of facial fracture, but it does help reduce the frequency and provides athletes with extra protection. Additionally, research found that wearing a face mask did not increase or decrease of the severity or frequency of an injury.

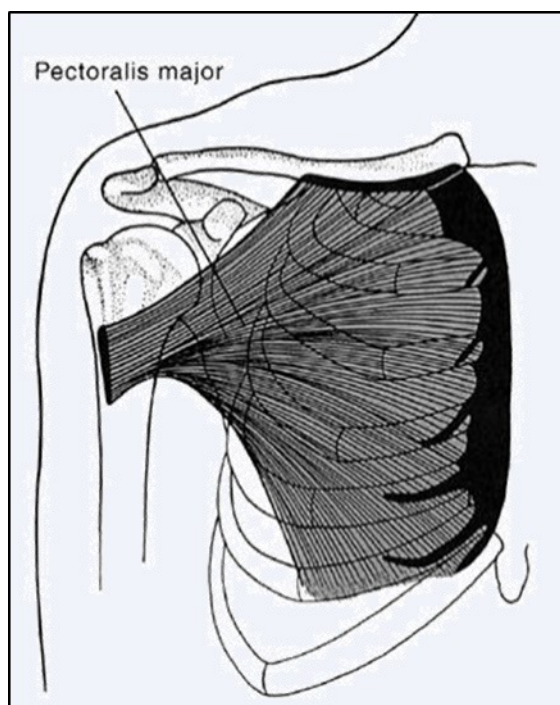
The most common types of masks on the market today are constructed from metal and plastic. According to the Biomedical Engineering Society, metal masks have shown to prevent injury better than the plastic masks because of metal's ability to better disperse and reduce the force of impact from the ball.

Preventative face masks for softball infielders are seen at all levels nationwide. They are not required by the sport or any protective softball equipment committees at any level and are a matter of coaches' and players' preference. The topic of infield facemasks and their ability to help prevent injuries continues to be researched and discussed.

Pectoralis major tendon rupture repair/reconstruction

by Taylor Patton, ATC

Rupture of the pectoralis major tendon is a commonly missed injury that most often occurs in weight-lifters, specifically while performing chest pressing activities. Particularly, this injury is becoming more common in power lifters, football players and professional bodybuilders. Research from the *American Journal of Sports Medicine* (AJSM) demonstrated the pectoralis major muscle is not considered necessary



to perform typical activities of daily living, but it is important for athletes and labor-intensive work to produce maximal force with upper extremity pressing or pushing movements.

Patients who suffer from a pectoralis major tendon injury present in a similar fashion. Most patients report performing a pressing/pushing motion when they feel a pop in the front of shoulder or upper arm followed by immediate pain and weakness. Subsequently, over the next few hours to days, they often experience progressive swelling and bruising that frequently masks the deformity around the chest and armpit left by the torn tendon. Research also shows that the use of anabolic steroids can compromise the mechanical properties of tendons throughout the body and may be a predisposing factor for pectoralis major tendon ruptures for higher demand patients.

Treatment can be conservative which includes rest, ice, anti-inflammatories and a gradual progression of

exercises and activities. Physical therapy can be very helpful. However, without repair of the pectoralis major tendon back to the upper arm bone, strength deficits will remain. For the patient high level demands and wishes to perform chest resistance exercises, they will be dissatisfied in their performance. Therefore, Dr. Chudik recommends repair or reconstruction of the pectoralis major tendon.

Timing for surgery is very important. Research shows that repairing these injuries acutely, within three weeks, gives the patient the best chance for a full recovery of strength and function. If the repair is delayed, the muscle retracts (shortens), scars and atrophies (shrinks and weakens) and the tendon may shorten and lose its important mechanical properties, all compromising the outcomes for surgery. During the procedure, the pectoralis muscle and tendon are mobilized (freed up) from the surrounding tissues, brought back out to length and reattached to the humerus (upper arm bone).

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Pectoralis major surgery

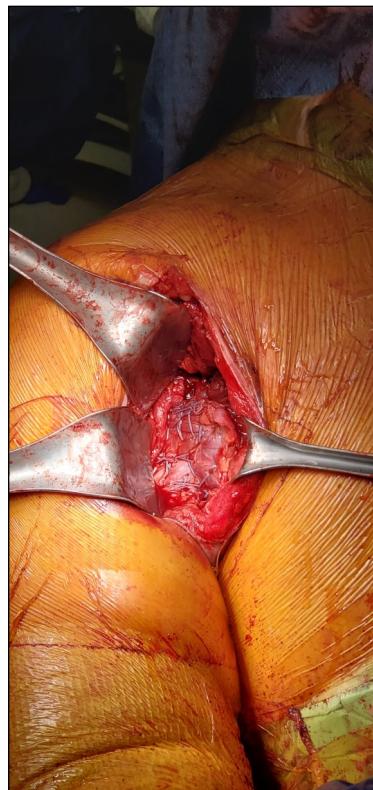
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Repair of chronic injuries are possible but require a lot more surgical dissection to mobilize the muscle. Sometimes, the tendon for the muscle also needs to be reconstructed (re-made) with a tendon graft from another site. In these challenging cases, Dr. Chudik prefers to harvest a portion of the iliotibial band from the ipsilateral (same side) thigh to make a new tendon for the muscle. The pectoralis major tendon or reconstructed tendon is connected back to the humerus with anchors and sutures.

Following pectoralis major tendon repair or reconstructive surgery, the arm needs to be immobilized in a sling and a waist strap to keep the patient's arm at his/her side with the hand on his/her abdomen (stomach) for six weeks. After six weeks of immobilization, patients require physical therapy for up to four to six months following surgery to regain motion, strength and function. With timely surgery and compliance with the post-operative directions, patients are very satisfied and can regain normal strength and function.

For additional information on pectoralis major tendon rupture or surgery to repair or reconstruct the injury, visit Dr. Chudik's website at: <http://www.stevenchudikmd.com/shoulder/>.

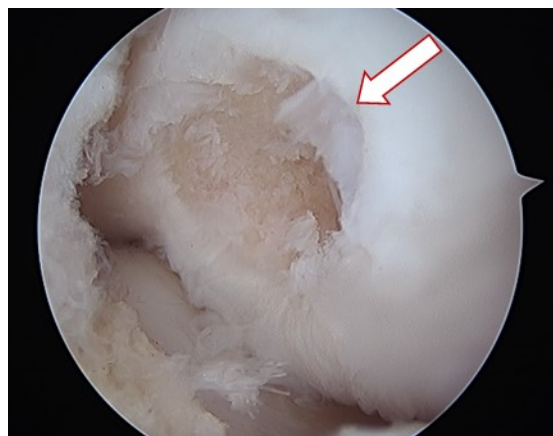
Dr. Chudik reconstructs the torn tendon by attaching an IT band autograft taken from the patient's leg. Following surgery, patients wear a sling continually for six weeks so they don't use the arm and risk proper healing.



OCD in throwers

by Sarah Menzuber, ATC

Young throwing athletes, such as Little League baseball players, are at risk for a variety of injuries. Overhead throwing places extreme forces across the elbow joint and can result in injury. Throwing beyond the tolerance of the elbow is a common cause of injury in young athletes. Elbow osteochondritis dissecans (OCD) is more prevalent in athletes who have been throwing for many years without adequate rest and time off. Most commonly, males are affected more than females and an OCD typically occurs in the second decade of life, between ages 8-16. It often is found in an athlete's dominant arm, but both elbows can be affected. Not every athlete who develops an elbow OCD will remember one specific injury, but rather a gradual progression of pain over time.



Arrow denotes an OCD on the capitulum of the elbow which is located on the end of the humerus in the elbow joint.

Osteochondritis dissecans of the elbow is a less common but serious condition found in young throwing athletes. It is a localized injury or condition affecting the bone just below the cartilage surface of the elbow joint and often is associated with repetitive throwing and sports. In OCD, the involved bone just below the cartilage joint surface fails and fractures from repetitive stress or from interruption of its local blood supply. Eventually, the overlying cartilage, not properly supported by the affected bone, can separate and an OCD fragment of bone and cartilage can break loose. Some common signs and symptoms of an elbow OCD are swelling, pain, locking, catching, feeling like there is something floating free in the joint and painful crepitation, or a cracking sound.

If the OCD is stable (not loose) and the patient is still growing, conservative treatment of rest and restricted activity sometimes allows it to heal. If conservative treatment fails or the OCD lesion is more mature and

separated from the rest of the bone, either with the overlying cartilage intact, partially separated or completely separated (loose body), arthroscopic surgery often is needed to stimulate, graft, stabilize or remove the OCD fragment. If neglected, the OCD may come loose, catch in the joint causing pain, locking, clicking, etc., and leave a hole in the joint surface accelerating wear and tear and arthritis of the elbow joint. Dr. Chudik developed special techniques and instruments to arthroscopically repair elbow OCD lesions without violating intact cartilage allowing the best opportunity to restore a normal joint surface and elbow function.

Following surgery, patients perform light physical therapy exercises to restore passive elbow range of motion while allowing the OCD to heal. Once healed and the patient is pain free, strengthening and conditioning activities can begin. As strength and function recover, Dr. Chudik recommends the athlete perform an interval throwing program to allow the elbow to become accustomed to throwing.

For a free copy of Dr. Chudik's return to throwing guidelines, email contactus@chudikmd.com and provide an email address along with the age of the baseball player and level of participation.

Benefits of daily fitness

Continued from page 2

own negative health consequences. The U. S. National Health and Nutrition Examination Survey found that on average adults are sedentary for approximately 55 percent of their waking hours, or 7.7 hours per day. If you are sedentary for a large portion of your day because of work, school, driving, etc., then it is even more important to be physically active during the remainder of the day. With the challenges of daily life, it might be hard to get enough activity every day or every week. For some people, either their health or other aspects of their life can prevent them from achieving the target amounts of physical activity, but something is better than nothing. The U. S. Department of Health and Human Services (HHS) found that even brief amounts of physical activity can have both short-term and long-term health benefits. They focus on the concept of “progressing toward the target” to reinforce this concept.

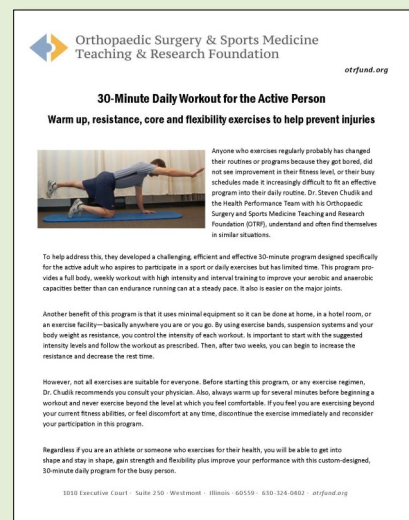
OTRF has numerous sport-specific injury prevention and in-season conditioning programs to address the needs of a variety of athletes. This spring, we are releasing our “30-Minute Workout Program” to help people with limited time meet their targets for physical activity as recommended by HHS. The “30-Minute Workout Program” provides thorough instructions and progressions to make it useful for all and has a good variety of activities to keep it interesting. Here’s your chance to get started towards a healthy and happy lifestyle with the OTRF “30-Minute Workout Program.” For a copy of the program, please see the information below.

30-minute workout for the active person

Dr. Chudik and his OTRF sports performance team developed a new 30-minute exercise program designed for daily use by active adults wanting to participate in sports or looking for a change in their current exercise routine. The program provides a full body, weekly workout with high intensity and interval training to improve aerobic and anaerobic capacities better than endurance running can at a steady pace. It also is easier on the major joints.

For a copy of the program, email contactus@chudikmd.com/ and provide your name, phone number and your email address. We will not retain any of the information. It only will be used to send you the electronic files or contact you in the event we encounter a problem.

Other sports performance programs can be found on the OTRF website at <https://www.otrfund.org/> listed under the sports performance programs tab at the top of the home page.





Orthopaedic Surgery & Sports Medicine Teaching & Research Foundation

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Sports Medicine Injury Clinic

Monday
Evenings

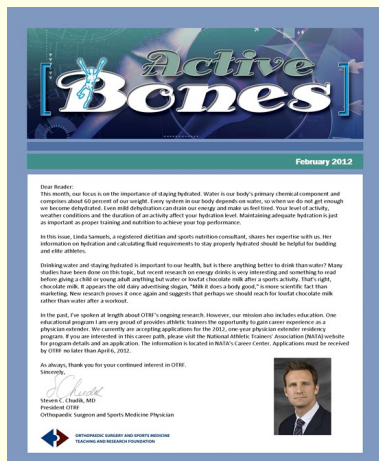
Call 630-324-0402
for an appointment

Sign Up Today!

Don't miss another issue of **Active Bones**, an E-newsletter from OTRF. Each issue contains information to help you stay healthy and live an active life with tips on injury prevention, sports conditioning, research and newsmakers.

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