

'STOP' Sports Injuries in Kids

Today, 30 million U.S. children participate in organized sports each year. But the number of sports injuries among young athletes is rising. The more than 7.3 million high school athletes in this country suffer 2 million injuries, make 500,000 doctor visits and require 30,000 hospitalizations each year, according to the Centers for Disease Control and Prevention.

"Contributing to the spike in injuries are early specialization in specific sports, immature bones, insufficient rest after an injury, and poor training or conditioning," says Paul M. Saluan, MD, a pediatric orthopaedic surgeon at Cleveland Clinic Sports Health.

As a delegate for the American Orthopaedic Society for Sports Medicine, Dr. Saluan is assisting with its new national campaign, STOP (Sports Trauma and Overuse Prevention).

"This program will not only focus on injury reduction. It will highlight how playing safe and aware can lengthen a child's athletic career, improve teamwork, reduce obesity rates and create a lifelong love of exercise and healthy activity," he says.

Injuries cost more than dollars

The consequences of athletic injuries go beyond the more than \$2.5 billion spent on medical care each year in this country. Athletes, parents and coaches may also have to deal with:

- loss of sports participation and resultant inactivity
- lowered academic performance
- increased risks for depression and smoking
- potential for future osteoarthritis and associated health issues, including obesity

Remain active — without overtraining

Overuse injuries are responsible for about half of all sports injuries sustained by middle and high school athletes. "Some limitations on sports participation are needed; kids need a rest phase during the year," says Dr. Saluan. "For example, we now recommend that young baseball players take off three months at some point in the year."

Rotating through different sports is beneficial because kids can discover which ones they like, says Dr. Saluan. "Injuries can also result when kids are not fully engaged or are unwilling participants in a sport," he says.

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On His Mark:

High School Sprinter Beats The Odds to Overcome Cancer

Gyasi Cooper, 18, says he became a man the moment he decided he wasn't going to let cancer beat him.

When he was 16, the St. Ignatius High School senior and track and field team member was diagnosed with a rare form of cancer. "On that day," he remembers, "I thought my life was over."

But his shock was short-lived. Cooper's deep faith inspired him to fight the disease, and his family, friends and teammates cheered him on. And today, after losing his left leg to cancer and having to learn to walk again, Cooper is looking forward to graduating and studying computer engineering in college.

For his courage and winning determination, Gyasi Cooper was named the winner of the 2009 Cleveland Clinic Sports Health Courage Award.



From left to right: Malcolm Collins, LeCharles Bentley, Gyasi Cooper, Adom Cooper

The Setback

In July 2008, cortisone shots weren't relieving the pain Cooper was feeling in his left heel after sprinting in the 100-, 200- and 400-yard dashes. Worried, his father took him to Cleveland Clinic for a thorough examination, which included an MRI. A biopsy later revealed a high-grade osteosarcoma in the heel.

Cooper had to undergo chemotherapy to shrink the tumor before it could be surgically removed. Due to the unfortunate location of the tumor, amputation was necessary below the knee. Steven Lietman, M.D., Director of Cleveland Clinic's Musculoskeletal Tumor Center, performed the surgery.

Cooper went through many more chemotherapy sessions after the amputation. He developed temporary kidney failure and briefly went on dialysis. Several months after surgery, more of the limb had to be resected.

Despite these setbacks, the young man never lost hope: "Going through a situation like that really gives you an appreciation for life," says Cooper.

Victory Lap

After missing a significant amount of school, he returned to classes full-time. Besides focusing on academics, Cooper worked hard on strengthening his hips and legs in physical therapy.

Chuck Kyle, St. Ignatius' track coach, says Cooper's teammates cheered him on, just as Cooper supported the track squad from the sidelines.

"Our guys liked to see him out there for us, and they took turns pushing him in his wheelchair to his classes," says Kyle.

After spring break, Cooper returned to school — minus the wheelchair. He now walks to classes using a prosthetic leg and crutches. In physical therapy, he is learning how to use the new prosthesis so that he can forgo the crutches too.

"All of us find Gyasi a hero," says coach Kyle. "He's mature beyond his years."

Competitive Edge

Competitive Edge offers active individuals, athletes, coaches and athletes' parents updates from Cleveland Clinic Sports Health professionals on nutrition, health and injury prevention.

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The information contained in *Competitive Edge* is for educational purposes only and should not be relied upon as medical advice. It has not been designed to replace a physician's medical assessment and medical judgment.

For a tour of the Cleveland Clinic Sports Health Complex just off I-480 in Garfield Heights, please contact Kim Kerver at kerverk@ccf.org.

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Does Caffeine Improve Exercise Performance? Perhaps.

By Katherine Mone, MEd, RD, LD

Caffeine's role in improving athletic performance has been studied and promoted for close to 100 years. After conducting hundreds of studies, researchers concluded that caffeine has a positive effect on runners' and cyclists' performance in a laboratory setting.

Do these results apply to routine training or race-day performance? The answer is "maybe."

Little research done on the track

Few researchers have actually studied the effects of caffeine on race performance outside the lab. In addition, laboratory subjects typically took caffeine in convenient pill form. In the real world, athletes generally consume caffeine in the form of coffee, soda, tea and energy drinks.

Researchers have yet to determine exactly how caffeine improves athletic performance because after it is consumed, it is quickly digested into other compounds.

One theory says that caffeine causes the body to rely more on fat as an energy source during endurance events like marathons or triathlons. This prevents the body from using up stored glucose (a more accessible energy source) too quickly, thus preventing the early onset of fatigue. However, some research negates that claim because it showed that caffeine has the potential to improve performance in shorter events, where fat is not used for energy.

How much caffeine might make an impact?

Research suggests that the amount of caffeine needed to potentially improve exercise performance is 2 to 5 mg per kilogram (kg) of body weight, taken one hour prior to exercise. In other words, an average cup of drip coffee contains 85 mg of caffeine, and so a 130-pound athlete would need 118 to 295 mg of caffeine or 11 to 27 ounces of coffee to see any potential benefit in performance.

The potentially positive effects of caffeine on the central nervous system include increased alertness and decreased fatigue, making it easier to exercise at a given pace. The negative effects of caffeine include anxiety, restlessness, insomnia, nausea, gastrointestinal distress, headaches and dehydration.

When you should avoid caffeine

A study published in 2006 by the American College of Cardiology noted that consuming 200 mg of caffeine before exercise may decrease blood flow to the heart. This limits the availability of oxygen to the heart during exercise. Athletes with cardiovascular disease should therefore limit their caffeine consumption prior to exercise to prevent an adverse cardiac event.

In summary, the benefits of caffeine vary, and it is not guaranteed to improve your exercise performance.

Katherine Mone is a registered dietitian for Cleveland Clinic Sports Health. To make an appointment for a nutrition consultation, call 877.440.TEAM (8326).



'STOP' *continued*

Remaining vigilant

Parents and coaches need to remain vigilant about athletic injuries – as do the athletes themselves. "Any degree of sustained pain is unacceptable in a young person," Dr. Saluan stresses. "Seek medical attention if pain persists."

Any player who develops a deformity, swelling or difficulty using an injured limb that lasts longer than expected for a minor injury should see a doctor immediately, he adds. Patients with head or facial injuries, or significant deformity of a body part should go straight to the nearest emergency department.

Pediatric orthopaedic sports specialists see athletes when surgery or other interventions are needed to restore function or when fractures may affect growth.

Prolonging playing careers

Reducing injuries in young players can add to their playing longevity. Most young athletes grappling with injuries can stay in their sport "simply by modifying what they're doing, their practice hours and how they're practicing," notes Dr. Saluan.

Even when a young athlete needs to leave a sport, there is hope. "I took care of identical twins who developed cartilage problems in their elbows from gymnastics and had to be taken out. So they got into track instead, and both went to Kent State University on track scholarships," says Dr. Saluan. "They're both doing great."

Searching for less invasive treatments

Ongoing research, some funded by the STOP program, will enhance the understanding of injury risk and help to develop prevention strategies for young players.

Cleveland Clinic is partnering with the STOP Sports Injuries campaign, co-sponsored by the American Academy of Orthopaedic Surgeons and the American Academy of Pediatrics. The campaign's "Council of Champions" includes renowned athletes such as Shaquille O'Neal, Jack Nicklaus, Hank Aaron, Bonnie Blair, Bo Jackson, Charles Barkley, Howie Long and Bart Starr. It also includes prominent business leaders, such as Delos "Toby" Cosgrove, CEO and President of Cleveland Clinic.

For more information on the STOP Sports Injuries Campaign, visit www.STOPSportsInjuries.org. To see Dr. Saluan or another sports medicine specialist, call 877.440.TEAM (8326).



Ready to Run? Treat Your Feet to the Right Shoes

By Amanda Gordon, MPT

Choosing the right footwear is important in injury prevention for all athletes, but particularly for runners. Before beginning your running program, make sure you start off with the right shoes.

Running shoes should feel comfortable right away – no need for “breaking them in.” If they feel uncomfortable in the store, they will feel the same way after you run in them. Proper shoe selection will decrease your fatigue and improve your overall efficiency while running.

Here are some tips on choosing the best running shoes for your feet:

Picking the right shoe

First of all, visit a specialty shoe store if you haven't yet done so to learn whether you have neutral or high arches, or low arches (flat feet). This will determine whether you should look for shoes labeled:

- “Cushion” – Best for runners with high arches
- “Stability” – Best for runners with arches in neutral position
- “Motion Control” – Best for runners with low arches

Ensuring the best fit

This is another reason to seek out a specialty store for running shoes. You want a custom fit for optimal performance. Points to remember:

- Your feet change during the day, so get fit for shoes in the evening.
- Bring running socks with you to try on shoes.
- If you wear orthotics, bring the current pair to try on with shoes.
- Look for a half-inch gap between your longest toe and the end of the shoe (check both feet).
- Don't hesitate to return uncomfortable shoes.

‘Handle with care’

Buying proper shoes is the right way to start your running program. But to maintain a proper fit and performance, follow these guidelines:

- Wear your shoes only when running. Don't wear them to work, shop or hang out.
- Always untie your shoes before taking them off.
- The shoe's mid-sole needs 24 hours to recover. So think about buying two pairs of shoes or about running every other day.

When to renew your shoes

Good running shoes — like good tires — will wear out eventually. Know when they've “run their course” and treat your feet to a fresh pair.

- Replace your shoes every 400 to 600 miles or every six months.
- Check for wrinkles in the sole – a sign that your shoes need to be replaced.
- If shoes sit on a shelf in the closet and aren't worn for one to two years, even those that are barely worn will lose their shock-absorbing capabilities.



Amanda Gordon is a physical therapist who works with runners and patients with orthopedic injuries at Cleveland Clinic's Sports Health Center and Strongsville Family Health Center. Runners can also meet with experts on injury prevention, performance improvement, injury diagnosis and rehabilitative treatment. Call 877.440.TEAM (8326) for an appointment with any of our experts.

Sports Acupuncture Helps Both Professional and Amateur Athletes

After an injury, every athlete hopes to heal and get back to the game as quickly as possible. Acupuncture is helping athletes to do just that.

“To increase the quality and efficiency of recovery, acupuncture is very helpful when combined with standard therapies,” says Frank Caruso, LAc, the new acupuncturist at Cleveland Clinic Sports Health.

Acupuncture rising in popularity

He says that athletes of all levels are using acupuncture more and more to:

- help reduce chronic conditions that prevent top-level performance
- experience a quicker recovery from acute injuries
- enhance and improve conditioning
- help prevent re-injury

Although Caruso has treated professional players, he helps athletes of all levels from any sport.

“I have many athletes for whom acupuncture is their go-to treatment for basic aches and minor overuse injuries. But I will send them to their sports health physician if more attention is needed. I know acupuncture’s limitations, but I also know its potential,” says Caruso.

A meeting of East and West

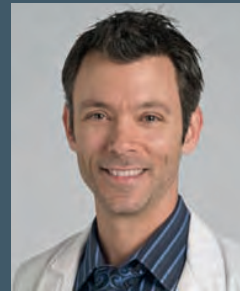
Caruso trained at Pacific College in San Diego, and interned at the University of California, San Diego Sports Center, and ChengDu and Nanjing Universities in China.

“Studying at these multidisciplinary centers taught me how acupuncture can be used on high-performance athletes who are injured more times than not,” he says. “Athletes in China use acupuncture all the time — they just add an A onto RICE (rest, ice, compression, elevation).”

Avoiding medications a plus

Athletes have used acupuncture to treat issues other than pain that interfere with performance, like allergies, headaches, neck pain, anxiety and irritable bowel syndrome. “Acupuncture allows them to avoid many unwanted side effects from medication during performance,” says Caruso.

Meet Frank Caruso, LAc



Frank Caruso, LAc, is a licensed acupuncturist who specializes in treating athletic and orthopaedic disorders. He joined us in May 2010, and sees patients at the Cleveland Clinic Sports Health Center.

Q: What really makes your day?

A: When a patient truly begins to get relief from a chronic problem.

Q: Any words of wisdom for athletes, parents and coaches?

A: Live a life of balance and avoid excesses. Overworking, overeating, and too much stressful living push the body into “stress mode,” where injury and disease are inevitable.

Q: What do you do to keep in shape?

A: I lift weights and do yoga. To stay in mental shape, I read novels, and history and health books.

Q: Do you have a favorite sports moment or play?

A: LeBron’s jump shot from half court against the Bulls in the first round of the playoffs. That shot replaced them all for me.

Q: Do you have a favorite team?

A: The Cleveland Cavaliers.

Q: Which professional athletes do you admire?

A: LeBron James and Brett Favre.

Q: What would people be surprised to learn about you?

A: I’m a painter. I also play the piano.

To make an appointment for sports acupuncture, please call 216.986.HEAL (4325).



How acupuncture works

Acupuncture works on many levels throughout the central nervous system. “We simply focus on restoring neuromuscular balance and blood flow to the injured area, which sets up the right conditions for the body to fix itself,” Caruso explains. “It’s a simple concept, actually; you just have to know where to put the needles for each injury.”

When treating injuries he will often determine which muscle groups in the troubled area are involved, and then focus his acupuncture treatment on them.

“An athlete with plantar fasciitis, for example, will usually have weak and tight muscles in the lower leg, anteriorly and posteriorly; my acupuncture treatments address all of these muscle groups,” Caruso says.

Weight Loss and its Impact on Performance

By Heather Nettle, MA

Many factors can influence athletic performance. Genetics, training, age, gender – the list is endless. Often, a coach will recommend that an athlete lose a few pounds as a way to improve overall performance. Decreasing body fat may improve overall performance for your individual sport, but when achieved incorrectly, weight loss can quickly become a negative influence.

How can weight loss influence performance?

Weight loss can positively impact performance because it directly affects energy expenditure. A person with a heavier body weight has a higher energy demand for activities than a person with a lighter body weight. This means that the heavier person will need to do a greater amount of work to achieve the same goal.

Less weight is particularly beneficial in sports such as endurance running, because the chances of “running out of gas” or “hitting a wall” are less likely for a lighter person. Those athletes who maintain a healthy body weight along with a proper diet may have a performance advantage because of the lower energy cost during activity. Not only do lower energy costs translate to improved endurance; they also increase speed and agility.

Decreased body fat is beneficial in certain sports such as gymnastics, wrestling, swimming, dance, weight lifting and ice skating. Athletes involved in these sports can be judged on appearance as well as performance.

Can everyone have a lean physique?

Many factors influence an athlete's body weight. Diet and training can be adjusted easily to suit the athlete's needs. Genetics, however, cannot be changed. Just as some athletes do not have the physique to carry a large amount of muscle, other athletes naturally carry more body fat than other athletes in their sport, regardless of diet and exercise.

Unless you set realistic goals for weight loss and body fat percentage, your athletic performance will be poor — and more importantly, serious health issues can arise.

When is the best time to try to lose weight?

Although your body fat may decrease naturally during in-season training, that is not the time to lose a significant amount of weight and/or body fat. Extreme weight loss during the season can lead to loss of muscle, which will negatively affect your performance in any sport.

How Exercise and Resting Metabolic Testing Can Help

In-depth information from exercise and resting metabolic testing is used to help athletes formulate specific goals for conditioning and weight loss. These tests are most beneficial in determining performance improvement in athletes. However, testing is also beneficial for individuals who wish to determine their resting metabolic rate and improve it in order to lose weight.

– Katie Rothstein, MS, exercise physiologist with Cleveland Clinic Sports Health

Your body needs to be fueled appropriately for optimal performance, so calories should not be restricted to any large degree during the season.

Off-season training is the time to address issues such as weight, as you focus on maintaining your fitness level and allow for recovery time. The most effective way to lose weight is to decrease calories and increase activity. Restricting calories is safer when your activity levels are more moderate.

How much weight should I lose?

Talk with your physician, athletic trainer or other healthcare professional to determine a safe amount of weight for you to lose. It's best to speak to someone outside your sport to gain an unbiased opinion. It is usually safe to assume that you can lose one to two pounds per week without losing muscle mass.

Heather Nettle is Coordinator of Exercise Physiology Services for Cleveland Clinic Sports Health. To make an appointment with one of our exercise physiologists, call 877.440.TEAM (8326).



Home Gym Hang-Up: Core

Elizabeth Sprogis, MA, Exercise Physiologist

The oblique muscles are an important yet often neglected component of the core. One of the exercises from the following side-plank progression should be incorporated into any strength routine two to three times per week to round out your other core exercises. These exercises will target your obliques as well as your other abdominal, hip and lower back muscles.

SIDE PLANK

Begin by lying on your side on the ground. Place your forearm on the ground, with elbow aligned under shoulder. Push yourself up, keeping your body straight from your head down through your ankles. Hold for at least 10 seconds. Repeat two to three times on each side. Try to work up to holding the plank for 60 seconds.

BEGINNER

1



2



3



SIDE PLANK WITH A TWIST

Start in the same position as the side plank. You can add a degree of difficulty by placing your elbow on an exercise dome or other unstable surface. Push up into the side plank. Grab a small medicine ball or kettle bell with your free hand and raise it above your head. Lower your hand, and reach under your side with the weight. Return your hand to above your head. Perform two sets of 10 repetitions per side.

INTERMEDIATE

1



2



3



SIDE PLANK WITH LEG LIFT

Start in side plank position, with your elbow on an exercise dome. Push up into the side plank. Lift your top leg and then lower it down. Perform two sets of 10 repetitions per side.

ADVANCED

1



2



3



Disclaimer: You should always check with your doctor before starting a new exercise routine or increasing intensity. If you experience pain while doing these or other exercises, stop immediately and contact your physician.

Coming Soon to Middleburg Heights: Cleveland Clinic Orthopaedic Care

This summer, injured athletes will be able to see a Cleveland Clinic orthopaedic specialist in Middleburg Heights.

Cleveland Clinic Middleburg Heights will offer:

- Sports medicine services
- On-site imaging
- Physical therapy services
- Upper extremity care
- Foot and ankle care
- General orthopaedics
- Podiatry

Our Middleburg Heights facility will be located at 7010 Engle Road, Suite 105.



Many Convenient Locations to Serve You

Get expert evaluation, medical care, surgery and rehab all under one roof at the Cleveland Clinic Sports Health Center at I-480 and Transportation Boulevard. We also offer sports health and rehabilitation services at Cleveland Clinic's main campus and in Beachwood, Brunswick, Euclid, Independence, Mentor, Solon, Strongsville, Westlake, Willoughby Hills and our newest location, Middleburg Heights. Visit our website for maps and directions.

877.440.TEAM (8326)
sports-health.org

For expert advice on how to handle your sports injury, or for an appointment at any location, call our toll-free number or visit us on the web.

Same-Day Acute Injury Clinic

If you have an acute sports injury, call 877.440.TEAM (8326) to arrange for a same-day appointment.