Heat Related Illnesses

Pre-season and the summer high temperatures put student athletes at increased risk of heat illness. There are several types of heat illness. They range in severity, from heat cramps and heat exhaustion, which are common but not severe, to heat stroke, which can be deadly. Although heat illnesses can be fatal, death is preventable if they're quickly recognized and properly treated. Heat-related illnesses have many factors but can be caused when an individual is subjected to extreme temperatures and humidity, and is unable to cool down. Dehydration also can be a factor. Dehydration makes it more difficult for your body to properly cool itself and function, and it takes a toll on your performance. Primary contributors to heat-related emergencies include: Heat and high humidity; Extreme physical exertion; Wearing Layered or rubberized clothing; Inadequate fluid intake. Certain types of athletes might be at a higher risk for heat-related illness and should be monitored closely. These types of players include: Those with a prior history of heat illness; Overweight or obese players; Players with a medical history of gastrointestinal, diabetic, kidney, or heart problems; Players who were recently (within 2 weeks) ill with upper respiratory illness or cold or flu virus. Certain medications can also put an athlete at risk for heat illness. These include things like antihistamines, anticholinergics, decongestants, stimulants, and some antidepressants. The athlete should check with his/her physician prior to sports participation if there are any concerns.

Heat Syncope

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Signs/Symptoms of heat syncope include:

Light-headedness; Dizziness; Fainting

Emergency Treatment

Sit or lie down in a cool place when they begin to feel symptoms; slowly drink water, clear juice, or a sports beverage.

Heat Cramps

Heat cramps usually affect athletes who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Signs/Symptoms of heat exhaustion include:

Muscle pain or spasms usually in the abdomen, arms, or legs.

Emergency Treatment

Stop all activity, and sit in a cool place; Drink clear juice or a sports beverage; Do not return to strenuous activity for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke; Seek medical attention if any of the following apply: *The athlete has heart problems; The athlete is on a low-sodium diet; The cramps do not subside within one hour.*

Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. With heat exhaustion, your body temperature rises as high as 104 F (40 C) and you may experience nausea, vomiting, headache, fainting, weakness, and cold, clammy skin. If left untreated, this can lead to heatstroke.

Signs/Symptoms of heat exhaustion include:

Heavy sweating; Extreme weakness or fatigue; Dizziness/Lightheadedness, Confusion; Nausea/Vomiting; Clammy or Moist skin; Pale or flushed complexion; Muscle cramps; slightly elevated body temperature; Fast and shallow breathing

Emergency Treatment

Have them rest in a cool, shaded or air-conditioned area; Have them drink plenty of water or other cool, nonalcoholic beverages; Have them take a cool shower or bath

Heat Stroke

The Center for Disease Control describes heat stroke as the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 104 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Signs/Symptoms of heat stroke include

Hot, dry skin or profuse sweating; Hallucinations/Mental Confusion; Chills; Throbbing headache; High body temperature; Confusion/Dizziness; Slurred speech; Loss of Consciousness; Seizures; Rapid heart rate; Rapid Breathing and Low Blood Pressure

Emergency Treatment

Call 911; Move the athlete to a cool shaded area; Cool the athlete using methods such as: Immersing the athlete in a tub of cold water/ice bath; Spraying, sponging, or showering them with water; fanning their body; Monitor vital signs and perform CPR if needed

Recommendations

As a rule-of-thumb, most athletes should consume 200 to 300 milliliters or 8-10 ounces of fluid every 15 minutes of exercise. For each pound that a player lost in a previous work-out and did not replace, they need to consume 20-24 ounces to fully rehydrate for the next training session. For the first week or so, hold shorter practices with lighter equipment so players can acclimate to the heat. Clothing worn by athletes should be light colored, lightweight and protect against the sun. Follow a work-to-rest ratio, such as 10-minute breaks after 40 minutes of exercise. Get an accurate measurement of heat stress using a wet-bulb globe temperature, which accounts for ambient temperature, relative humidity and radiation from the sun. Remove unnecessary equipment, such as helmets and padding, when environmental conditions become extreme. If someone is suffering from exertional heat stroke, remember to cool first and transport second. Have large cold tubs ready before all practices and games in case cold water immersion is needed to treat exertional heat stroke. Keep beverages cold – cold beverages are consumed 50 percent more than warm beverages. Hydrate before, during and after activity.

Resources:

National Athletic Trainers' Association, www.nata.org
Coach Safely, www.coachsafely.com/heat-illness
NFL/Gatorade GSSI, www.nfl.com/static/content/catch_all/nfl_generic_content/BTH-Preventing-Heat.pdf
NFL/Gatorade GSSI, www.nfl.com/static/content/catch_all/nfl_generic_content/gatorade-safety.pdf

Safe Weight Loss and Weight Gain for Young Athletes (Ages 12-18 Years)

Many athletes and teens actively seek changes in body weight in hopes of improving athletic performance or to improve how they look. In some sports, such as wrestling, gymnastics, dancing, and running, athletes and coaches associate optimal performance with a relatively low body mass. In contact and collision sports, such as football, increased body mass is often encouraged. Athletes interested in losing or gaining weight should discuss strategies for healthy weight loss or weight gain with their doctor. Your doctor and Registered Dietitian can assist you with an individual plan to meet your goals while maximizing healthy growth, energy and performance.

Weight and Sports Performance

Athletes who are trying to improve sports performance should keep the following in mind:

- There is no single "best" weight for a given sport. For each athlete there is a range of healthy weights that allow for peak athletic performance.
- It is often more beneficial to monitor athletic performance (such as strength, speed, jump height) than weight.
- In athletes, weight and body mass index (BMI) are not good indicators of body fat and lean muscle.
- Athletes who are thinking about making major changes in weight, and those who are in weight-classified sports (such as wrestling), should have body composition measurements taken to find out percentages of body fat and lean tissue.
- Coaches and parents often do not realize the influence they have on young athletes. Even a casual weight- related comment from a coach might place the athlete at increased risk for unhealthy eating behaviors and trigger eating disorders. Parents should try to be aware of weight-related messages their children may be receiving from coaches, media and family.

Weight loss

Athletes (and coaches) in many sports, such as wrestling, gymnastics, dancing, and running, believe that they will perform better if they lose weight. For athletes who are above their healthy weight, losing excess body fat may be beneficial. However, weight loss in athletes who are already at a healthy weight is neither healthy nor likely to improve performance. Also, most diets that limit calories often result in decreased training intensity and peak performance. Weight loss can be difficult and frustrating and dangerous.

For the athlete who wants to lose weight in a healthy way, the following tips may be helpful:

- Do not lose more than 1 pound per week. Anything faster than this is often due to loss of muscle tissue or water (both of which are important for athletic performance).
- Weight loss efforts should combine changes in athletic training and diet.
- Cycles of weight loss and gain should be avoided. This leads to decreases in metabolism and calorie requirements.
- Get a baseline assessment to determine current weight and body composition and to set realistic goals.
- Manage portion sizes – do not overload your plate
- Listen to your body and stop eating when you are satisfied rather than “stuffed”. Eat slowly to give your body time to recognize the feeling of fullness.
- Focus on meals to avoid mindless eating and minimize distractions like the TV and reading.
- Logging your food and fluid intake is a great way to create awareness, identify areas for improvement, and ensure accountability.
- Consistency is key to making food choices. At each meal and snack choose foods that support your weight loss goals.
- Have a plan when you enter a cafeteria or restaurant buffet. Start by filling half your plate with veggies and then add a lean protein and grain or carbohydrate source.
- Prioritize protein by including an appropriate serving size in every meal and snack. (Skinless poultry, fish, lean meat, low-fat dairy products, eggs, tofu, and beans)
- Make ½ of your carbohydrates whole grains by including a ¼ to ½ cup or 1-2 slices at meals. (Brown/wild rice, quinoa, oatmeal, corn tortillas, whole wheat breads/pasta/crackers)
- Add color by filling half your plate with veggies and snack on fruit and veggies. (≥ 3 servings of veggies + 1-2 servings of fruit per day)
- Add healthy fats in small amounts at meals to slow digestion and keep you full for longer. (Nuts, seeds, oily fish, avocado, plant oils)
- Rethink your drink by choosing water, low-fat milk, or tea instead of sweetened drinks. (Always carry a water bottle)
- Avoid alcohol to avoid unwanted calories and do not take supplements
- Avoid skipping meals and include small snacks to help with recovery & avoid overeating at meals.
- Nutrient-filled desserts are an easy way to curb cravings while staying within a calorie budget.

- When dining out watch portion sizes. Include veggies and a lean protein, and ask for sauces on the side. (Choose grilled, baked, roasted, broiled, and steamed foods to limit extra calories.)
- Do not take weight-loss supplements/diet pills as they may contain harmful substances or additives.

Weight Gain

Athletes in some sports, such as weightlifting and football, think that strength, power, and sports performance will get better if they are able to gain weight. However, it is important to remember that weight gain can come from increases in either fat or muscle. Increases in muscle may be very helpful for some young athletes, but increases in fat may result in decreased sports performance. Unfortunately, it is much easier to gain fat than muscle. Young athletes should be encouraged to make changes that will help with improving strength, rather than just gaining weight.

For the athlete who wants to gain lean muscle in a healthy way, the following tips may be helpful:

- Gain only 1 pound each week. Gains faster than this often lead to greater increases in fat.
- Increase calories by 300 to 400 calories each day. Two servings of instant breakfast or meal replacement products can be one option. (Note: "Weight gainer" supplements often contain too many calories and cause greater increases in fat than in muscle. Many supplements contain harmful substances or additives and should never be taken.)
- Eat every 2 to 3 hours, or about 5 to 9 times per day.
- Weight lifting should be done in sets of 8 to 15 repetitions for muscle growth, or in sets of 4 to 6 repetitions to develop strength and power.
- There should be at least 48 hours between hard workouts. This allows muscles to recover between training sessions.
- Increases in weight and muscle size tend to become much easier during puberty.
- Eat a bed time snack – include a source of protein (cereal + milk, smoothie, cheese + crackers).
- Increase protein & leucine – ensure foods containing the amino acid leucine (meat, fish, poultry, dairy & legumes) are spread evenly through the day, at meals AND snacks, not all at one time, to aid in the growth of new tissue.
- Consistency is key – as with training, practice consistency with these tips Monday – Sunday.
- Get a baseline assessment to determine current weight and body composition and to set appropriate goals.
- Proper preparation by beginning training sessions well fueled to maximize the cellular growth stimulus on muscles during training.
- Recovery is a key element for muscle growth. Prioritize a recovery nutrition snack or meal immediately post-training as well as a bedtime snack.
- Increase daily calorie intake in order to create new muscle tissue by adding in 1-2 snacks OR increasing portion sizes at meal times. Additional calories should come from all nutrients, not just protein.
- Choose quality calories in the form of whole grains, fruit, dairy, veggies, lean animal protein, oily fish, and healthy fats to ensure nutrients are available for muscle growth in addition to training and daily physiological functioning.
- Monitor progress and track your weight on a weekly to bi-weekly basis and have body composition reassessed every 4-6 weeks to ensure weight gain is primarily muscle.

Resources:

Care of the Young Athlete Patient Education Handouts (American Academy of Pediatrics) & USOC SPORT NUTRITION TEAM

The Competitive Edge: Winning Nutrition – Food Works

Want to improve your performance at meets? Want to have more strength and energy? Nutrition can help you do all of this! Get to know what your body needs and wants for the best performance. Athletes usually require a higher level of calorie intake than non-athletes, although the amount varies depending on the athlete's sex, age, height, weight, body composition, stage of growth, level of fitness, and the intensity, frequency, and duration of physical exercise. An appropriate diet for most athletes consists of a minimum of 2000 calories per day; 55–65% should come from carbohydrates, 15–20% from protein, and 20–30% from fats.

Carbohydrates are the best source of energy for before and during any athletic practice or performance.

There are great carbohydrates that increase your strength and speed!! So, what is a carbohydrate? Sometimes called "carbs." A carb comes from milk, cheese, yogurt, fruits, vegetables and grains. Cereal, pasta, cheese and crackers, bananas, oranges, apples are a few of the great carbs that "super charge" your muscles.

Two days before the competition, you can already be improving your strength. Start with lots of water. You should have at least 8 glasses of water each day. For meals and snacks, focus on lots of good carbohydrates. A suggested meal plan follows:

SAMPLE MEAL PLAN	
Breakfast	Cereal with low-fat milk. Some good cereals – Frosted Mini-Wheat, Raisin Bran, Quaker Crunchy Corn Bran, Post Fruit & Bran, Barbara's Bakery Cinnamon Puffins & Fresh Fruit
Snack	Fresh Fruit and Whole Wheat Crackers and cheese
Lunch	Sandwich – meat, cheese, lettuce/tomato, bread – 2 slices & Fresh fruit
Snack	Yogurt & Fig bars
Dinner	Pasta with tomato sauce, Salad, Bread & Milk

Snacks for eating during the day of an event:

Bagel with peanut butter or cream cheese, Fruit and grain bars, Trail mix – combine dry cereal, nuts & dried fruit, Yogurt and fresh fruit, Fruit muffins, English muffin with apple slices and cheddar cheese, Granola with low fat milk and fruit, a smoothie made with low-fat yogurt, fresh fruit and Diluted fruit juice to drink

* Remember to keep lots of water going in each and every day. Sipping on water throughout the sporting event is better than drinking large amounts before or during the event.

Eating Out (Before or during an event)

A sub sandwich from Subway or other sub shops with meat and cheese and lots of vegetables is always a better choice than a burger and fries. Try some low fat frozen yogurt after the meal for some quick energy. Another choice would be chili or baked potato at Wendy's. If you can add some fruit to the meal, that is the best. Panera Bread has some excellent choices and fruit salad on the side. Chick Filet has broiled chicken sandwich with carrot-raisin salad or their Superfood salad as a side dish.

A word on sweets – candy and desserts will slow you down. Sodas and other sweetened drinks stay a long time in your stomach and decrease your muscle performance. Save these items for the end of the day of the event, or substitute fruit and dairy.

Vegetarian and vegan diets

It is possible for an athlete to maintain strength and overall health on a vegetarian diet provided that a variety of plant-based sources of protein are consumed on a daily basis and energy intake is adequate. Vegetarian and especially vegan athletes are at risk of inadequate protein, creatine and **iron** intake, however, as well as insufficient amounts of **zinc, vitamin B_{12}, vitamin D,** and **calcium** may also occur. These deficiencies will eventually affect athletic performance.

Female Athlete Triad

Parents should watch for indications of the female athlete triad, such as missing three or more menstrual periods; an unusual number of stress fractures; an excessive amount of time spent exercising or working out; a tendency to wear baggy or concealing clothes even in warm weather; and a restricted eating pattern. Adopting a vegetarian or vegan diet may indicate the onset of an eating disorder in a female athlete. Should these situations occur a referral to a physician & Registered Dietitian for evaluation is warranted to reduce the risk of injury!

Precautions

Consultation with a qualified sports nutritionist is a sound practice for anyone in any age group who is heavily involved in any sport, whether amateur or professional. Specific precautions:

- Consultation should be individualized, as people vary in their energy needs, sweating rates, & body composition
- Any female athlete who stops having menstrual periods (amenorrhea) or has only scanty periods (oligomenorrhea) should be evaluated by a physician & Registered Dietitian for disordered eating.
- Nutritional advice should be given by a registered dietitian, certified athletic trainer or physician.
- Coaches should avoid discussing weight loss and body image with young athletes (with the exception of sports requiring weigh-ins before competition), as such discussions often lead to the athlete's use of harmful weight-loss practices.
- Athletes should never take or use any dietary supplements without consulting their physician and a nutritionist.
- Athletes following a vegetarian or vegan diet require special attention to protein and iron intake.

REMEMBER: A strong foundation of a healthful diet is necessary to provide sufficient energy, prevent fatigue, and aid in cardiovascular and muscular work.

Resources:

Brought to you by Barb Andresen, RDN, LDN, FAND BAndresen & Associates Nutrition Services
Medical Nutrition Therapist – Sports Nutritionist 336-659-8622 www.MyMNT.net

American Academy of Pediatrics (AAP). 141 Northwest Point Blvd., Elk Grove Village, IL 60007. Telephone: (847) 434-4000. Website:http://www.aap.org.

American College of Sports Medicine (ACSM). P. O. Box 1440, Indianapolis, IN 46206-1440. Telephone: (317) 637-9200. Website:http://www.acsm.org.

American Council on Exercise (ACE). 4851 Paramount Drive, San Diego, CA 92123. Telephone: (858) 279-8227. Website: htpp://www.acefitness.org.

American Dietetic Association (ADA). 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. Telephone: (800): 877-1600. Website:http://www.eatright.org.

Sudden Cardiac Arrest Education and Information

What is sudden cardiac arrest?

Sudden cardiac arrest (SCA) is when the heart stops beating, suddenly and unexpectedly. When this happens, blood stops flowing to the brain and other vital organs. SCA is NOT a heart attack. A heart attack may cause SCA, but they are not the same. A heart attack is caused by a blockage that stops the flow of blood to the heart. SCA is due to a structural disorder of the heart that is often genetic or a malfunction in the heart's electrical system, causing the heart to suddenly stop beating. SCA also can occur from a direct blow to the chest by a firm projectile (baseball, softball, lacrosse ball, or hockey puck) or by chest contact from another player (called "commotio cordis"). If not treated within minutes, SCA results in death. The normal rhythm of the heart can only be restored with defibrillation, an electrical shock that is safely delivered to the chest by an automated external defibrillator (AED).

How common is sudden cardiac arrest?

The Centers for Disease Control and Prevention estimate that every year there are about 300,000 cardiac arrests outside hospitals. About 2,000 patients under 25 die of SCA each year.

Are there warning signs?

Although SCA happens unexpectedly; and many times there are no early warning signs, some people at rest and/or with exercise may have the following signs or symptoms, such as:

Dizziness; Fatigue (extreme tiredness); Lightheadedness; Weakness; Shortness of Breath; Difficulty Breathing; Nausea; Vomiting; Racing or Fluttering Heartbeat (palpitations); Syncope (fainting); and Chest Pains.

Predisposing factors may include:

A history of high blood pressure; family member with early onset heart disease or sudden death from a heart condition before the age of 50. Specifically a family history of: Long QT Syndrome (fast chaotic heartbeats), Brugada Syndrome (genetic condition causing fainting due to malfunction of the heart's electrical system), Hypertrophic Cardiomyopathy (HCM) [Abnormally thickened heart muscle]or Arrhythmogenic Right Ventricular Dysplasia (ARVD) [genetic defects of the parts composing the heart muscle], Wolf-Parkinson-White (WPW) Syndrome (an extra electrical pathway in the heart causing rapid heartbeats), Myocarditis (inflamed heart muscle), Coronary Artery Anomalies (malformation of an artery around the heart) and Marfan's Syndrome (genetic disorder that affects the body's connective tissue). Use of recreational or performance enhancing drugs, dietary supplements and even energy drinks high in caffeine can result in SCA. The signs and symptoms can be unclear and confusing in athletes. The warning signs are often confused with physical exhaustion. SCA can sometimes be prevented if the underlying causes can be diagnosed and treated.

What are the risks of practicing or playing after experiencing these symptoms?

There are risks associated with continuing to practice or play after experiencing these symptoms. When the heart stops, so does the blood that flows to the brain and other vital organs. Death or permanent brain damage can occur in just a few minutes. Most people who have SCA die from it. Symptoms are the body's way of indicating that something might be wrong. Athletes who experience one or more symptoms should get checked out. Athletes should report symptoms immediately to their coach and athletic trainer.

What is the best way to treat Sudden Cardiac Arrest?

- Early Recognition of SCA (collapse – abnormal, labored/gasping-like breathing – seizure like activity)
- Early 9-1-1 Access (call **911** for help and get an AED)
- Early CPR (begin chest compressions – push hard/push fast on middle of the chest – 100 compressions per minute)
- Early Defibrillation (use AED as soon as possible – turn it on and follow the prompts)
- Early Advance Care (continue CPR and AED use until EMS arrives)

Novant Health: Potential Benefits and Risks in Sports

By signing below: I acknowledge that I have read and understand the **Heat Related Illness, Safe Weight Loss and Weight Gain for Young Athletes, The Competitive Edge: Winning Nutrition** and **Sudden Cardiac Arrest** education and information sheets.

Parent Name (print): _____

Parent Signature: _____ Date: ____ /____ /_____

Athlete Name (print): _____

Athlete Signature: _____ Date: ____ /____ /_____

A copy of **Heat Related Illness, Safe Weight Loss and Weight Gain for Young Athletes, The Competitive Edge: Winning Nutrition** and **Sudden Cardiac Arrest** can be found at www.oakgrovegrizzlies.com