Active Bones
Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation Newsletter
otrfund.org
Spring 2018

Dear Readers:

Spring is finally here! However, I began thinking about it during our frigid winter. Thankfully, that is behind us and people are riding bikes, working around their yards and children are outside participating in youth sports. As you and your family return to activities, make sure to stretch, warm up and maintain correct body mechanics to help prevent injuries. Also, visit our website, ***otrfund.org/sports-performance-programs/***, and download any of the sports and conditioning programs which can be helpful to get into shape as spring sports and activities resume, including chores around the house.

While you and your family return to outside activities and sports, I want to emphasize the importance of letting children play sports for the fun of it and as a form of exercise. Having them focus on a single sport year-round can increase the risk for injury. Research continues to bear this out and as a result, organizations such as Little League and park districts are changing their guidelines. We took a closer look at what's happening, particularly in Little League, and our summary starts on page two. Overuse injuries unfortunately have been increasing in youth sports. As parents, coaches and sports medicine specialists, we have to do our part to help prevent injuries. We also need to make sure that if they suffer an injury, they follow a safe and gradually progressive return to play protocol. We've also included several articles on injury prevention and conditioning.

Are you dreading or reconsidering your participation in activities because of shoulder pain? Or, did you injure it and have been putting off seeing an orthopaedist? If so, check out our article on shoulder replacement surgery and how it won't keep you on the bench. I think you will find it interesting to see how technology and surgical options have changed and improved people's lives.

As long as I'm on the topic of shoulders, the OTRF health performance team and I developed a new program we're testing to determine when it is safe to return to activities and sports after arthroscopic Bankart/labral surgery following a shoulder dislocation. We are optimistic the results of the study will validate the test so physicians will have a more definitive tool to assess the risk for re-injury and when it is safe to return to sports.

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

Little League® may need more restrictive guidelines, additional conditioning to prevent overuse and return to play injuries

According to a recent study on Little League® baseball players, the current Little League pitching guidelines, last modified in 2007, may not be sufficient to prevent shoulder and elbow injuries. New data suggests that the endorsed guidelines, along with all-around compliance, still results in a high number of shoulder and elbow injuries in young pitchers.

Thirty-four Little League pitchers ages 10 to 13 were the subject of the study. Athletes had an MRI before and after the season to examine the radiologic effect on their shoulders and elbows over a single season. MRI findings were categorized as 'abnormal' if there was evidence of tissue injury. According to the researchers, abnormalities were noted on the medial side of the elbow and included fragmentation of the bony medial epicondyle, edema (swelling), and partial tearing of the ulnar collateral ligament (UCL). At the beginning of the season, 35 percent of the players had an abnormal MRI finding. At the end of the season, 48 percent of players had an abnormal MRI finding. Of the players with an abnormal MRI finding at the end of the season, 75 percent had new findings and/or a progression of an abnormal finding that was found before the start of the season.

Each player also underwent a physical examination at the beginning and the end of the season. In comparison, the researchers noted a loss of approximately 11.2 degrees of shoulder internal rotation per athlete, a loss of 10.8 degrees of the shoulder total arc of motion, and the development of 1.4 degrees of elbow hyperextension. There was a positive correlation between the pre- and post-season abnormal MRI findings and the loss of range of motion and the development of elbow hyperextension.

The study's authors reported that players demonstrated "excellent" compliance with the Little League regulations, which consist of pitch count limits and mandatory rest days; however, players did not comply as well with other nonmandatory, but recommended regulations. These recommendations include restrictions on throwing off-speed pitches such as curveballs and sliders, resting from baseball play for at least three months per year, and restrictions on how many teams an athlete may be on during one season. Of the 25 athletes in the study, 56 percent threw off-speed pitches, 68 percent did not rest for at least three months per year, and eight percent played on more than one team during the same season.

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Little League guidelines

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When the researchers examined the 12 players with an abnormality in their post-season MRI, 83 percent had not complied with at least one of the nonmandatory recommendations, compared to 62 percent of the players who did not have a post-season abnormality. Of the eight players who had a worsened and/or new abnormality at the end of the season, 88 percent had not followed at least one of the three nonmandatory recommendations, compared to 65 percent of the players who had no new and/or worsening abnormalities. Athletes who did not comply with the nonmandatory recommendations had a greater likelihood of injuring their shoulder/elbow.

According the researchers, their findings underscore the importance of complying with both mandatory and nonmandatory Little League pitching guidelines in order to optimize injury prevention. “These numbers are very high and certainly raise a question about the overall effectiveness of the Little League pitching guidelines,” Dr. Steven Chudik said. “It also is a testament to the unnatural and damaging forces pitching places on the shoulders and elbows of our developing youth. We should focus more on instruction and free play and less on competitive organized sports,” he added.


STEVEN CHUDIK MD
SHOULDER, KNEE & SPORTS MEDICINE
Interval Throwing Program
For 9-12 Year-Olds

Part of the instruction, according to Dr. Chudik, should be teaching athletes the importance of good biomechanics and following an Interval Throwing Program (ITP) as part of their training and return to play after time off or an injury.

An ITP is based on throwing at an incremental speed and distance to gradually prepare a throwers’ arm for the season. Typically, ITPs are age-specific and incorporate pitch statistics, field dimensions, performance restrictions and throwing endurance. They start with short tosses and progress in intensity and number of throws, as well as distance in a safe manner. The ITP should be completed in the preseason prior to returning to throwing following time off, or after rehabilitating an injury.

Dr. Chudik uses three age-specific ITP programs for throwers recovering from an injury or time-off that are designed to work in conjunction with a research-based, in-season stretching and conditioning program created by Dr. Chudik and his health performance team through his foundation, the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) featured on page six. To receive a copy of an age-specific ITP program, email the age of the player(s) to *contactus.chudikmd.com/*.

Safe return to play following arthroscopic ACL knee reconstruction, Bankart shoulder repair easier to determine with OTRF functional capacity tests

When is it safe for an athlete to return to sport if he or she had arthroscopic anterior cruciate ligament (ACL) knee or shoulder Bankart (labral) surgery? Those are questions orthopaedic surgeons face daily. Many use time, documented progress in physical therapy or strength measurements to determine when to release athletes back to sport. Others use functional testing measures such as comparative triple leg hops for an ACL test. A research review reported that out of 264 studies, 40 percent failed to provide any criteria for return to play (RTP) after surgery. Of those that utilized criteria for RTP, 13 percent used only objective responses, and only four percent used a functional test.

Literature suggests the risk for ACL injury can be reduced with exercises that teach athletes to run, cut, jump and land with proper form. Specifically, some learned patterns of movement can put athletes at significant risk and many athletes who have already suffered an ACL injury are at risk for recurrent injury or injury to the opposite knee.

Therefore, Dr. Chudik and the sports performance team with his nonprofit foundation, the Orthopaedic Surgery & Sports Medicine Teaching & Research Foundation (OTRF), designed a functional capacity exam (FCE) for determining return to play following ACL surgery. The test is designed to quantitatively and qualitatively assess the functional movement of the athlete, making sure he/she not only can jump as far on one leg as the other, but also that each movement is performed safely and with proper form. It also provides a simple "PASS" or "FAIL" grade and allows physicians to advise an athlete on what they need to continue to work on in order to pass.

Dr. Chudik has been evaluating athletes who performed an FCE during the past four years. "Our research to validate this test has revealed a decreased risk for re-injury if athletes return after receiving a passing grade," explained Dr. Chudik. "Providing this test for athletes is an important step in completing the treatment of ACL-injured patients and reassuring for them that they are less likely to experience a re-injury upon returning to sports," he added.

Building on the success of the ACL functional capacity exam, Dr. Chudik and the OTRF sports performance team recently developed a similar test for patients who suffered an anterior

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Shoulder replacement help keep you in the game, not on the bench

During the last 20 years, the number of total shoulder replacement surgeries has dramatically increased. According to the American Academy of Orthopaedic Surgeons (AAOS), more than 45,000 shoulder replacement surgeries were performed in 2015 the United States compared to approximately 18,000 in 2000. By comparison, more than 900,000 Americans annually have hip and knee replacement surgery.

First performed in the U.S. in the 1950s, total shoulder replacement surgery was used to treat severe shoulder fractures. Since then, there's been a steady increase in the number of replacement surgeries that can be attributed to several factors:

- The procedure has become an effective solution for a host of painful shoulder conditions besides fractures which today accounts for less than 14 percent of the shoulder replacement population. Arthritis leads the reason for replacement at 74 percent.
- An aging, yet active Baby Boomer generation.
- The U.S. Food and Drug Administration's (FDA) approval of the reverse total shoulder arthroplasty in 2003 and its documented success for use in patients of all ages. In 2015, reverse total shoulder surgery represented one-third of all shoulder arthroplasty procedures.
- Improved implant devices and arthroscopic surgical techniques.
- Time to monitor and research surgery outcomes. One recent study revealed patient satisfaction with their shoulder replacement surgery was as high as 94 percent and the majority were pleased with their overall daily quality of life after surgery.

Individuals with chronic shoulder pain from degenerative arthritis, rotator cuff tears that are not repairable, and fractures are the most common reasons for shoulder replacement surgery. Most often, individuals undergo a variety of conservative treatment options as a first line of pain/injury management including:

- Activity modification
- Anti-inflammatory medications
- Physical therapy
- Steroid injections

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Incorporate an easy, fun exercise program into youth sports to help prevent injuries

More than 3.5 million youth (ages 14 and younger) receive medical treatment for sports injuries each year. The Center for Disease Control estimates about one-half of these injuries are preventable. Since children's bodies are still growing, they are more susceptible to injury. They even can damage their growth plates and affect their growth process. As adults, it is our job to help prevent youth injury by teaching proper technique and building muscle strength throughout the in-season. With proper warm-up, finishing and conditioning exercises, we can help prevent injuries and keep our children healthy and active.

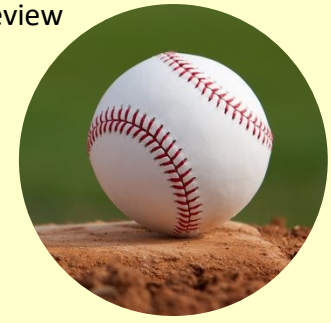
Because most youth sports are coached by parents, Dr. Steven Chudik and the OTRF Health Performance Team used their knowledge and experience of exercise physiology, strength and conditioning to develop a general in-season conditioning program consisting of warm-up, finishing and conditioning exercises designed to be used for all youth sports. To download a copy of a stretching and conditioning program, go to the OTRF website at *www.otrfund.org/sports-performance-programs/.*

Proper throwing mechanics important to injury prevention

All too often, orthopaedic and sports medicine physicians see athletes with injuries caused by poor or improper throwing mechanics. Most athletes are not even aware they are throwing incorrectly which can result in an injury.

According to Dr. Steven Chudik, an analysis of an athlete's throwing mechanics can be very helpful. "By prescribing my patients to have a throwing analysis performed, we are able to identify errors in mechanics, correct them and reduce the risk for injury," Dr. Chudik explained.

Typically, a throwing analysis includes a subjective history, throwing range of motion and other objective measurements like core and arm strength, and throwing observations. The process takes about one hour. A follow-up appointment may be necessary to review and discuss the findings and recommendations. If the analysis shows problem areas, the orthopaedic specialist who prescribed the test can write another prescription to cover additional physical therapy services. Most insurance plans cover the additional physical therapy, but check with your provider to ensure the throwing analysis also is covered.



FCE return to play tests

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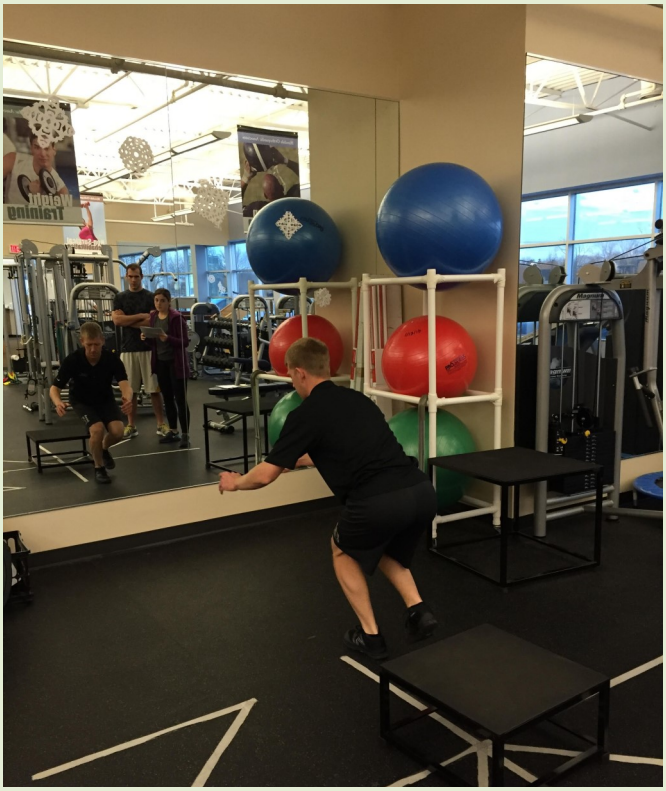
shoulder dislocation and had arthroscopic Bankart (labral) repair surgery.



According to Dr. Chudik, although there have been many technical advances in arthroscopic Bankart surgical repair and post-operative rehabilitation, there still remains a significant re-injury rate which most surgeons consider to be related to the strength of the repaired tissues. However, from personal observation and experience, Dr. Chudik has seen increased performance and possibly joint awareness following a more advanced, progressive balance and stability training program.

With this in mind, the OTRF team felt it was necessary to create an advanced shoulder dynamic stability training program and shoulder functional capacity evaluation (FCE). This would help ensure the athlete regained sufficient strength, stability and balance, and also has the best opportunity to pass the FCE.

“We’ve been using the training program and FCE since the spring of 2017 and it definitely helps us identify specific deficits or weaknesses that may remain,” Dr. Chudik explained. “It works like the ACL test in that it tells us when an athlete is ready to return to sport and provides us with simple “PASS” or “FAIL” grade.”

Similar to the ACL functional capacity evaluation, Dr. Chudik and the OTRF Sports Performance Team intend to present their findings at a future, annual orthopaedic conference and in peer-reviewed journal articles.

Shoulder replacements

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Should conservative approaches fail to provide relief or enable the patient to return to work or sport, a total shoulder replacement may be an option. Depending upon the outcome of conservative treatments, the orthopaedic specialist will recommend the best treatment options for the patient's shoulder condition, injury, pain and lifestyle goals to help ensure the best possible outcome.

If surgery is required, patients typically are in a sling for up to six weeks to prevent them from moving their arm on their own and allow the rotator cuff to heal. Physical therapy is started within two to three days after surgery. The physical therapist will move and stretch your arm and shoulder to prevent scar tissue from forming and the joint getting stiff. Physical therapy is usually prescribed for four months. Total recovery is dependent upon following and completing the physical therapy protocol prescribed by the orthopaedic specialist.

Return to driving is usually permitted after to six to eight weeks and when prescription pain medication is no longer needed. Return to work or activities once rehabilitation is complete—usually six months, although this is dependent upon the success of the rehabilitation and the type of work/activity.

Multiple studies have monitored shoulder replacement patients for short- and long-term outcomes and have reported exceptional results. Research also shows between 75 to 90 percent of shoulder replacement patients return to the exercise of choice with the highest number returning to swimming, followed by fishing, golf, and tennis. Additionally, research indicates patients experience an improvement in performance postoperatively. More demanding sports, such as bowling, softball, and basketball have lower postoperative return percentages (between 20 to 40 percent.) However, each patient and shoulder replacement is different so it is always recommended that patients have frank and honest discussions with their orthopaedic physician from the beginning so expectations and activity goals become part of the rehabilitation and recovery protocol.

Research Roundup

How old are your athletic shoes?

While you are spring cleaning, consider replacing your athletic shoes. According to research published in the British Journal of Sports Medicine, wearing the wrong shoe, or worn out shoes can contribute a foot injury.

Researchers concluded there is a reliable and scientifically valid way to choose the correct running shoe, but because it is so easy, people often ignore it. After reviewing decades of studies about running injuries, shoes and their relationship, researchers concluded shoes need to be chosen for comfort and not because of pronation control or impact forces.

"Our finding makes scientific and common sense," the lead researcher said. "Our bodies are actually very good judges of how each of us should move and run. When we ignore or fight our bodies natural movement pattern, such as by trying to control pronation, the risks for injury increase," he added.

The American Academy of Pediatric Sports Medicine also has some tips to help decide when to replace your shoes and suggestions to help them last longer.

- Keep track of your miles. Shoes should be replaced after running or walking 300 to 500 miles, or playing 45 to 60 hours of basketball or tennis.
- If you see wear and tear, replace them, or if they do not rest evenly on a flat surface, replace them.
- Buy two pair at the same time and rotate usage.
- Purchase your shoes from a specialty store where you will have the greatest variety and selection options. Also, so you can be properly measured and fit.
- Use your shoes for what they are intended—sports and/or exercise. Casual wear can affect the cushioning and fabric, not to mention shortened their "useable life."

Calcium, Vitamin D supplements may not reduce fracture risks in older adults

Research published in The Journal of the American Medical Association suggest the use of calcium and/or Vitamin D supplements may not reduce the risk of fractures for older adults. The meta-analysis and review of 33 randomized trials covering 51,145 adults age 50 or older compared the results of a placebo or no supplementation with those individuals taking the recommended calcium and/or Vitamin D supplement dosages. They found the supplements had no significant association with the risk of incidences of fractures of any type. Based on their findings, they could not justify the use of calcium or Vitamin D for older adults to lower the risk of fractures. However, if you take these supplements, Dr. Steven Chudik recommends talking with your primary physician before discontinuing use of the supplements because there may be other health reasons to continue taking them.

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Research Roundup

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FDA officially bans 19 chemicals used in OTC antibacterial soaps

In the Fall 2016 issue of *Active Bones*, we reported the U.S. Food and Drug Administration (FDA) was reviewing over-the-counter consumer antiseptic wash products containing at least one of 19 specific active ingredients, including triclosan and triclocarban. At that time, the FDA could not find supporting research to show that over-the-counter (OTC) antibacterial soaps are better at preventing illness than washing with plain soap and water. This past December, the FDA made it official banning the use of triclosan, triclocarban and 17 other chemicals in hand and body washes which have been marketed as being more effective than simple soap. Furthermore, they require any product containing those ingredients to file new drug applications. Companies have one year to eliminate these ingredients from their products or remove them from the market. The ban only applies to consumer products, not to antibacterial products used in medical and food service settings.

Many companies started phasing out the ingredients after the FDA's first rule change in 2013 requiring companies to provide data on products' safety and effectiveness. As replacements, companies started using one of three other chemicals—benzalkonium chloride, benzethonium chloride or chloroxylenol (PCMX). The FDA has given companies another year to provide data on their safety and effectiveness.

For consumers, Theresa M. Michele, MD, of the FDA's Division of Nonprescription Drug Products said, "Following simple hand washing practices is one of the most effective ways to prevent the spread of many types of infection and illness at home, at school and elsewhere. We can't advise this enough. It's simple, and it works."

The Centers for Disease Control and Prevention (CDC) remind consumers that it takes more than soap to help prevent the spread of infections and provides these reminders:

- Wash your hands with soap for a full 15 to 20 seconds, or as long as it takes to sing "Happy Birthday" twice at normal speed.
- Wash your hands every time you use the restroom, handle garbage, before eating and preparing food, or touched surfaces in public areas such a stair/escalator rails, workout equipment, door handles, and any surface others routinely touch or handle.
- Dry your hands completely. If you only dry them part way, you can leave germs on your hands as they thrive in moisture. This includes remembering to dry between your fingers.
- Avoid touching bathroom surfaces. After you've washed your hands use a clean towel to turn off the water and open the door of public restrooms and your own home to prevent spreading germs if a family member is sick.

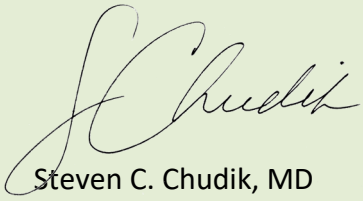
Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation helps people stay fit and healthy

Steven Chudik, orthopaedic surgeon and sports medicine physician with the Steven Chudik Shoulder and Knee Injury Clinic, founded the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) in 2007. OTRF is a nonprofit, 501 (c)(3) organization dedicated to funding research and education for the purpose of keeping people active and healthy.

Dr. Chudik has seen a growing demand by patients, athletic trainers and clinicians for up-to-date medical information and unbiased research on injury prevention—especially for children—as well as facts on arthritis and wear and tear on joints, cartilage, tendons, ligaments, etc. To fulfill these requests, OTRF produces and distributes this newsletter, shares information about health performance-related issues like nutrition and fitness, hosts athletic training educational programs, conducts seminars for healthcare providers and the community and most important, funds unbiased research and development particularly in emerging areas such as arthroscopic and minimally invasive surgery for injuries to the meniscus, labrum, rotator cuff, ACL and cartilage.

However, none of this is possible without ongoing financial support. We are extremely grateful to all those who have contributed in the past. Many of the donations came from patients or their family members who benefited from Dr. Chudik's orthopaedic and sports medicine expertise you might be interested in helping us continue our educational programs and research, please visit our website, ***otrfund.org*** and click on the donation link. Or, if you prefer, email me at **contactus@chudikmd.com/**. Also, many companies sponsor programs that match their employees' charitable contributions. Some even match donations made by retirees and/or spouses. Matching gift programs are a great way to double your generosity. Regardless of the amount, every contribution helps make a difference.

Thank you for your interest in our newsletter, ***Active Bones***, and the ongoing work of OTRF.



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Orthopaedic Surgery & Sports Medicine
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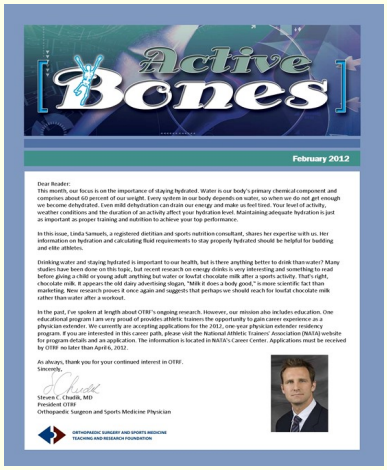
Sports Medicine Injury Clinic

Monday Evenings

Call 630-324-0402 for an appointment

Sign Up Today!

Don't miss another issue of ***Active Bones***, an email 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.



Simply email us at: ***contactus@chudikmd.com*** to receive the next issue of ***Active Bones***.

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