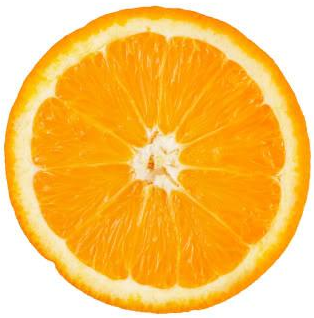
Prep School Performance Nutrition News

with

Kathleen Searles, MS, RD, LDN



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Welcome back to school and all the busyness and excitement of the new year! Last month's newsletter focused on beverage choices. This month's topic is the number one beverage for hydrating and replenishing - WATER! I am pleased to share with you an informative article on water written by Nancy Clark, New England's pre-eminent sports nutritionist. Also, I have included some information about heat related illnesses and resources for more information on that timely topic. Enjoy meeting your new students and reconnecting with old students as you slide back into the school groove!

– Kathleen Searles, MS, RD, LD

The Athlete's KitchenWater: A Wonderful Performance Enhancer

Water is a wonderful performance enhancer. When a star U Conn basketball player took the advice of his sports nutritionist Nancy Rodriguez RD and started drinking enough to consistently void a light-

Kathleen Searles is now a Certified Specialist in Sports Dietetics! CSSDs apply sports nutrition science to fueling fitness, sport, and athletic performance.

News and Events:

What are the gaps in your students' nutrition knowledge and skills? I'm seeking new topics for presentations and articles and will be glad to hear from you! Contact me at 978-697-2834 or ksearles@lunchbox-nutritionist.com.

Exertional Heat Illnesses

(Please note that this is a general overview, and does not constitute treatment guidelines; consult with your school's athletic trainer for specific protocols.)

Exertional heat illnesses (EHI) pose a serious health risk for athletes. On 8/15/12, USA Today noted that the hot summer of 2012 has taken a toll on high school athletes, including 6 deaths. As teams come together in the hot late summer/early autumn months coaches should be watchful of their athletes.

There are several types of EHI, and it is important to note that they are all preventable and treatable. It's also noteworthy that they do not necessarily occur as a continuum. Here are four types of EHI, which all have dehydration as a common thread:

Exertional heat cramps - characterized by sudden, painful muscle rigidity; usually related to an electrolyte imbalance; treat with sports drinks or water plus a salty snack

Heat syncope - characterized by dizziness or fainting; treated by cooling the athlete and having the athlete lie down to improve blood circulation

Heat exhaustion - occurs when the athlete's body is not able to cool itself adequately and the core body temperature rises; treated by cooling and rehydrating the athlete; refer to MD

Heat stroke - the most serious EHI and one of the top 3 causes of sports related deaths; body core temperature > 104 degrees; notify EMT and begin cooling athlete immediately

colored urine, he was amazed at how much better he felt all day. Unfortunately, too many athletes overlook the power of this essential nutrient. Perhaps it's your turn to give water a try? This article offers droplets of information to enhance your water IQ, optimize your water balance, and help you feel & perform better.

• You don't have to drink plain water to get adequate water into your body. All fluids count, as do foods that have a high water. For example, oatmeal is 84% water; low fat milk, 90%; coffee, 99.5%; lettuce, 96%; tomato, 95%; broccoli, 89%; low fat vanilla yogurt, 79%; and ice cream, 60% water.

• Water is the solvent for biochemical reactions. Your body cannot function without sufficient water, as noted by the fact that athletes die from dehydration.

• Your body needs water to moisten food (saliva), digest food (gastric secretions), transport nutrients to and from cells (blood), discard waste (urine), and dissipate heat (sweat). Water is a major component of the cells in muscles and organs; about 60% of a young male's body weight is water, as is about 50% of a young woman's body weight.

• Different body parts have different water contents. For example, blood is approximately 93% water, muscle is about 73% water, and body fat is about 10% water. Water constantly moves between the inside and the outside of cells. About 4% to 10% of your body-water gets replaced every day with "fresh" water.

• Note: Bioelectrical impedance (BIA) methods of measuring body fat actually measure body water. From that, a formula estimates the ratio of water to muscle and fat. Hence, if you use a Tanita Scale or Omron device, be sure to maintain adequate hydration. If you are dehydrated, you'll end up with an inaccurate (higher) estimate of body fatness.

•Your body produces about 8 to 16 oz. (250-500 ml) water per day during normal metabolic processes. During a marathon, a runner's muscles can produce that much water over 2 to 3 hours. When muscles burn glycogen,

Preventing Exertional Heat Illnesses

Acclimatization is a plan (usually over 10-14 days) to allow athletes to get used to exercising in a hot environment by gradually increasing the length and intensity of workouts and the amount of equipment worn. The National Athletic Trainers Association has a excellent fact sheet with a detailed acclimatization plan, available in PDF at: http://www.nata.org/sites/default/files/HeatFactSheet.pdf
Adequate fluid intake and replenishment helps diminish the risk of EHI. Athletes should include fluids routinely with meals, drink 17-20 ounces 2-3 hours pre-exercise and an additional 7-10 ounces about 15 minutes prior, 7-10 ounces every 10-20 minutes during exercise, and 8 ounces after exercise. A simple way to monitor hydration status is by looking at urine color (pale=hydrated, dark=dehydrated.)
For a sample color chart, visit
http://wwwnehc.med.navy.mil/downloads/healthyliv/nutrition/urinekleurenkaart.pdf.

The Korey Stringer Institute

The mission of the Korey Stringer Institute (KSI) is to help prevent sudden death in sports, particularly that related to exertional heat stroke. KSI, located at the University of Connecticut, provides education, information, resources, assistance, and advocacy around this topic. They have educational materials for trainers, athletes, coaches, and parents about hydration and avoiding heat related illnesses. Check them out at www.ksi.uconn.edu

References and Resources:

http://www.usatoday.com/sports/2011-08-15-heat-stroke-still-causing-death-in-athletes_n.htm

http://www.training-conditioning.com/2012/08/05/safe_practices/index.php
http://www.nata.org/sites/default/files/HeatFactSheet.pdf
www.ksi.uconn.edu

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they simultaneously release about 2.5 units water for each one unit of muscle glycogen; this helps protect against dehydration.

• Coffee is a popular source of water. Although once thought to have a diuretic effect, current research indicates coffee (in amounts normally consumed) hydrates as well as water over a 24-hour period. That is, after drinking coffee, you may urinate sooner, but you will not urinate more than you consume. Army research on caffeine and dehydration confirms coffee is an acceptable source of fluids for athletes, even during exercise in the heat. Hence, coffee and other caffeinated beverages such as tea or cola count towards your water intake.

• An increased concentration of particles in your blood triggers the sensation of thirst. If you are a 150-pound athlete, you'll start to feel thirsty once you've lost about 1.5 to 3 pounds of sweat (1% to 2% of your body weight). Sweat loss of more than 10% body weight is life threatening.

• Body water absorbs heat from the working muscles and sweat dissipates the heat. That is, the evaporation of a liter (about 36 ounces) of sweat from the skin represents loss of about 580 calories. Sweat keeps you from overheating during exercise and in hot environments.

• To determine how much water you lose when you sweat, weigh yourself (with little or no clothing) before and after an hour of hard exercise with no fluid intake. The change in body weight reflects water (sweat) loss. A one-pound drop in weight equates to loss of 16 ounces of sweat. A two-pound drop equates to 32 ounces—that’s one quart. Drink accordingly during your workouts to prevent that loss!

• When you sweat, you lose water from both inside and outside the cells. The water outside the cells is rich in sodium, an electrolyte that works in balance with potassium, an electrolyte inside the cells. Sweat contains about 7 times more sodium than potassium; hence sodium is the more important electrolyte to replace during extended exercise.

• Most athletes who lose more than 2% of their body weight (3 lbs for a 150-pound athlete) lose both their mental edge and their ability to perform optimally in hot weather. Yet, during cold weather, you are less likely to experience reduced performance, even at 3% dehydration. Three to 5% dehydration does not seem to affect muscle strength or performance during short intense bouts of anaerobic exercise, such as weight lifting. But distance runners slow their pace by ~2% for each percent body weight lost by dehydration. That means, if you weigh 150 pounds and lose 3 pounds sweat (2% dehydration), your 8-minute mile slows to an 8:19 pace. That's preventable!

• Adequate fluid intake can reduce problems with constipation and urinary tract infections. There is no scientific validation of theories that excessive water intake will improve weight loss, remove toxins, or improve skin tone.

• Should you plan to drink "eight glasses of water a day"? No scientific evidence supports that rule, so you can simply drink in response to thirst. You can also monitor the volume of your urine. If your urine is scanty, dark, and smelly, you should drink more! If you have not urinated during your work or school day (8:00 a.m.-3:00 p.m.), you are severely underhydrated.

• Is bottled water better for you than tap water? Doubtful. According to the Center for Science in the Public Interest, nearly half of bottled waters come from municipal water supplies—not from the mountain streams pictured on the labels. This suggests standard municipal tap water is high quality.
Rather than spend money on bottled water, turn on your tap! This will help stop the flood of 95 million plastic water bottles that get discarded each day, of which only 20% get recycled. Drink plenty of water—but think "green."

Nancy Clark, MS, RD, CSSD (Board Certified Specialist in Sports Dietetics) counsels both casual and competitive athletes at her office in Newton, MA (617-795-1875). Her Sports Nutrition Guidebook and food

guides for new runners, marathoners, and soccer players offer additional information. They are available at www.nancyclarkrd.com and www.sportsnutritionworkshop.com.