

Active Bones

otrfund.org

Fall 2015

Dear Reader:

Students are back in school, fall sports are filling our weekends and we still can count on intermittent days of warm weather for at least a couple more weeks. As diverse as all that may seem, these are some of the topics we chose to focus on in this issue.

With children back school, it is a good time to make sure they eat healthfully, get plenty of uninterrupted sleep without their mobile devices, and keep their backpacks light—no more than 10 to 20 percent of their body weight—and carried on both shoulders to evenly distribute the weight. This will help ensure they don't develop premature back or shoulder problems and an appointment with an orthopaedic specialist.

In *Research Roundup*, you will find an update on caffeine in energy drinks and the U.S. Food and Drug Administration's move to ban trans fats from processed foods—both of which unfortunately are consumed too often by teens and young adults. This time of year also finds us with hectic schedules that can impact free time previously used for exercising. Well, we have an "App" for that and several other great mobile applications dietitians recommend that I think you'll want to try.

The return of fall sports brings the focus back on concussion prevention, diagnosis and treatment. Concussions are very serious injuries that need to be respected and managed appropriately, so I want to share the American Medical Association's (AMA) new concussion policy. I strongly urge schools and organizations to review their current policies and procedures to ensure they align with the AMA's and treat every concussion appropriately. Also, download our free, in-season football strength maintenance program. Research shows just 30 minutes of sport-specific exercise twice a week will keep players strong all season long and help prevent injuries

Warm weather, even into the fall—or later depending upon where you live—impacts our bodies ability to stay hydrated. I want to thank Jack Jones, PT, DPT, OCS, and senior clinic director with PT-Solutions Physical Therapy, for his article on preventing muscle cramps with proper training and hydration. He has several great recommendations I think everyone will find helpful whether you play sports, or not.

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

stevenchudikmd.com



Prevent muscle cramps with proper training, hydration

by Jack Jones, PT, DPT, OCS
Senior Clinic Director, PT-Solutions Physical Therapy

Although fall is here, warm temperatures will be around a little longer, as well as outdoor activities for athletes young and old. Whether it is a weekend soccer tournament, football game, or 5K run, the threat of muscle cramping is a real issue for many athletes. However, is it really because of the heat and humidity? Or, is it dehydration? Research suggests it may be something else.



Ask any parent, athletic trainer, coach, or athlete and you will find a wide variety of remedies recommended to stop or prevent muscle cramps. Salt tabs, magnesium supplements, or eating bananas are common recommendations. Drinking pickle juice and eating mustard are a couple of the more interesting prescriptions to vanquish these debilitating contractions, but each is rooted in the idea we need more fluids and electrolytes like sodium or potassium. A 2004 study in the *British Journal of Sports Medicine* compared electrolyte and hydration levels of athletes after long distance running and found no differences in hydration and insignificant differences in electrolyte levels in their blood when comparing athletes who experienced cramping and those that did not.

So what is the cause? A 2011 study researching exercise-associated muscle cramping found athletes predicting improved performance or, in this case faster race times, were more likely to experience cramping. In other words, if you train at a lower intensity, and then expect to compete at a higher level, you risk spending your day limping around the field or having to watch others from the sidelines. As much as possible, training duration, frequency, intensity and exposure to extreme environmental conditions need to progress gradually to eventually match the demands of the upcoming competition.

This is not to suggest proper hydration is unimportant, or that sports drinks are not useful. Rather, it is only part of the bigger picture to avoid this warm weather problem. Whether you are training hard for a week of preseason two-a-days, or prepping for a fall marathon, your training intensity needs to progress gradually and match game day.

If cramping does occur, immediately stretch the affected muscle(s) and when the competition or event is done, continue to move the involved area frequently in a pain-free range of motion. It is likely you will experience soreness in the following day and light aerobic activity like an easy bike ride or swim is advisable to decrease soreness. If your discomfort last longer than 48 hours, or pain increases, consult your physician.

Schwellnus MP, Nicol J, Laubscher R, Noakes TD. *Serum electrolyte concentrations and hydration status are not associated with exercise associated muscle cramping (EAMC) in distance runners.* Br J Sports Med. 2004 Aug; 38(4):488-92

Schwellnus MP, Drew N, Collins M. *Increased running speed and previous cramps rather than dehydration or serum sodium changes predict exercise-associated muscle cramping: a prospective cohort study in 210 Ironman triathletes.* Br J Sports Med. 2011 Jun; 45(8):650-6. doi: 10.1136/bjism.2010.078535. Epub 2010 Dec 9.

Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation presents research at national, international meetings

It is not the Academy Awards, but being selected by peers to present research at professional medical meetings and conferences, or have your research published, is as close as it gets for physicians. Like the Oscar, getting one selection a year is outstanding, but to receive six—as in the case of Dr. Steven Chudik this past year—it is an exceptional accomplishment. Four Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) research projects conducted by Dr. Steven Chudik



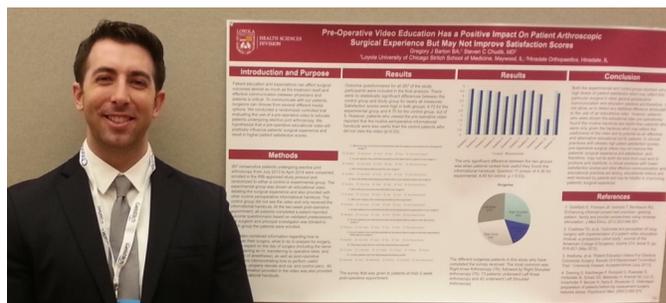
and honors medical students from Loyola University Stritch School of Medicine and Rosalind Franklin School of Medicine, were presented at national or international annual conferences to more than 8,000 physicians and one was accepted for publication.

According to Dr. Steven Chudik, founder and president of OTRF, the organization's research has been presented and published

many times in the past. "What most people don't realize is that research goes on all around us every day in all fields, not just medicine," said Dr. Chudik. "With OTRF research projects, we evaluate and improve patient care by conducting clinical outcome research. Through these efforts, we continue to gain an understanding of anatomy, injury and healing; basic sciences; and we innovate and create new technology to develop less invasive and more effective surgical procedures, surgical instruments and implants," he explained.

The OTRF-sponsored research projects recently presented include:

Osteochondral Repair with Synthetic Plugs Increases the Coefficient of Friction and Damages the Opposing Cartilage Counterface, presented by Rosalind Franklin medical student, Aaron Baessler, to the International Cartilage Repair Society, Chicago.



Pre-Operative Video Education Has a Positive Impact on Patient Arthroscopic Surgical Experience But May Not Improve Satisfaction Scores, presented by Loyola University Stritch School of Medicine medical student, Greg Barton, to the International Cartilage Repair Society, Chicago.

Continued on next page



Continued from page 3

A Biomechanical and Clinical Comparison of Midshaft Clavicle Fixation Performed with Either Two or Three Screws on Each Side of the Plate, presented by Loyola University Stritch School of Medicine medical students, Christopher Larsen and Brian Sleasman, to the American Orthopaedic Society for Sports Medicine, Orlando, FL.

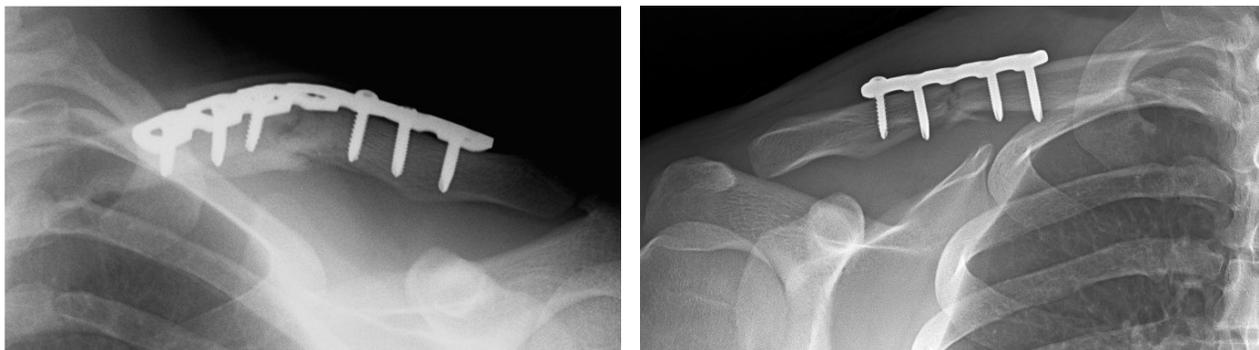


Osteochondral Repair with Synthetic Plugs Increases the Coefficient of Friction and Damages the Opposing Cartilage Counterface, presented in Lyon, France at the International Cartilage Repair Society.

A Biomechanical and Clinical Comparison of Midshaft Clavicle Fixation Performed with Either Two or Three Screws on Each Side of the Plate, presented by Loyola University Stritch School of Medicine medical students, Christopher Larsen and Brian Sleasman, to the joint meeting of the American Society for Clinical Investigation and Association of American Physicians (ASCI/APP), Chicago.

The OTRF-sponsored research chosen for publication in *Arthroscopy: The Journal of Arthroscopic and Related Surgery* is **Transhumeral Portal for Arthroscopic Glenohumeral Resurfacing Procedures: A Cadaveric Study of the Safety and Accuracy**, authored by Loyola University Stritch School of Medicine medical students, Kimberly Bartosiak, Joseph Gil, and Gregory Barton, OTRF SOAR student Brittany Kaim DeGreef and Dr. Steven Chudik.

For a complete list of active and past OTRF-sponsored research, visit stevenchudikmd.com/.



X-rays from patients who received midshaft clavicle open reduction internal fixation with three screws proximal and distal to the fracture site (left) versus two screws proximal and distal to the fracture site (right).



Research Roundup

FDA sets date for trans fat ban



Nutrient	Amount	% Daily Value
Total Fat	2g	5%
Saturated Fat	2g	29%
Trans Fat	1g	6%
Cholesterol	15mg	4%
Sodium	700mg	
Total Carbohydrate	19g	
Dietary Fiber	1g	
Vitamin		
Iron	4%	

The U.S. Food and Drug Administration (FDA) recently took action to virtually eliminate partially hydrogenated oils (PHOs) from the food supply. PHOs are the major source of artificial trans fatty acids (IP-TFA) and considered by most physicians and qualified experts to be the worst type of fat you can eat. According to the FDA, there is no longer a consensus that PHOs are generally recognized as safe (GRAS) under any condition for use in any human food. As a result, the FDA set a final compliance date of June 18, 2018. This will allow companies to either reformulate products without

PHOs and/or petition the FDA to permit specific uses of the fat.

The FDA's decision came two years after a partial ban, the submission of additional scientific information, and more than 6,000 comments from consumers, industry and trade associations, advocacy groups, health professionals and state and local governments. The ruling does not affect naturally occurring trans fats found in small amounts in meat, dairy products, or in other refined edible oils as unintentional byproducts of their manufacturing process.

Trans fat also raises the level of low-density lipoprotein (LDL or bad cholesterol) which has been found to increase the risk of developing cardiovascular disease. According to the FDA, cardiovascular disease is the leading cause of death in the United States. To reduce the levels of trans fat in your diet, check the product's food ingredient list and nutrition label to determine whether it contains PHOs.

More bad news about energy drinks

For the past three years, OTRF has been following and reporting on the controversial addition of caffeine to energy drinks and food. A new study recently presented by Mayo Clinic researchers at the American College of Cardiology's Annual Scientific Session found young, caffeine-naïve participants experienced a marked increase in their resting blood pressure after drinking a commercially available energy drink containing caffeine when compared to a placebo drink.

According to lead researcher, Dr. Anna Svatikova, the link between caffeinated energy drinks and an increase in blood pressure has been studied and documented. In the new Mayo Clinic study, Dr. Svatikova said they looked at the difference of giving 25 healthy adults ages 19 to 40 a caffeinated energy drink, or a placebo. Blood pressure and heart rates were recorded before and 30 minutes after consumption. They also compared caffeine-naïve research participants who consumed less than 160 mg of caffeine per day and those that consume more than 160 mg of caffeine per day to understand the results better.



Continued on next page



Research Roundup

Continued from page 5

“In the caffeine-naïve group, their blood pressure was more than double compared to the caffeine-free placebo raising concerns that caffeinated energy drinks may contribute to an increased risk of cardiac events,” said Dr. Svatikova. “Based on our findings, consumers should use caution when using energy drinks because they may increase the risk of cardiovascular disease problems, even among young people.”

For comparison, an 8-ounce brewed cup of coffee contains 95mg to 200 mg of caffeine. A Starbucks brewed Grande coffee contains 330 mg of caffeine and 12-ounce soft drinks approximately 34 to 72 mg of caffeine. An 8-ounce energy drink can contain between 76 mg to 280 mg of caffeine. The American Academy of Pediatrics recommends adolescents consume no more than 100 mg of caffeine a day, and younger children avoid caffeinated beverages. Yet, the American College of Medical Toxicology reports popular energy drinks are regularly consumed by 31 percent of 12-to 17-year-olds and by 34 percent of 18- to 24-year-olds.

According to Dr. Steven Chudik, this new research reinforces concerns about adolescents consuming energy drinks with caffeine and raises additional questions about the long term affects of caffeine consumption when started at a young age. “Additional research is need to see if and at what age the elevated blood pressure over time become a factor in contributing to strokes, heart attacks and other diseases,” Dr. Chudik said. “Clearly we need to know more, but what we know now should be a red flag to parents.”

AMA adopts concussion policy

The American Medical Association (AMA) in June adopted concussion policies for youth sports that immediately removes young athletes from competition if a head injury is suspected and returned to play only with a doctor’s written approval.

According to Dr. Jack Resneck, Jr., an AMA board member, even mild cases of traumatic brain injury may have serious and prolonged consequences, so it is essential that athletes tell their coach, trainer, physician or parent if they get any type of head injury. “By raising awareness of the serious risks associated with concussions and ensuring the appropriate guidelines are in place, we can reduce the number of young athletes who may return to the game too soon, which can put their health at further risk,” Dr. Resneck said.

The AMA joins the growing list of organizations with concussion policies including Illinois High School Association, USA Football, Center for Disease Control and Prevention, all of the professional sports—NFL, NHL, MLB, NBA and MLS—as well as colleges, and other youth organizations such as Pop Warner and various state legislative actions.



Continued on next page



Research Roundup

Continued from page 6

The most recent sports injury data available from the Centers for Disease Control and Prevention shows between 1.6 million and 3.8 million sports- and recreation-related traumatic brain injuries, including concussions and other head injuries, occur in the United States every year. Of those, 59 percent of middle school female soccer players reported playing with concussion symptoms, with less than one-half evaluated by a physician or other qualified health professional. A study of high school athletes with concussions also found 15 percent returned to play prematurely and nearly 16 percent of football players who sustained a concussion that resulted in loss-of-consciousness returned to play in less than one day.

“Concussions are serious brain injuries that need to be respected and managed appropriately,” cautioned Dr. Steven Chudik, orthopaedic sports medicine specialist and team physician for several Chicago-area high school football and club soccer teams.

Long commutes negatively affect your health, social life



Research published in the *American Journal of Preventative Medicine* found an association between commuting distance and an increase in blood pressure and obesity, and surprisingly stress, sleep and dissatisfaction with their lives.

The study followed 4,297 adults between 2000 and 2007 and tracked commute time and distance. “Those with long commutes—greater than 20 miles—had greater rates of high blood pressure and high blood sugar than those with short commutes—zero to five miles,” explained Dr. Christine Hoehner, lead researcher on the study with Barnes Jewish Hospital. “Upon deeper probing, the research showed

that the sedentary act of sitting a long time in the car wasn’t making people fat, but rather that people lost their willpower to exercise at home,” she said. “We also saw it affect the amount of time people slept and the time they had to prepare food at home. They were much more likely to buy takeout or fast food,” she added. Furthermore, Hoehner found that even if participants exercised, there was evidence long commutes increased blood pressure.

Possible solutions include the obvious of moving closer to shorten the commute, or change how you commute to walking, biking, or taking public transportation. In fact, a recent study in the *British Medical Journal* revealed commuters taking any form of transportation besides driving alone had one to two percent less body fat, on average, and lower instance of obesity.

However, if none of those options is feasible, consider carpooling. Although it has declined in the past 40 years, carpooling has been proven to improve commuters’ satisfaction with their lives and return a part of their lives long commutes impact the most—socialization. According British transportation researcher, Daniel Newman, “Research shows the longer you spend commuting, the less time you have to socialize and make friends, or spend time with loved ones.”

Continued on next page



Research Roundup

Continued from page 7

There's an APP for that

If you are an app devotee, but find yourself frequently disappointed with them because they fail to deliver, or are difficult to use, you might consider the following recommendations from dietitians for apps that can help keep you healthy and fit.

Sworkit

Perfect for people who sit for long times at their jobs, Sworkit (derived from simply work it) can help you build your own from a growing video library of more than 170 exercises. Personal trainers demonstrate each exercise to help ensure you perform them properly and safely. Using Sworkit during a five-minute break every hour will help keep you refreshed, focused and well on your way to adding 40 minutes of exercise every day without even breaking a sweat. Sworkit Lite is free, Sworkit Pro is \$3.99. Both apps are available for Apple iPhones, iPads and Android devices.



Charity Miles

Available for Apple iPhones and most Android devices, Charity Miles is a free app that turns your mundane daily workout into a sponsored event that earns money from corporate sponsorships. Regardless if you walk, run, bike, skip, hop, roll or skate outdoors, or run or walk indoors, every mile covered earns money for your chosen charity. Walkers and runners earn up to 25 cents per mile; bikers earn up to 10 cents per mile. The app uses your phone's GPS and accelerometer to measure your distance. Instructions for downloading and setting up the program are provided in order to allow the program to access your phone's geolocation services. Charity Miles is sponsored by a growing list of businesses that include Humana, Johnson & Johnson, Timex Sports and Kenneth Cole. For more information, visit the Charity Miles website, charitymiles.org/.

Meal Makeovers

Created by two dietitians, the Meal Makeovers app is ideal for busy families who want to prepare healthy meals without searching through countless recipes that everyone will eat. Meal Makeovers includes more than 80 made-over version of classic recipes families love such as spaghetti, tacos and even chocolate pudding. Each recipe provides a description of the dish, a list of ingredients and step-by-step preparation instructions. Detailed nutrition information, searchable tags, color photos and a shopping list feature also are included. Currently available only for the iPhone, iPad, or iPod Touch, the app can be purchased in the iTunes store for \$1.99.



Continued on next page



Research Roundup

Continued from page 8

CThru Nutrition

Another dietitian-created app, CThru Nutrition, is a unique and easy-to-use, all-inclusive tool that scans food, beverage and snack choices using QR barcodes to help you make healthful choices. Using your mobile device, simply load the free CThru Nutrition app available from the Apple App Store, Google Play Store, or online at cthrunutrition.com and start navigating your way to make purchases at grocery stores, restaurants and even farmer's markets. Backed by food producers who care about their customers and want to make sure they have information about their products, CThru Nutrition lets you compare brands, customize your options based on diet restrictions, religion or personal preferences. Whether you want to lose weight, build muscle, lower blood sugar and blood pressure, or eat for athletic performance, this app will help since you have access to more than 70,000 grocery and food items in the continually growing database.



Skipping meals can cause abdominal weight gain, health risks



Researchers at Ohio State University recently reported that skipping meals triggers metabolic changes in the body that can result in abdominal weight gain. The study, conducted with two groups of mice: one group ate all of their food as a single meal and fasted the rest of the day and the other group was given unlimited access to food. For three days, the mice on the once-a-day diet ate half of the calories of the mice on the unlimited diet. The mice on the restricted diet initially lost weight, but regained the lost weight when calories were added. By the end of the study, both groups

of mice weighed about the same, but the mice in the restricted diet group had gained more weight around their midsection. They also were found to have become insulin resistant and at risk for type 2 diabetes.

"This does support the notion that small meals throughout the day can be helpful for weight loss, though that may not be practical for many people," said Martha Belury, professor of human nutrition at Ohio State University, in a statement. "But you definitely don't want to skip meals to save calories because it sets your body up for larger fluctuations in insulin and glucose and could be setting you up for more fat gain instead of fat loss," she added. According to Belury, the mice don't have type 2 diabetes yet, but they're not responding to insulin anymore and that state of insulin resistance is referred as a prediabetes."

This information, added to studies published in the *American Journal of Clinical Nutrition* and in the *Journal of the American College of Cardiology* in 2013 that found belly fat also causes an increased risk of developing heart disease and even cancer, should make you reconsider skipping any more meals.



Shoulder dislocation not always a season ender



When Kevin Love joined Kyrie Irving and LeBron James, the bar was set high for the Cavaliers with the NBA's newest "Big 3." The Cavs struggled early last season, as expected, but got better with each game. They blew through the playoffs and got to the finals where they lost to the Warriors. It was a very successful season considering it was plagued with injuries. Love went out in the first round of the playoffs against the Celtics when he dislocated his left shoulder. The injury occurred when Love and Kelly Olynyk chased a loose ball and Olynyk pulled on Love's arm. Love had surgery three days later. The Cavs have high expectations for the upcoming season with the return of Love who hopefully will be back playing at full capacity after re-signing with the team.

A shoulder dislocation occurs when the upper arm bone (humerus) is no longer in contact with the socket (glenoid). More than 90 percent of the time, shoulder dislocations are anterior, where the humerus dislocates in front and below the glenoid. It also can be posterior, where the humerus dislocates behind the glenoid. Shoulder stability is provided by the bony anatomy, the labrum (soft-tissue thickening surrounding the rim of the socket), capsular ligaments and the rotator cuff muscles. All can be injured when the shoulder is dislocated.

"The need for surgery depends on the age and functional demands of the patient," said Dr. Steven Chudik, orthopaedic surgeon and sports medicine physician with the Steven Chudik Shoulder and Knee Injury Clinic, and founder of the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) in Westmont, Ill. "For younger athletic patients, the risk for re-dislocation is very high and often requires surgery to restore shoulder stability. I prefer to repair the injured shoulder tissue arthroscopically using small, limited incisions (< 1 cm) and a camera. Prognosis is excellent and I expect a full return to activities for my patients in approximately four to six months," he explained.

It is not too late to incorporate an in-season football strength maintenance program

Research shows just 30 minutes of sport-specific exercise twice a week will keep players strong all season long and help prevent injuries. Through his non-profit foundation, Orthopedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF), Dr. Steven Chudik developed an easy, in-season strength maintenance program specifically designed for football. As a Top Doc in orthopaedics and renown arthroscopic surgeon, sports medicine physician and team doctor, Dr. Chudik has firsthand experience treating preventable sports injuries. Email us at contactus@chudikmd.com to receive a free PDF of Dr. Chudik's football program to help ensure your players stay in the game and off the bench. If you prefer a printed copy, please include your mailing address in the email.



ORTHOPAEDIC SURGERY AND SPORTS MEDICINE
TEACHING AND RESEARCH FOUNDATION

Fall 2014

Incorporating an in-season football strength maintenance program

During football season, it is easy for players to lose the strength and power they spent all off season developing. To help prevent that from occurring, Dr. Steven Chudik, orthopaedic surgeon and sports medicine physician and founder of the Orthopaedic Surgery and Sports Medicine Teaching/Research Foundation (OTRF), recommends incorporating an in-season sport-specific, goal-oriented, maintenance exercise program into the weekly practice schedule. Research shows just 30 minutes of exercise two days a week can help keep players strong all season long.

Peak football performance needs strength and explosive power. Therefore, an in-season training program should include only structural or multiple joint exercises that target major muscle groups like the bench press, squat and power cleans. These in-season exercises should focus on the concentric phase (raising the weight and shortening the muscle) and avoid single joint exercises like hamstring and bicep curls and flies. They are associated with the eccentric phase (lowering the weight and lengthening the muscle) that can increase the risk of a significant strain or injury during explosive acceleration/deceleration football maneuvers. Core exercises like "side planks" also will help performance and injury prevention.



Precautions
With any exercise program, it is very important to make sure players maintain good form throughout the repetitions. This maximizes the benefits of the exercise and avoids injury. Other precautions to observe when lifting weights are to do the "high pull" and "power shrug" separately (normally components of the full power clean maneuver) and from a hang position rather than a complete power clean or front squats instead of back squats. Partial clean maneuvers are less complicated and easier to maintain good form. Front squats are less taxing on the low back.

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ORTHOPAEDIC SURGERY AND SPORTS MEDICINE
TEACHING AND RESEARCH FOUNDATION

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. If you might be interested in helping us continue our research, please contact me. Also, many companies sponsor programs that match charitable contributions made by their employees. 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.



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





ORTHOPAEDIC SURGERY AND SPORTS MEDICINE TEACHING AND RESEARCH FOUNDATION

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Call 630-920-2350
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