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Fuel the Student Machine

By Beth Roessner

» From the track to the mat, student athletes need proper nutrition to help them compete in the sports they love.



The demands of high school sports are immense. Swimmers are often in the pool well before sunrise on school days. Football players are throwing, tackling and sprinting nearly every afternoon in the late summer and fall. Cross-country athletes run upward of seven miles after class. To help gain strength, wrestlers squeeze in weight-lifting sessions in the school gym.

The fact is: Student athletes are always training throughout the day. And once one sport's season has concluded, another one is ready to begin. All of this ongoing training means teens involved in sports are *always* hungry. (As if hunger associated with simply growing wasn't enough!) Although school meals already cover the basic nutritional needs of students during the day, there are ways the foodservice staff can support their voracious athletes and potentially partner with physical education departments to ensure these youngsters are fueled for peak performance.

"A lot of times, [student athletes] will try to eliminate certain nutrients and go on a low-carb or high-carb diet, or a low-fat or high-fat diet. But they need balance," cautions Becky Domokos-Bays, PhD, RD, SNS, director of School Nutrition Services in Loudoun County (Va.) Public Schools, and 2016-17 SNA President. "The goal is for them to be satisfied, so they're not hungry again in an hour. Nutrient density is key."

Most growing teens struggle with bouts of hunger; with athletes, however, there are additional challenges in maintaining energy levels

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throughout the day. “When you’re in a sport, you’re expending energy...as you work your muscles, you go into fatigue, and then you must recover,” she continues. “You want to go into the event or practice after a *well-balanced* day. This will give you the optimal energy.”

MACRONUTRIENTS 101 For peak athletic performance, a careful balance of proteins, carbohydrates and fat is key. Separately, these macronutrients each benefit the body differently; when combined, they create an all-star team.

Carbohydrates are the body’s main source of energy. They help the brain and muscles function properly. Carb consumption can delay fatigue and enable athletes to compete for longer periods of time. The body can store the fuel that comes from carbohydrates (called glycogen) for later use. When muscles are fed and happy with the stored glycogen, this allows the body to repair and rebuild by using protein. (More on why this is a better option in a bit.)

Not all carbohydrates are created equal. Some, called **complex carbohydrates**, are digested more slowly than others. Foods like quinoa, whole-wheat flour, sweet potatoes and brown rice are examples of complex carbohydrates. Another benefit of these foods is that they often have additional vitamins and minerals that the body needs, says Shannon Gleave, RDN, SNS, director of Food & Nutrition at **Glendale (Ariz.) Elementary School District**, and current chair of SNA’s Nutrition & Research Committee.

Gleave reinforces the importance of encouraging kids to consume these (and other nutritious foods) throughout the day for balance, rather than trying to use them for a pre-workout hit. “You don’t want to miss the 40-yard dash waiting for those complex carbohydrates to kick in,” she warns.

Student athletes should turn to bananas, white rice, sugars, white flours and other fruits—examples of **simple carbohydrates**—for fast fuel. The body converts these foods into energy more quickly than other carbs. Sometimes,

simple carbs are exactly what’s needed before the start of the race or an intense workout.

“If your body is not eating enough carbohydrates, then you’re going to use other [food] sources that aren’t as efficient,” advises Gleave. “It can start pulling from your fat sources, then your protein sources. And you need fat and protein for other mechanisms, so you have to make sure you’re getting enough carbohydrates.”

After intense physical activity—such as sprints, swimming long distances or lifting weights—athletes need a little extra fuel to help them recover. During exercise, muscles are broken down and torn, and **protein** helps repair that damage, explains Gleave. When the muscles are rebuilt, they’re stronger. Great protein sources include lean meats, grains like quinoa, nuts, dairy, beans, eggs, soy products and more.

But, she cautions, athletes need to take care in the *amounts* of protein they consume—more is not necessarily better, because the body cannot store protein the way it does carbohydrates. “The more protein you eat, does not give you more muscles,” says Gleave.

The last important macronutrient for athletes is **fat**. This may come as a surprise, when you consider the lean bodies of most sports figures. But fat plays a significant role: absorption. Certain vitamins—A, D, E and K—need fat as a carrier so that the body absorbs them and allows them to work. Fats are also crucial for cell structure and hormone production. But this is not license to eat chips and cookies! Athletes should turn to sources of *healthy* fats, such as avocado, nuts, nut butters and fatty fish like salmon.

HYDRATION EDUCATION Water is king—especially for athletes. Trumping sports drinks, soda pop, juice and other beverages, water is essential for the benefits of full hydration. “When an athlete is dehydrated, it decreases performance and makes someone at greater risk for injury,” notes Gleave. Water helps transport the nutrients that were consumed through the balanced meals. It also regulates body

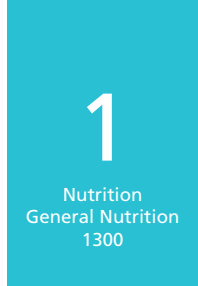
temperature, aids with recovery, fights fatigue and lubricates joints.

Factors to consider with hydration include duration of exercise and environmental temperature. "Some kids sweat more than others," states Jeffrey Tamayo, SNS, nutrition specialist at **Oklahoma City Public Schools**. "Most kids absorb heat at a greater rate than adults, and their sweat glands don't function as well until they have entered puberty." This puts these youngsters at higher risk for dehydration. Even if a student athlete does not *visibly* sweat, hydration is still important because sweat is needed to help cool off the body.

Sports drinks have their place, concedes Gleave, noting that they can be good options after longer-duration workouts. The fundamentals of ideal hydration, agree both Gleave and Tamayo, is to hydrate before, during and after exercise, as well as to drink water with meals.

FUEL FACTORS Specific dietary needs vary from one student athlete to the next. Factors such as gender, age and even the sport played can influence the optimal nutrition mix for these students. For example, a long-distance runner will have different needs than a volleyball player. Even *within* a sport, nutrition requirements can vary. In football, a wide receiver, who needs to be light on his feet, should eat differently than an offensive lineman, who must bulk up to act as a physical barrier, explains Tamayo. The amount of body fat on a student athlete will differ based on the sport, and that is perfectly natural, he adds.

Female athletes often require fewer calories than their male counterparts, but both need to eat for optimal performance, says Tamayo. And *then* there are the effects of puberty. As they mature, boys naturally gain more muscle mass, while girls naturally gain a higher body-fat percentage. "Most girls do not welcome that change at all. Their self-esteem may be affected," he reports. "With males, on the other hand, they're increasing their lean body mass and that change may be



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1. ___ is one of the three most important macronutrients for athletes.

- Potassium
- Sodium
- Caffeine
- Fat

2. When your body runs out of glycogen (energy), your body pulls fuel first from fat sources, then protein sources.

- True
- False

3. Sweet potatoes, brown rice and quinoa are examples of ___.

- simple carbohydrates
- compound carbohydrates
- complex carbohydrates
- short-chain carbohydrates

4. ___ can help to repair muscle damage after physical activity.

- Carbohydrates
- Potassium
- Glycogen
- None of the above

5. Eating more protein will help you develop more muscles.

- True
- False

6. ___ need fat to help them be absorbed by the body.

- Vitamin B12, magnesium and zinc
- Vitamins A, E, D and K
- Vitamin C, calcium and folate
- Iron, manganese and B2

7. Drinking water helps ___.

- strengthen bones
- improve night vision
- regulate body temperature
- all of the above

8. The ideal time to hydrate is ___.

- before physical activity
- during physical activity
- after physical activity
- all of the above

9. Female student athletes need more calories than their male counterparts.

- True
- False

10. ___ is a high-intensity physical activity.

- Cross-country running
- Wrestling
- Yoga
- All of the above

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welcome.” For both groups, Tamayo reminds teen athletes that they’re fueling for performance, not for looks.

The length of play is also important to consider. Games, meets or practices that result in an hour or more of constant physical activity require refueling as the play is happening, says Tamayo. The intensity of a particular physical

activity is another factor. For example, he notes, long-distance runners keep their intensity low, which means their bodies are able to burn some stored fat for energy. A wrestler, on the other hand, participates in high-intensity bursts. In this case, the fat available in their body cannot be broken down fast enough.

MAXIMIZING SCHOOL NUTRITION

Reimbursable school meals and Smart Snacks-compliant a la carte items must meet rigorous federal nutrition standards—and while these represent the needs of most children, some contend that they fall short for student athletes. Still, these menu offerings—combined with your education and marketing efforts—can help to serve this important customer niche.

Start by promoting the benefits of eating balanced school meals—research shows that they are better options than many other alternatives that kids choose, from brown bags to quick serve restaurant staples. It’s particularly important to remind student athletes not to *skip* meals during the day. And if your school site hasn’t yet considered offering afterschool snacks, this is a great opportunity to pursue this federal program and provide *supper* to help fuel student athletes.

Some school nutrition operations are upping their...er, *game* when it comes to serving this student group. Jackie Morgan, director of Food Services, **Milton (Mass.) Public Schools**, is in the fourth year of a partnership involving dietetic interns from nearby Framingham State University. These college students offer members of various school athletic teams after-hours education sessions geared toward nutrition. Topics covered include what to eat pre- and post-workout, proper hydration, how to read restaurant menus and good versus bad fats. The events feature food samples, so students can see the tips in action. Coaches are encouraged to participate, as well.

“We are very student oriented,” says Morgan of her team’s commitment to responding to the needs of *all* their customers. “After the wrestling team went to the nutrition session, they asked for salads with boiled eggs. Now, we’re serving salads with boiled eggs.” The school nutrition team also makes it a point to draw the connections between the nutrition lessons and the current offerings for school breakfast and lunch.

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April Laskey, SNS, director of School Nutrition at **Billerica (Mass.) Public Schools**, is developing a new after-school snack menu designed with an athlete's needs in mind. The menu is part of a larger student-led project to help fuel all students participating in activities after the last bell. Laskey is creating a mix of reimbursable snack options, along with appropriate a la

carte items—think smoothies and protein-based snack packs. Student leaders are on the forefront in helping her test these with their peers and working with coaches to learn more about nutrition power for performance. A soft launch of the new menu is expected in June.

In **Spartanburg County (S.C.) School District #6**, Rebecca Polson, SNS, execu-

tive chef, launched her own pre-game feeding program this year. Open to all athletes in grades six through 12, the school nutrition team offers meals prior to games and other school events. Students and coaches alike can order from a set menu created by Polson that includes both hot and cold entrées, such as herb-roasted chicken, Greek-style chicken, wraps, subs, lasagna, pork enchiladas and more. The successful program feeds over 200 kids each day. "Before this, they were going to drive-thrus," says Polson. "It wasn't necessarily the foods the kids *needed* before competition. It was whatever was convenient."

An added benefit of the sports feeding program? Polson reports that participation in school breakfast and lunch is on the rise, as athletes boast to their peers about their pre-game eats. That's *truly* a win-win for all! **SN**

Beth Roessner is School Nutrition's senior editor.

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