

OAK Sports Medicine

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UPDATE

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OAK Sports Medicine Update is a publication of OAK Orthopedics. This newsletter is intended for those healthcare professionals, coaches, and athletic directors who are interested in the diagnosis, prevention, treatment and rehabilitation of sports injuries.

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Saturday Sports Injury Clinics

OAK ORTHOPEDICS will once again offer its Saturday morning Sports Clinic to area athletes. The Bradley and Frankfort offices will be staffed by an orthopedic physician, medical assistant and x-ray technician. We will be able to do x-rays, braces, MRI, physical therapy and other tests that may be rendered by the physician.

The sports clinic is offered to all athletes, all ages. It begins at 9:00 a.m. on Saturday mornings. The clinic in Bradley will run year round and the clinic in Frankfort will run through the fall sports season.

The clinic will be held at the Bradley and Frankfort offices listed below.



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Ryan Sullivan, M.D. Orthopedic Surgeon Joins OAK Orthopedics

Dr. Ryan Sullivan a Fellowship trained orthopedic surgeon has joined OAK Orthopedics as of September 1st and we are delighted to have him on board. Fellowship trained in Adult Reconstruction at Northwestern University/McGaw Department of Orthopaedic Surgery Dr. Sullivan brings another layer of expertise to OAK Orthopedics and the communities we serve.



Ryan Sullivan, M.D.

Dr. Sullivan is somewhat of a local product growing up in the western suburbs of Elmhurst, IL where he attended Immaculate Conception High School. Involved in numerous service organizations during his high school career Dr. Sullivan also was a member of the football and track teams. After high school Dr. Sullivan attended Northwestern University earning a Bachelor of Arts in Chemistry. A Dean's List student at Northwestern Dr. Sullivan was a biology workshop facilitator, assisted in facilitating annual high school sports pre-participation physicals and participated in intramural sports. Prior to entering medical at Loyola University Chicago Stritch School of Medicine Dr. Sullivan worked as a research associate at Children's Memorial Research Center. Upon graduating from medical school Dr. Sullivan began his orthopedic surgical residency at Loyola University Medical Center Orthopaedic Surgery Residency Program. Once completed, Dr. Sullivan began his Adult Reconstructive Fellowship at Northwestern University.

A diverse and dedicated volunteer Dr. Sullivan has served the Silver Service Children's Foundation providing orthopedic care to hundreds of children in Buga, Colombia, served as a medical volunteer for the Chicago Marathon, worked at Free Health Clinics for the underserved, tutored hospitalized children at the Ronald McDonald Children's Hospital of Loyola, served as a Team Resident Physician for high school and college teams and has lead activities at the Elmhurst Extended Care Center.

Dr. Sullivan and his wife reside in the Frankfort area and when he can find time his interests include, building/woodworking projects, drawing/designing, collecting event tickets, sports and staying active by working out.

OAK Orthopedics is extremely fortunate and excited to have Dr. Ryan Sullivan join our practice. His education, medical training, area of specialty and interests make him a great fit for OAK. Dr. Sullivan sees patients out of both the Bradley and Frankfort offices.

Welcome Dr. Ryan Sullivan!

Swimmer's Shoulder

By: Eric Varboncouer, M.D.
OAK Orthopedics



Eric Varboncouer, M.D.

Swimmer's shoulder is a general term used to encompass a number of painful shoulder conditions that specifically relate to overuse injuries in swimmers. Swimming is a fantastic fitness activity for people of a wide range of ages and activity levels. It works out the entire body and is one of the best aerobic exercises to help promote overall muscle strength and cardiovascular health. Swimming is considered one of the least impactful workouts

and is very forgiving on the lower joints. This allows it to often be enjoyed by even those individuals who have physical limitations that may prevent their involvement in higher impact exercise.

Despite all of these positives, swimming can be particularly damaging to the shoulders for a number of reasons. It requires 90% of propulsive force to be generated by the upper extremity. It is highly repetitive and a competitive swimmer could easily perform greater than 15,000 strokes per week. Many of the different types of strokes require awkward upper extremity positioning performed at the extremes of the shoulder's already extensive arcs of motion. These unnatural mechanical aspects of swimming are not helped by the structure of the shoulder itself. It is a ball and socket joint with no significant bony constraint. This enables the shoulder to have tremendous motion but also means that it is relatively unstable compared to many other major joints of the body. All of these factors combine to give us a high probability of encountering swimming related shoulder problems. It is estimated that 40-90% of competitive swimmers will experience shoulder pain at some point during their training.

There are many different types of shoulder problems that fit under the broad diagnosis of swimmer's shoulder. The most common conditions include subacromial impingement, internal impingement, tendonitis, instability, scapular dyskinesis, and labral injuries. Symptomatic os acromiale and suprascapular neuropathy are rare additional causes that could also be considered. Coaches and clinicians should exercise caution in overusing the term "swimmer's shoulder" as the underlying pathology is varied and may require different treatment approaches.

There are a number of conservative options that can be utilized to prevent and treat painful shoulders in swimmers. The first step in treatment is to utilize anti-inflammatory medications, ice, and rest to decrease inflammation. For the

continued on the following page

The Transition to Out Patient Joint Replacements

OAK Surgical Institute

By: Mary Kohl, RN, BSN

Executive Director OAK Surgical Institute

The number of procedures moving into the Ambulatory Surgery Center setting that have historically been performed only in the inpatient or hospital setting is rapidly rising. Due to pain management and anesthesia advancements, total knee and hip replacements are two procedures among those to transition to the Ambulatory setting.

The Surgeons at OAK Orthopedics have recently joined many other Illinois Surgery Centers in launching an outpatient total joint program to the communities they serve. Patients meeting select criteria can be scheduled for same day total joint replacement at OAK Surgical Institute (OSI), in Bradley, Illinois. OSI is an orthopedic Ambulatory Surgery Center that has served the community since 2003.

Arthritis: A growing concern

The most common reason for knee replacement surgery is to relieve severe pain caused by arthritis. People who need knee replacement surgery usually have problems walking, climbing stairs, and getting in and out of chairs. Some also have moderate or severe knee pain at rest. The Center for Disease Control (CDC), has stated that one in five (22%) adults in the United States report having doctor diagnosed arthritis. About 50% of adults 65 or older report having arthritis. The CDC also states that by 2030 an estimated 67 million Americans ages 18 years or older are projected to have this debilitating condition. Largely due to arthritis, outpatient total joint replacement is expected to increase 457 percent for knee replacements and 633 percent for hip replacements nationally in the next decade.

Why the transition to Out Patient Joint Replacements?

There have been several developments that have made same-day joints more feasible than in years past. Pain management strategies top the list of developments. Post-operative pain that patients experience is almost always the determining factor between overnight stays and same day discharges. Improvements in anesthetic techniques and pain management protocols have been the biggest game changers for total joint replacements over the last few years. Patients having knee replacements receive adductor canal nerve blocks. The block affects sensation, not motor function, so patients can participate in early mobilization and rehabilitation after surgery. The surgeon also uses a "local anesthetic injection cocktail" at the surgical site to numb the pain of surgery. These injections help get patients up and moving soon after surgery because they are simply not hurting as much. There is generally a reduced need for pain medications after surgery.

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Most patients are surprisingly comfortable for the first 24-36 hours following their surgery.

Patient Preparation

Not all patients are good candidates for outpatient total joint replacement. Oak Surgical Institute (OSI) has developed comprehensive patient selection criteria and all patients are screened using that criterion. Selected patients must attend an education class with a nurse navigator at Oak Surgical Institute. The evaluation for appropriateness continues with a preoperative visit with their primary care physician, blood work, and other tests as deemed necessary by the team. The patient is seen by home health care and a physical therapist in their home the next day. The OSI nurse navigator also follows up with the patient by phone the evening of surgery and the next morning.

The orthopedic surgeons and entire staff at Oak Surgical Institute are excited about their Total Joint Program. "Offering this service to the communities we serve is the right thing to do" states Mary Kohl, Executive Director of Oak Surgical Institute. Mary Kohl encourages anyone with questions about this program to call the surgery center at 815-928-9999.

Swimmer's Shoulder cont.

competitive swimmer, resting the shoulder midseason can be difficult. If total rest is impractical, efforts should be made to at least decrease yardage below the point of pain and to avoid specific aggravating types of strokes. Rest will often alleviate symptoms as the onset of pain is frequently correlated with times of increased intensity and duration of training. It is also very important to ensure that the swimmer is employing appropriate swimming technique.

Poor technique contributes to overuse injuries and also prevents the swimmer from maximizing their performance. Muscular imbalances are predictable and can be problematic. Swimming disproportionately strengthens the muscles responsible for internal rotation and adduction of the shoulder which can subsequently lead to instability. Strengthening programs which focus on the rotator cuff, external rotators, and scapular stabilizers will often achieve positive results. An appropriate stretching program is essential. Most swimmers tend to focus on stretches of the anterior capsule and neglect the stretching of the posterior capsule. This can lead to instability, impingement, and even labral or rotator cuff tears. The most effective exercise to address posterior capsular tightness is the sleeper stretch which can easily be performed without assistance. If these conservative options are unsuccessful in addressing the swimmer's symptoms, consultation with an appropriate medical professional such as a physician, physical therapist, or athletic trainer should always be obtained.

A painful shoulder is frequently encountered in swimmers and fortunately can typically be alleviated through conservative management. It must be understood that "swimmer's shoulder" actually includes a number of different pathologies. When conservative treatment fails, the underlying cause must be identified in order to effectively resolve it.

Just Keep Moving...

By: **Michael J. Corcoran, M.D.**
OAK Orthopedics

Athletes of all ages eventually lose the game to father time. Injuries, genetics, & overuse can lead to progressive degenerative changes that require joint replacement. Patient expectations and maintaining an active lifestyle have become much more important to the currently aging population. The baby boomers will continue to age and the number of knee replacements will continue to climb. Over 40% of total knee arthroplasties (total knee replacements) are between the ages of 45-65.



Michael J. Corcoran, M.D.



Newer minimally invasive techniques with advanced anesthetic protocols have made this procedure amenable to being done in the outpatient setting. Progressive rehabilitation protocols are allowing patients to maintain active lifestyles and have helped shorten the road to recovery.

Arthrex is a medical device company that has pioneered innovations in minimally invasive surgery. Arthrex's pedigree began designing arthroscopic devices for sports medicine. With the changing environment for total knee arthroplasty, Arthrex expanded its sports medicine minimally invasive lineage with the iBalance system for unicompartmental arthroplasty and total knee arthroplasty. This system is designed for active younger patients and is ideal for use in an outpatient setting.

I am on the design and development team for the iBalance system for total knee arthroplasty. The system is very intuitive and is designed for surgeons comfortable with minimally invasive techniques. Orthopedic surgeons trained in sports medicine are well versed in Arthrex arthroscopy techniques. These same principles are quite evident in the

continued in the next column



iBalance Unicompartmental Arthroplasty

iBalance system, making the transition to outpatient total joints seamless.

Sports medicine at its core tries to maintain an individual's function at its highest level. These reconstructive and joint sparing procedures incorporate cartilage transplants, meniscal transplants, osteotomies and biological arthroplasties. Arthrex has always been on the cutting edge of biologics with these techniques as well as platelet rich plasma and stem cell therapies. There comes a time when joint sparing is no longer a reasonable goal. When these procedures are no longer viable options, the next step in the lineage of treatment is joint replacement with the iBalance system.

OAK's orthopedic surgeons are trained at some of the highest regarded medical institutions in the country. They bring a wealth of knowledge and cutting-edge technology that I feel is second to none. Our physicians and surgeons are noted lecturers and teachers at national and international symposiums sharing this knowledge base with physicians around the world. OAK is the chosen provider for local high school and collegiate athletics as well as the Chicago Bears and the US Olympic soccer team. Why go anywhere else?



Dr. Corcoran teaching iBalance



Drs. Ellis, Corcoran & Lee at Bears Game

Don't Wait, Get Treated!

By: **Kermit Muhammad, M.D.**
OAK Orthopedics



Kermit Muhammad, M.D.

During football season I notice something a little more frequently than I do at any other time of the year. I see players that avoid reporting the severity of their injuries so that they can get back on the field. I have also seen zealous parents' opt out of definitive treatment in favor of temporizing measures that will get their child back in the game quickly. Now, this is not purely a phenomena related to football parents and players, I see this in all sports. The notoriety and financial benefits of a successful college and pro career in sports is so attractive that it sometimes can cloud the judgment on how to handle a temporary set back with an injury.

Children are encouraged to choose their sport at a younger age and participate at a much more intense level than in past years. This has led to more competitive leagues, travel teams, extra lessons with pros etc. If we really look at it the time and dedication involved in youth sports in general this is really a semi-professional level of its own; which means that there is a high demand to produce. The next factor is that parents see the payoff usually in the form of a free ride at a 4 year college. Every parent knows that this is a big deal. Students in general are saddled with debt and the prospect of bypassing that whole situation leads to a strong motivation to push athletes to the limit.

As an orthopedic hand surgeon I see a different perspective. I see children and young athletes who'll clearly have a surgical problem that is not ambiguous and there is a family debate on whether or not it should be fixed or treated now or after the season. Obviously for injuries that make it impossible to play, it's a no brainer. However, particularly in football, where things can be wrapped and casted and protected to a certain degree it leads to a decision point. As a surgeon it is always easier to handle a problem in the acute setting rather than kick the bucket down the road. The following scenario is not too uncommon, a player comes in the office with a thumb injury that needs to be set and pinned. The family decides not to have it done because the player cannot play with a pin and they opt for a cast only. From their perspective it might be junior or senior year and there will be scouts at the game from big colleges and this is their opportunity. So the player may have a poorer performance because of the injury and then after the season is over the player sees that his thumb is not

continued in the next column

working well and then seeks treatment. It's possible it may be too late to restore normal function at that point.

In general if something can be treated acutely it should. When fractures and ligament injuries present late there are often fewer options available to the surgeon. The reconstructive options are generally never as good as the fresh fix. Sometimes the options are so limited and suboptimal that the recommendation is to just leave it alone. Consider the number of football players that you may know, older and younger that have "bent" or "crooked" fingers. Many times it's because the injury was neglected or overlooked and options for reconstruction were limited when the player finally sought treatment.

So the advice I would give to players and parents at all levels is to consider the long game. Take the perspective that fixing things correctly now will help performance down the line and not hurt it. Taking care of your body with treatment and proper rehab will ensure a long sports career. From a practical matter parents and players should have a better idea of when to come in. If a player dislocates his finger and its popped back in on the sidelines and buddy taped to finish the game, he should come in for an X-ray. Simple dislocations can occur, but complex dislocations with fractures need immediate treatment. If a player has to change his style of play to compensate for an injury that should be an indication that an orthopedic evaluation is needed. Along those lines, parents should be observant of these things and if they notice a change in style or level of play because of an injury it should be looked at by an orthopedic surgeon to make sure there will not be long term consequences. Consider the orthopedic surgeon as part of the team and enlist their help to keep your players playing.

Preventing Overuse Injuries

- Avoid specialization and repetitive sport activity at a young age. Athletes who participate in a variety of sports tend to have few injuries and play longer.
- Limit training in one sport to no more than five days a week with at least one day off from any organized physical activity.
- Take time off from one sport for two to three months each year to allow physical injuries to heal, the body to recoup and for the athlete to focus on strength training and conditioning. This is also a psychological break that can help the athlete avoid burnout and overtraining syndrome.
- Pediatric athletes should only play one overhead throwing sport at a time and should avoid playing the same sport year-round. Participation in multiple sports throughout the year provides a wider range of skills as well as rest from repetitive, single-sport activities.
- Although there aren't injury thresholds for specific sports or age ranges, data suggest limiting vigorous physical activity to 16 to 20 hours aweek for pediatric athletes.
- Conduct a pre-participation physical exam on an annual basis to detect life-threatening conditions as well as factors that may predispose the athlete to overuse injuries.

Source: National Athletic Trainers' Association, Journal of Athletic Training, American Academy of Pediatrics

Physician Spotlight: Dr. Ashraf Hasan's Clinic

Ashraf Hasan, M.D. has been with OAK Orthopedics since 2006 and has brought a wealth of expertise and experience to our communities. The primary focus of Dr. Hasan's practice is Interventional Spine and Sports Medicine and with training and experience from The University of Chicago/Schwab Rehabilitation Hospital and the Rehabilitation Institute of Chicago/Northwestern Memorial Hospital, both recognized by U.S. News and World Report as top hospitals in America, Dr. Hasan's credentials and training are impeccable.



Ashraf Hasan, M.D.

With Dr. Hasan treating musculoskeletal pain with an interventional focus his practice demands a great deal of understanding and compassion for the patient as they deal with their pain and discomfort until a path of treatment/relief can be found. Dr. Hasan's clinical practice philosophy is one which strives to help patients improve their level of function and quality of life by using non surgical treatment for neck pain, back pain and other chronic pain syndromes. Dr. Hasan works to treat each patient as a person, and not a number. He is dedicated to offering his patients the same care that he would want for his own family. Many times his patients will hear him say, "If you were my mom or dad, I would recommend ..."

Dr. Hasan uses a comprehensive approach to first diagnose the source of the patients pain and then uses state of the art treatment options to give patients pain relief. Dr. Hasan is passionate about having the patient return to a higher level of functioning and to regain control of their life.



Lt. to Rt.: Eleanor C. Dr. Hasan, Courtney W.

Dr. Hasan and his staff pride themselves on their ability to listen, communicate and then find a path of treatment to relieve the musculoskeletal pain the patient is experiencing. With Dr. Hasan's knowledge, training and expertise, plus his

continued in the next column

calm, caring and reassuring manner it is no wonderful to know patients can find the road to recovery through his clinic. When time permits Dr. Hasan enjoys golfing, volleyball, basketball, flag football and working out. Dr. Hasan and his wife Madiha have three beautiful children, 2 sons 11 & 9 and one daughter who is 6. Although extremely humble about his involvement Dr. Hasan donates his expertise and time on mission trips to help the underserved throughout the world. OAK Orthopedics is fortunate to have a physician of Dr. Hasan's ability and his tenure of 11 years at OAK is certainly a gift to the communities we serve.

Taking the STING Out of Skin Injuries

Common skin injuries in sports include: lacerations, incisions, blisters, abrasions, avulsions and punctures.

When properly treated, an acute skin injury will heal faster with decreased risk of infection and adverse reactions.

CARING FOR SKIN INJURIES

See a physician as soon as possible if the wound is deep and requires sutures or staples, is heavily contaminated, involves tendon or nerve injury, becomes warm, develops drainage, is painful, forms a rash or is slow to heal.

CLEANING AND DRESSING

- + Clean the wound and surrounding skin thoroughly with saline or tap water irrigation as soon as possible.
- + Don't scrub or swab the wound since this won't reduce bacteria and can damage healing skin.
- + Be cautious when using antiseptics to clean wounds as they can be toxic to skin tissue.
- + After the initial cleaning, the wound should only be cleaned if it becomes visibly contaminated or infected.
- + Any debris should be removed prior to dressing the wound.
 - A health care provider, such as an athletic trainer, should debride the wound if there are large amounts of debris.
- + The wound should be covered, rather than left uncovered, until fully healed.
- + Cover the wound with nonocclusive dressings (sterile gauze, nonadherent pads, adhesive strips and patches) or occlusive dressings (films, foams and hydrocolloids). Occlusive dressings, available at pharmacies, are preferred since they create an optimal healing environment.

AFTER CARE AND FOLLOW-UP

- + Monitor for signs of infection:
 - Fever, pain, edema, warmth or delayed wound healing
- + Monitor for adverse reactions that can come from some cleaning solutions, topical antimicrobial agents and dressings:
 - Rash, white discoloration, tenderness or a burning sensation
- + Have the wound area inspected by an athletic trainer or sports medicine provider daily throughout the healing process to ensure it's properly healing and dressed.

Source: National Athletic Trainer's Association

Reclaiming Your Athletic Side

By: Jeff Weber, MS, CSCS

Director OAK Athletic Development

I have a confession to make. I have one huge fear.

I never want to be a "past my prime arm chair quarterback."

You know the type.

Every story they tell starts with "back in the day I could do XYZ as an athlete." They are the types who are constantly reliving the glory days, basically what they used to be able to do, and nothing about what they are doing today.

Whether the "past their prime quarterback" played sports or not, at one time they were in great shape until life got in the way: career, marriage, kids and everything else.

So nowadays that person tries to keep some connection to their former selves by trying to workout but typically workouts are unorganized and there hasn't been much for results to speak of for a very long time. They yearn to be more but have lost that 'loving feeling' that training used to bring.

So how do you reclaim your athletic side?

I have spent the past 10 years as a trainer, strength coach and facility director. I have also been heavily active in training for over 20 years. Over that time I have identified six critical factors that I have found time and time again will help you reclaim your athleticism and get back that loving feeling and keep it this time for good.

1) Learn to have fun in the gym. Sure workouts will not be fun sometimes but overall, you must find your calling card when it comes to training. Find something: 1) you like, 2) gets you results and 3) keeps you healthy and you will have a pretty great recipe for a lifetime of fitness.

2) Train with like-minded people. Even self-driven people enjoy a culture that pushes them to go farther, work harder and dig a little deeper. Finding a clan of go-getters like yourself is a real game-changer.

3) Enjoy the process. We must learn to enjoy how we get where we were going. Too often we dwell on what the finish line will look like rather than embracing the journey that today brings.

4) Compete more. Compete with your peers, compete with your personal best, compete against your personal demons. Just compete. Developing the will to win does wonders for your training but even more so in life outside the gym.

5) Get stronger. Nothing is more humbling or more rewarding than the lifelong quest for strength. I am confident without pause in saying physical strength does not come without

continued in the next column



Jeff Weber, MS, CSCS

mental strength. In other words, they nurture each other as strength is never a weakness.

6) Move better. Goal one is to move more, once you have gotten past that hurdle, priority should be placed on moving better. Improve the way you move and plain and simple life is easier.

Begin to apply these things to your workouts and daily life and you will once again begin to feel like an athlete once again.

OAK Welcomes Physician Assistant Taylor Atkinson

Physician Assistant Taylor Atkinson has joined OAK Orthopedics and Dr. Tom Antkowiak's clinic and she certainly is a great fit. Working with fellow PA Adriana Lingl these two can call upon their past experiences in athletics to relate with the active lifestyles of the patients they see in Dr. Antkowiak's clinic setting.

Taylor grew up in Franklin Wisconsin and was active at Franklin High School participating in basketball and soccer. An accomplished athlete, Taylor continued her athletic career at University of Wisconsin Stevens Point playing basketball. A gifted student she graduating Summa Cum Laude at UWSP with a Bachelor of Science degree in Biology. Taylor's interest in science led her to obtain a Master's of Science in Physician Assistant Studies at Carroll University in Waukesha Wisconsin where she additionally served as Class President. Taylor's interest in orthopedics was fostered through her work experience at the Orthopedic Institute of Wisconsin where she worked for three summers. Taylor's passion for orthopedics certainly was influenced by her former competitive athletic days as well as the positive experience she had working at the Orthopedic Institute of Wisconsin. These two factors and Taylor's interest in the progression of medicine make her a very desirable physician assistant. With Dr. Antkowiak's Fellowship training in Sports Medicine and Taylor's past and current interest in this area, this becomes a very knowledgeable team.

When time permits Taylor enjoys watching sports, reading, working out and spending time with her family. Taylor parents still reside in Franklin and she has an older sister in the Milwaukee area plus a younger brother who is a senior at Franklin High School.

We welcome Taylor and anticipate a long and rewarding career at OAK Orthopedics.

Welcome Taylor!



Taylor Atkinson, P.A.

Burners or Stingers

By: **Eric L. Lee, M.D.**
OAK Orthopedics



Eric Lee, M.D.

If you are involved in the care of athletes who participate in contact sports, chances are that you will see someone who has suffered a "burner", or "stinger". A burner is a common peripheral nerve injury involving the upper trunk of the brachial plexus, which is formed by the C5 and C6 nerve roots exiting from the cervical spine (Figure 1). The true incidence of burners is unknown, but one study found that 65% of collegiate football players reported having at least one burner during their college careers, but 70% of these players did not report the injury to anyone.

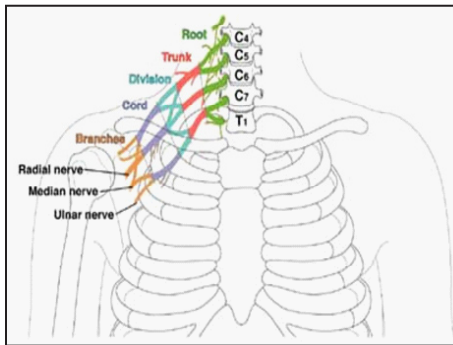


Figure 1: The Brachial Plexus

Very often, players experience recurrent burners; recurrence rates as high as 87% have been reported. Burners have been reported most commonly in football players, but have been reported in hockey players, wrestlers, and gymnasts. Due to the

known underreporting, burners have likely been experienced by participants in every contact sport.

The primary symptom of a burner is a burning or electric shock like pain down one of the arms in a non-dermatomal pattern, which can be accompanied by paresthesias, numbness, or weakness of the shoulder or arm. It can be quite frightening for the athlete, but the symptoms generally resolve quickly, often times within a minute or two. If the athlete is complaining of symptoms in both arms, a more serious injury to the neck or spinal cord should be suspected. In a common scenario, a player will come to the sidelines holding his arm against his chest, or alternatively shaking it and hanging it at his side. He will describe pain in the supraclavicular area, and report symptoms as noted above. Often times he will report having had similar episodes in the past.

In the acute setting, the medical provider's primary responsibility is to rule out more significant trauma, including cervical spine injury, shoulder dislocation, clavicle fracture, and upper arm fracture. A separated shoulder should also be on the differential diagnosis list. Once these and other injuries have been ruled out, attention can be turned to managing the burner. As mentioned previously, the symptoms usually resolve quite quickly. However, strength deficits may appear

hours, or even days, after the initial symptoms, so serial checks are important. Additionally, the baseline strength of some athletes is great enough that subtle strength differences may be difficult to detect. Because burners involve the upper branch of the brachial plexus, special attention should be paid to the strength of muscles innervated by these nerve roots, including the deltoid, supraspinatus, infraspinatus, and biceps. Strength and function of the pronator teres and triceps should also be assessed. Obviously, if there is a question of strength deficits or range of motion deficits, or if symptoms persist, the athlete should be held out of practice or competition. However, if the medical provider is experienced in treating burners, the athlete's range of motion and strength is "full", and his neurologic exam is completely normal, he may be returned to play and monitored closely.

The athletes seen in the clinical setting for burners often times have continued deficits, have had increasing frequency of burners, or have concerns about their ability to continue playing. In younger athletes, parents are often rightfully concerned after witnessing their child suffer a burner. A more detailed history and physical is warranted, including assessing the number of past burners and frequency of burners, as well as any history of other injuries to the head, shoulder, and neck. Athletes can develop muscular atrophy, most often in the deltoid and/or supraspinatus muscles, and these areas should be inspected closely. Some complain of persistent weakness, and careful testing of the muscles mentioned previously should be undertaken. Range of motion of the neck and of the shoulder (in comparison with the unaffected side) should be examined. Careful sensory exam of the affected extremity should be performed, as should muscle reflex testing. Spurling's test, in which the examiner passively hyperextends and laterally flexes the neck to the affected side and then applies an axial load, may reproduce the symptoms, though this can also mean cervical nerve root pathology. Finally, percussion of the supraclavicular fossa may reproduce the symptoms as well. If symptoms are reproduced with Spurling's or with percussion, the athlete should not be returned to practice or play.

Because a burner is a peripheral nerve injury, imaging is often negative. However, if the athlete is suffering recurrent burners, or if they have persistent symptoms, cervical x-rays will be ordered. Often times in more chronic cases, an MRI of the cervical spine, and occasionally of the shoulder or brachial plexus, will be obtained to rule out further pathology. EMG and nerve conduction tests can be helpful to confirm the diagnosis, to localize the lesion, and to assess the severity of injury. It should be noted, however, that EMG findings may be delayed by three to four weeks, so it is rarely ordered in the setting of an acute injury. EMG findings can also remain abnormal long after strength and sensory function has returned to normal, so serial EMGs are not necessarily needed.

Burners result from one of three mechanisms of injury. The first is a traction injury to the brachial plexus that occurs when

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Burners or Stingers cont.

the shoulder is depressed and the neck is forced into lateral flexion away from the involved side, thus stretching the brachial plexus. The second occurs when the nerves are compressed by combination of neck hyperextension and lateral flexion towards the involved side. Finally, burners can result from a direct blow to the supraclavicular fossa, injuring the brachial plexus in a more blunt manner. (Figure 2) Prevention of stingers has therefore focused on maintaining normal ranges of motion of the shoulders and the cervical spine, as well as maximizing strength in the muscles in these areas. Athletes in contact sports should be encouraged to work on strengthening of the neck, upper back, and shoulder muscles year round. Burners are more common in linebackers and defensive backs, and emphasis on proper tackling techniques, started at a young age, can help prevent this injury. Helmets and shoulder pads should be checked by trainers and/or equipment managers to ensure proper fitting (i.e. not allowing shoulder pads to ride too low). In the past, equipment modifiers such as neck foam rolls, cowboy collars, and neck collars have been advocated. There are very few studies actually studying these devices, and fewer still involving live sports. They have been found to reduce cervical hyperextension, but not lateral flexion (which is involved in two mechanisms of burners and is thought to be a more common cause of burners in the scholastic population).

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In fact, the neck foam rolls were shown to possibly impede active lateral flexion, which carries risks for other injuries and may be detrimental to the player. Newer equipment such as cervical orthoses have been developed, and show some promise, but need further study. In summary, maintaining proper range of motion and strength, employing good tackling technique, and wearing helmet and shoulder pads correctly are still the hallmarks of burner prevention.

Burners will occur in contact sports. The good news is that they generally resolve with no long term problems; however, this has led some athletes to take recurrent stingers or prolonged weakness or other symptoms too lightly. If an athlete is experiencing increasing frequency or severity of symptoms, discussion of possible long term complications such as weakness or sensory changes should be undertaken, as cases of prolonged (years) recovery have been documented.



Figure 2: Example of a hit which may lead to a burner



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SHIN & STRESS FRACTURES

WHAT YOU NEED TO KNOW



The Facts Behind Shin Splints and Stress Fractures

- Most stress fractures occur in the weight bearing bones of the lower leg and foot.
- More than 50 percent of all stress fractures occur in the lower leg.
- Studies have shown tennis, track and field, gymnastics and basketball athletes are the most susceptible to stress fractures and shin splints.
- Studies have also shown that female athletes typically experience more stress fractures than male athletes.

How To Diagnose

The best way to determine if an injury is shin splints or a stress fracture is to visit your athletic trainer or sports medicine professional. They will perform a full evaluation and possibly recommend additional tests, such as an MRI or bone scan. The medical professional can also help you modify activity to help the healing process.

Shin splints and stress fractures: both are overuse injuries caused by rapid increase in the amount or intensity of an activity. Despite this similarity, they are not the same and affect the body in different ways.

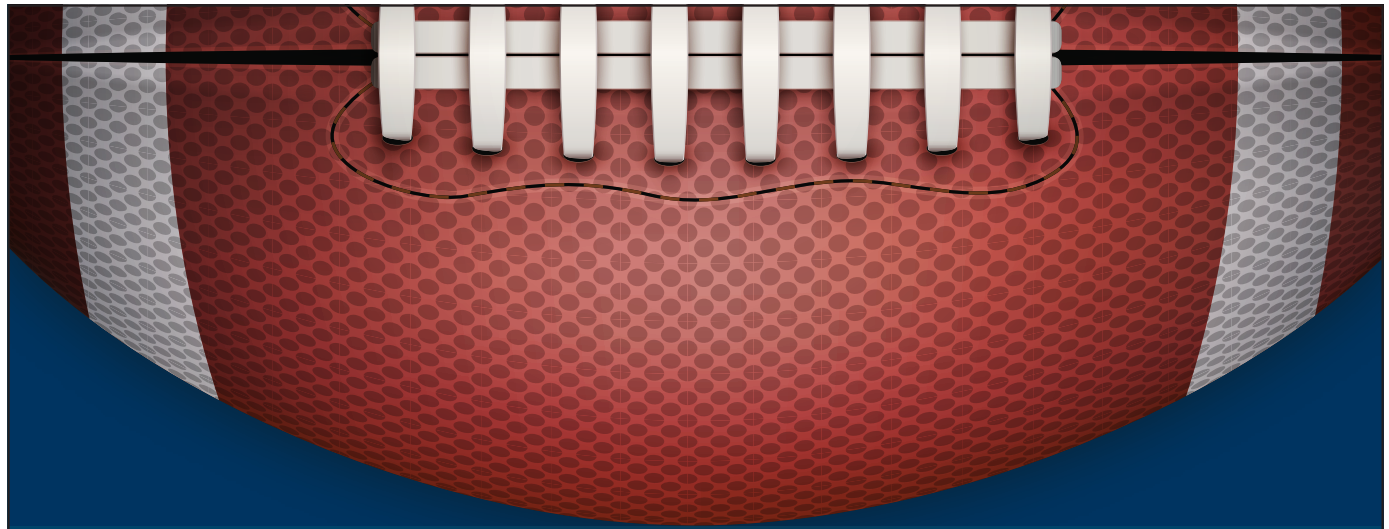
Shin splints are injuries to the soft tissue of the lower leg caused by micro tearing.

Stress fractures are physical changes, such as cracks and breaks, to the bones of the lower leg caused by muscles too fatigued to absorb added shock, sending that shock to the bone.

How to Prevent Shin Splints and Stress Fractures

- Check with your AT to make sure you are wearing appropriate footwear.
- Maintain a healthy diet.
- Ask a medical professional if you should supplement vitamin D and/or calcium.
- Work with your athletic trainer to modify your training schedule to reduce repetitive stress.
- Work on flexibility and strength of the leg muscles.
- Make sure there is a healthy balance between training and recovery.
- Add cross training to accomplish fitness goals, such as deep\water running, swimming or biking.

Source: National Athletic Trainer's Association, American Academy of Orthopedic Surgeons



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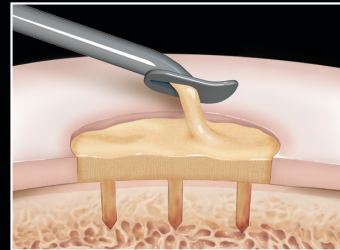
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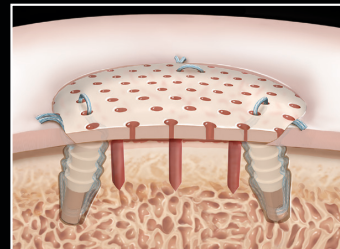
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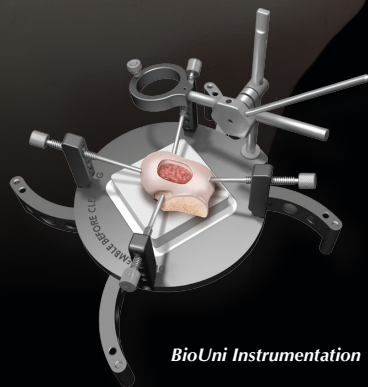
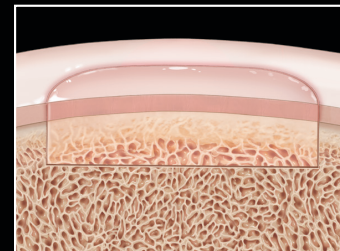
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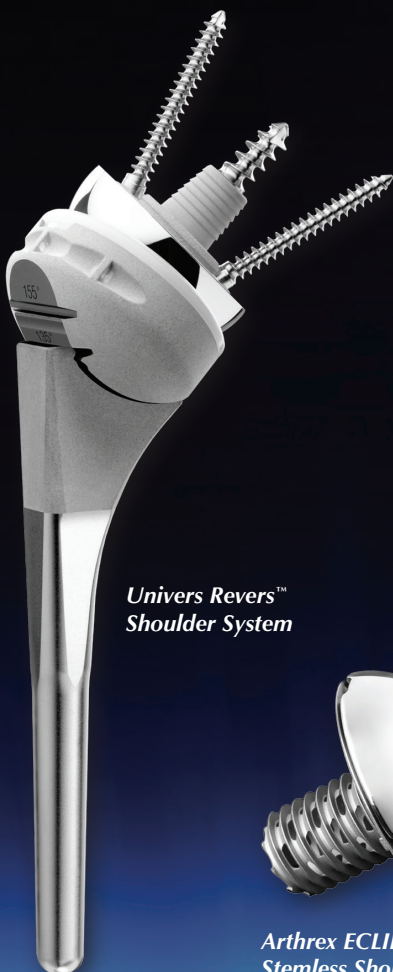
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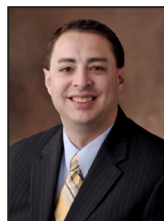
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