

Research Roundup

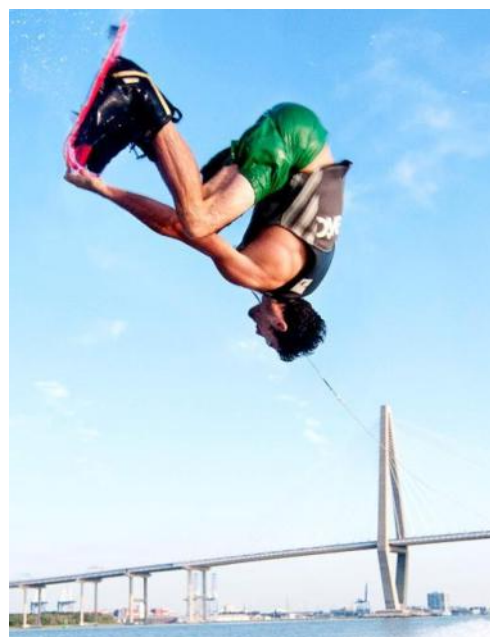
ACL Injuries in Wakeboarding

Wakeboarding has become increasingly popular since its beginnings in the 1980s and is listed as a possible inclusion for the 2020 Olympics. Throughout the past 20 years, wakeboarding has become more intense and incorporated new tricks with bigger air, more flipping and more twisting. Landing these “big air” tricks is leading to an increased number of non-contact anterior cruciate ligament (ACL) injuries while landing on the water, suggesting the injuries are due to direct or twisting contact with the water, not another object. One study published in *The American Journal of Sports Medicine* surveyed orthopaedic surgeons and wakeboarders and found both groups separately reported that the most common wakeboarding injuries are ACL tears. Other common injuries reported were fractures, shoulder dislocations, ankle sprains, and eardrum ruptures. Many people believe that because the athletes are landing on water, which is a softer surface, injuries will not occur. According to researchers, however, this is not true.

Another study focused on ACL injuries in wakeboarders and attempted to analyze the mechanism of ACL injury to help with future prevention. Of the participants, 75.67% described a pop or buckle feeling when landing in the water. Researchers believe the risk of ACL injury stems from the athlete’s feet being perpendicular to the direction of motion and landing with the feet flat. This motion also occurs in snowboarding, which has a low rate of ACL tears, but snowboarders usually land on a slope, whereas wakeboarders land on a horizontal surface. Currently, researchers are studying releasable bindings to see if they may help decrease the force on the knee.

Usually, ACL tears are associated with planting, cutting and pivoting sports such as soccer and basketball. ACL tears prevented 71.15% of wakeboarders from returning to wakeboarding without surgery. This suggests that knees with damaged ACLs cannot handle the extreme pounding and forces associated with wakeboarding.

Since wakeboarding is far from an organized sport and is performed individually on lakes across the country, it is difficult to receive large amounts of information regarding wakeboarding injuries. There is, however, enough information to show that wakeboarding is a high impact sport that may include a high risk for injury, especially injury to the ACL. As wakeboarding continues to grow, researchers hope to discover more about the mechanisms of injury associated with wakeboarding in order to help prevent future injury.



Research Roundup

Caffeine May Disrupt Children's Sleep Patterns and Increase Restlessness

The *Journal of Adolescent Health* reports the primary source of adolescent caffeine intake is soft drinks. Past studies show that adults who take in approximately 300 mg of caffeine (about two cups of coffee) a day get about two hours less sleep each night and have about twice as much wakefulness at night. Little was known, however, on the effects caffeine has on adolescents.

In a study published in the *Journal of Adolescent Health*, researchers looked at the association of caffeine consumption and children's difficulty sleeping and feeling tired in the morning. The study looked at children in sixth through tenth grades in public and private schools. An overwhelming 68.3% of the students reported they drink soda *at least* once a day and only 14.8% of students said they drink soda less than once a week.



The students' total caffeine intake was summed (soda and coffee), and the group was divided into quartiles. The highest quartile was rated as "high caffeine intake," the next as "moderate," followed by "low" and "very low." The results showed students classified as having a high caffeine intake were 1.9 times more likely to have difficulty sleeping and 1.8 times more likely to be tired in the morning compared to those classified as having a very low caffeine intake. The researchers hypothesize frequent caffeine intake disrupts the normal sleep cycle, which causes children to have trouble sleeping and feel tired in the morning. Students who are tired in the morning are more likely to be emotional, inattentive and restless throughout the day.

Based on the research, children should avoid soda and caffeine so they have less trouble sleeping and are able to be more attentive during the day. Teaching children good health habits at a young age, like choosing water, milk and healthy juices instead of soda, will stay with them as they grow older.

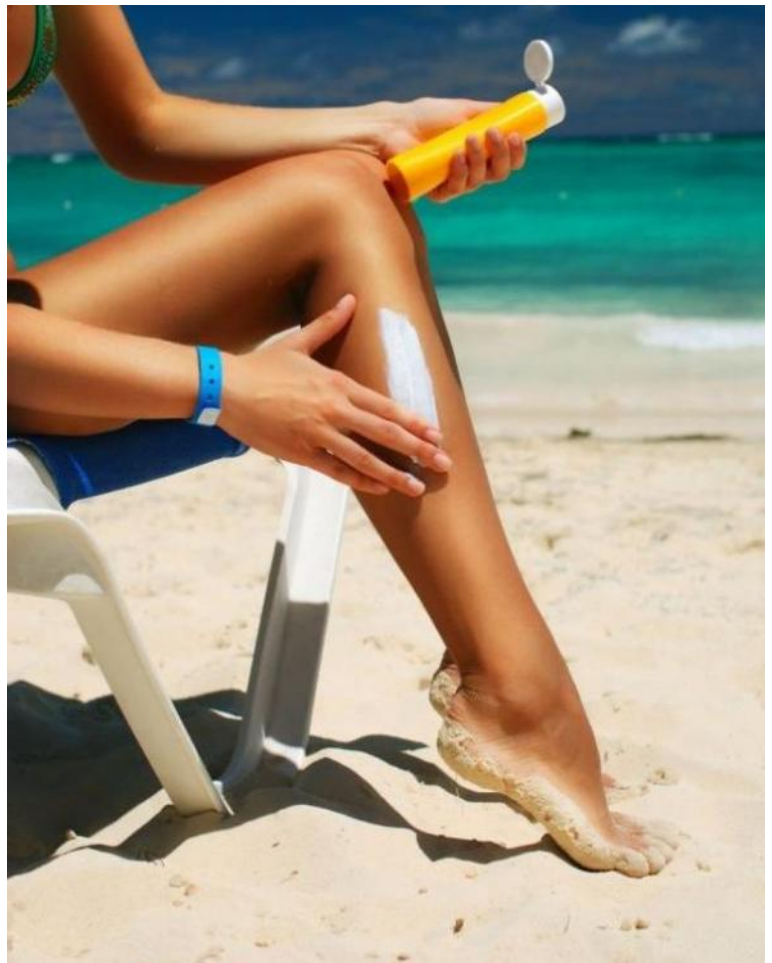
Research Roundup

Sunscreen Can Slow Skin Aging Regardless of Age

Researchers and dermatologists have been trying to get the word out about sunscreen for years — wearing sunscreen regularly has been shown to reduce the risk of skin cancer. However, new studies show it is even more beneficial. Wearing sunscreen daily reduces the effects of photoaging — skin damage due to ultraviolet (UV) radiation, including dark spots, wrinkles and leathery skin.

While dermatologists made claims in the past about the added benefits of wearing sunscreen, there wasn't evidence supporting these claims. Now, however, a four and one-half year study done in Australia revealed regular application of sunscreen significantly slowed the skin's aging. The participants were under the age of 55 and were assigned to one of four groups. The study chose to use middle-aged and younger participants so their skin damage was caused mostly by photoaging and not by old age. Two groups were assigned to wear sunscreen on their head, neck, arms and hands every morning, reapplying it after heavy sweating, bathing, or being outside for more than a few hours. One of these two groups took 30 mg of beta-carotene daily, and the other took a placebo. The remaining two groups were told to apply sunscreen at their own discretion. One group was assigned to take the beta-carotene and the other the placebo.

Every three months, skin surface replicas were made of the participant's back left hand and were graded on a scale of one to six, with one being undamaged skin. Those randomly assigned to daily sunscreen use were 24% less likely to show increased aging than those who were randomly assigned to use sunscreen at their own discretion, no matter the participant's age. The study even reports the daily sunscreen group showed no detectable increase in aging at the study's conclusion. In the study, the beta-carotene and placebo groups showed no significant differences in aging.



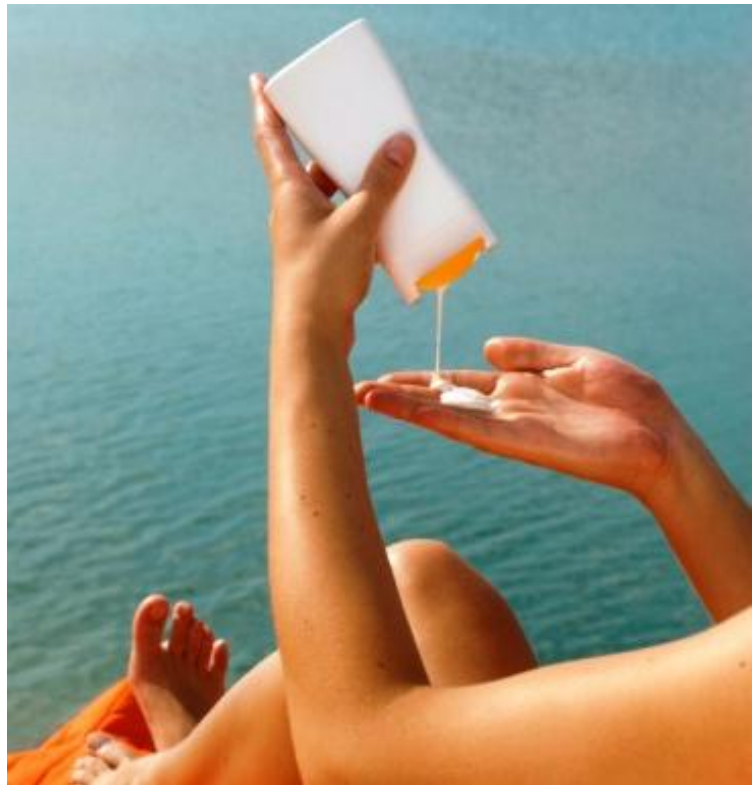
This suggests using sunscreen regularly can decrease the severe effects of skin aging in young and middle-aged adults. The study participants used a UVA/UVB blocking sunscreen with a sun protecting factor (SPF) of 15 or higher. The effects of sun damage accumulate, so dermatologists recommend wearing sunscreen even if you don't plan to spend all day outside.

There is, however, concern about sunscreens absorbing into the skin. Oxybenzone (benzophenone-3) is an organic chemical used in sunscreens that mimics estrogen and may be a cause of endometriosis. Endometriosis is a condition in which the uterine tissue grows in abnormal sites in the abdomen and causes pain. In contrast to this, both the American Academy of Dermatology and the United States Food and Drug Administration (FDA) report oxybenzone is safe for topical use in sunscreens.

Many factors affect the absorption of sunscreen into the skin, such as anatomical site of application, age, skin conditions and the properties of the sunscreen chemical. For example, absorption of sunscreen chemicals applied to the face is up to four times greater than when the sunscreen is applied to the back.

According to dermatologists, even with these added factors, the benefits of wearing sunscreen far outweigh the possible risks. Dr. Adele Green, a professor at the University of Queensland in Australia, points out, "we now know that protecting yourself from skin cancer by using sunscreen has the added bonus of keeping you looking young."

Hughes et al. Sunscreen and prevention of skin aging. *Ann Intern Med.* 2013; 158: 781-790.



About Sunscreen

- Most dermatologists recommend wearing an SPF between 15 and 50
- Reapply every 2 hours, after heavy sweating, or after swimming
- Use broad spectrum sunscreen so that it protects against UVA and UVB rays
- UV rays can come through the windows of your car, so wear sunscreen while you're driving



Research Roundup

Sugar-Sweetened Soft Drinks Increase Risk for Diabetes

Many parents allow their children to drink soda, but limit the consumption to one can a day. Often, however, they don't limit their own soda consumption. Soft drinks can have negative effects on both children and adults, and it's not just the caffeine. Studies show sugar-sweetened soft drinks are associated with an increased risk for type 2 diabetes.

A study done in the United Kingdom earlier this year suggests drinking even one 12 ounce can of sugar-sweetened soft drink a day can increase the risk of type 2 diabetes by 22%. This study looked at more than 16,000 individuals and their intake of sweet beverages such as nectars, juices, sugar-sweetened soft drinks, and artificially sweetened soft drinks. When the results were adjusted for energy intake and body mass index (BMI), consumption of sugar-sweetened soft drinks showed an increased risk for type 2 diabetes. Robert Ratner, MD, chief scientific and medical officer for the American Diabetes Association said, "Reducing the consumption of sugar-sweetened beverages is a critical piece to reducing the development of diabetes."



An earlier study done in North America shows similar results of a 25% increase in type 2 diabetes for those who consume just one 12 oz. can of sugar-sweetened soft drinks daily. In addition, the American Heart Association recommends you consume only 450 calories of sugar-sweetened beverages a week. With well over 100 calories per can, and usually close to 200 calories per 12 ounce can, this is less than three cans per week, *if* these sodas are the only sugar-sweetened beverages you're consuming.

Romaguera, D. et al. Consumption of sweet beverages and type 2 diabetes incidence in European adults: results from EPIC-InterAct. *Diabetologia*. 2013

Research Roundup

FDA Investigates Safety of Caffeine in Food

There is a new craze hitting the grocery stores—adding caffeine to food. Some examples of these caffeine infused foods are Kraft’s MiO “water enhancer,” The Jelly Belly Candy Company’s “Extreme Sport Beans,” and Frito Lay’s “Cracker Jack’D Power Bites.” The concern, especially for adolescents, is the expanding range of products that contain caffeine and the possibility of consuming multiple caffeinated foods throughout the day. The United States Food and Drug Administration (FDA) announced that it plans to investigate the safety of caffeine in food, focusing on the effects of caffeine on adolescents.

Roger Sullivan, founder of Wired Wyatt’s, a company that makes caffeinated maple syrup and waffles, believes caffeinated snacks are becoming so popular because, “[People] are busy with jobs...family...trying to get ahead or even [staying] afloat in this economy...and the first thing we sacrifice is our sleep.” Sullivan made it clear he believes consumers need to be educated on the amount of caffeine in each product and how that compares to their usual cup of coffee. He also noted the presence of a warning label on his product, stating that the product is, “Not intended for pregnant or nursing mothers, children or persons sensitive to caffeine.”



Currently, manufacturers are required to list caffeine as an ingredient, but not required to list the amount in the product. Michael Taylor, the deputy commissioner for foods and veterinary medicine at the FDA, states, “Our concern is about caffeine appearing in a range of new products, including ones that may be attractive and readily available to children and adolescents, without careful consideration of their cumulative impact.” Senator Dick Durbin (D-IL) and Senator Richard Blumenthal (D-CT) remind everyone that, “Young people are not small adults. Therefore determinations on the safety of caffeine should not be based solely on healthy adults.”

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Taylor believes the first step in dealing with the issue is to, “Better understand caffeine consumption” in order to determine a safe level for total consumption. While the FDA has not provided an acceptable amount of caffeine for children, the American Academy of Pediatrics encourages children to consume no caffeine. Taylor also mentions the necessity for a decision about which products are acceptable for the addition of caffeine and which are not, determined partially by the product’s appeal to children.

For now, consumers need to be aware of the possible addition of caffeine into their foods and keep track of how much caffeine they consume. It is suggested that consumers minimize their caffeinated food intake until the FDA has a more definitive idea of the side effects.

Your Caffeine Guide:

The FDA suggests that 400 mg caffeine/day for healthy **adults** is generally not associated with dangerous or negative effects.

16 oz. Starbucks Brewed Coffee	330 mg
16 oz. Starbucks Flavored Latte	150 mg
1 Squeeze MiO Energy	60 mg
1 (2.5 oz) Wired Flavored Waffle	200 mg
1 oz. Extreme Sport Beans	50 mg



Research Roundup

Summer Running Tips

Running is a great way to get in shape and summer provides the perfect opportunity to do so. Summer also is an excellent time to get your friends and family to run with you. Even when you're on vacation and away from the gym, it is a simple way to enjoy the scenery and explore the area. Here are a few tips to help keep you running all summer.

- Use sunscreen to prevent sunburn while running
- Stay hydrated
- Acclimate to the heat gradually
- Replace running shoes every 300-400 miles
- Don't overdo it, be realistic about your running
- Run early in the morning or later in the evening to limit sun exposure and stay out of the heat
- If you only have time to run mid-day, find a route with lots of shade
- Wear a hat to keep the sun off of your face, but keep it loose to allow heat to escape
- Do not break in new running shoes on a long run, but over a series of shorter runs
- Wear light weight shorts and T-shirts to allow for evaporation and to keep you cool
- Monitor any medical conditions you may have. Consult a physician prior to starting
- Rest in between runs to prevent pain, continue to rest if you are in pain and seek medical attention
- Run in a group and encourage each other to listen to your bodies



Want more exercises to try while you're away from the gym this summer? Try these exercises you can do anywhere.

- Sit-Ups, Crunches or any variation of floor abdominal exercises
- Jumping Jacks
- Mountain Climbers (In a Push-Up position, bring your right knee to your chest and return to a Push-Up position, repeat with your left leg, do these as fast as you can without breaking form)
- Squats, be sure your knees don't go past your ankles
- Lunges, like squats keep your knees behind your ankles
- High Knees/Butt Kicks, run in place
- Planks, Side Planks
- Push-Up Variations: Elbows close to your body, wide armed, hands in a diamond
- Burpees (From a standing position squat to floor with hands next to your feet, jump feet back into a Push-Up position, jump feet forward back into squat, stand up, repeat), to add difficulty, add a Push-Up when you're in the Push-Up position



New ACL arthroscopic procedure by Dr. Steven Chudik lets active kids stay active

One minute 8-year-old Matt Cesario was sitting atop a swing set with a neighbor and the next he was hanging from the side support brace by his right knee—a twist of fate that spared Matt’s spine and changed the course of his young life for the next five years.



Matt can’t recall much from the accident, but his mother, Debbie Cesario, remembers it as if it happened yesterday. “We were at the neighbor’s for dinner where Matt was playing. I heard Matt scream when he fell, but by the time I got to him he’d already unhooked his leg and dropped to the ground,” Debbie explained. “I was relieved to see he was conscious, able to stand and “run off” to continue playing,” she said.

However, her relief was short lived. “At 4 a.m. Matt was in horrible pain and couldn’t bend his knee,” Debbie said. Matt does remember that morning and the ER doctor telling him “it was sprained, to put ice on it and take it easy for a couple of weeks.” According to Matt, now age 13, the next two weeks were anything but easy. “My knee got hit or pulled two different times,” he lamented. “After the second hit, my knee really hurt so I knew something was wrong,” Matt said. Fortunately, a neighbor knew Dr. Chudik from her work at Hinsdale Hospital and recommended Matt see him.

The ensuing MRI and diagnosis was a torn right anterior cruciate ligament (ACL). “Because of his age, Dr. Chudik said we had to make a choice—either keep him out of all activities for the next several years until he grew more, or have arthroscopic surgery to repair Matt’s ACL,” Debbie explained. “We couldn’t bring ourselves to turn a young, active boy into an inactive, sedentary person, so we opted for surgery.”

“With ACL surgery, the torn ligament is replaced with a tendon graft,” explained Dr. Steven Chudik. “In a child, though, current surgery techniques risk damage to their growth plates which can result in deformity and uneven leg growth,” he said. “For that reason, many surgeons will not operate. However, I developed an arthroscopic technique that replaces the ligament while completely avoiding the growth plates,” Dr. Chudik explained. “Matt was one of my first patients to have this procedure.

Following the arthroscopic ACL surgery, one week in a cast and five months of physical therapy, Matt returned to playing baseball as a catcher, bowling, hunting and being one of the fastest runners in his school. However, Matt is most proud of his newest athletic endeavor—extreme mixed martial arts—that he started in 2010. “The classes include kick boxing, boxing, martial arts, street jiu-jitsu and street defense,” Matt explained. “The boxing class is adult level so I’m the youngest one there,” he added.

According to his mother, Matt’s involvement in the extreme sports makes him more flexible and works his entire body—especially his legs. “Had anyone asked me five years ago when Matt first got injured if he’d be able to do anything like this, I would have said no,” Debbie said. “I was worried if Matt would even be able to slide in baseball. We owe a lot to Dr. Chudik and the arthroscopic ACL surgical technique he developed for children.” Matt agrees as he displays the one-inch thick wood boards he broke with his bare foot and the brown/black belt he recently earned.

