Sports Nutrition for Student Athletes

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Nutrition is the missing link for too many student athletes; they fail to get desired results from their workouts. These busy students commonly eat at the wrong times, choose the wrong balance of carbohydrate, protein and fat, drink too little fluids, and consume adequate iron. The question arises: *How much better could these athletes perform?* The answer: *Lots better!*

Here are some common missing food links, with solutions that can help your team avoid these pitfalls.

Missing link #1: Respect for the power of food

"You know, Nancy, too many athletes show up for training but they don't show up for meals. They might as well not show up for training..." These words, spoken by a winning Boston College hockey coach, are true, indeed. You want to encourage your students to plan ahead and show up well fueled. Performance starts with fueling, not training.

Missing link #2: Eating enough during the active part of the day

The same athletes who show up underfueled for training are generally the ones who undereat nourishing meals by day, only to overeat "junk" by night. This pattern fails to support an optimal sports diet—and long-term health.

Why do so many runners undereat during the active part of their day?

• Some claim they are "too busy." Wrong. If they can find time to train, they can find time to fuel for training.

• Other runners are purposefully restricting their food intake at breakfast and lunch, with hopes of losing weight. Weight-conscious athletes want to pay attention to *when* they eat. They should fuel adequately during the active part of their day, so they have energy to exercise. They will then be less hungry at the end of the day and better able to "diet" at night (that is, eat less dinner or fewer evening snacks) and lose weight when they are sleeping, instead of when they are trying to exercise. Eating just 2 to 4 fewer Oreos at the end of the day can knock off 100-200 calories and theoretically lead to 10-20 pounds fat loss a year.

MISSING LINK #3: Eating the right amount of calories at evenly sized, evenly scheduled meals.

Too many student athletes eat in a crescendo, with the biggest meal in the evening. The better plan is to divide their calories evenly throughout the day, eating every 4 hours, so they are always in the process of fueling-up or re-fueling. Here's an example of a 2,400-calorie fueling plan for female runner:

Breakfast	7:00 a.m.	500 calories
Lunch	11:00	600
Pre-run	2:30	300
Recovery	5:00	200
Dinner	6:00 p.m.	700
PM Snack	9:00	100±

MISSING LINK #4: Eating an appropriate amount of fat.

Runners who eat too much fat (butter, oil, salad dressing, fried foods) displace the carbs they need to optimally fuel their muscles. That is, if they fill up on cheese and pepperoni pizza, they are not filling up on carb-rich pasta. They'll end up with "dead legs."

On the other hand, runners who eat too little fat fail to replenish fat stored within the muscles that supports endurance performance. Including some healthful dietary fat in addition to adequate carbs and calories offers important fuel that gets stored within muscles and can improve endurance performance. Peanut butter on a bagel, olive oil on a salad, nuts for snacks, and salmon for dinner are smart choices.

MISSING LINK #5: Fueling before exercise

Runners who have "no time" to eat before their workout, want to think again. Eating 100 to 300 calories of a pre-exercise snack even 5 minutes prior to exercise enhances performance, assuming:

1) they will be exercising at a pace they can maintain for more than 30 minutes and

2) they can tolerate pre-exercise food.

How much difference does this pre-exercise fuel make? Lots! In a study, athletes biked hard for 45 minutes, and then sprinted as hard as they could for 15 minutes. When they ate a 180 or 270-calorie snack just five minutes before they exercised, they improved 10% in the last 15 minutes. They improved 20% when they had eaten a meal four hours prior to the exercise, then the snack 5 minutes pre-exercise. (Neufer) This means you want to encourage your athletes to eat a good breakfast and lunch, plus a pre-exercise snack, so they can have a stellar afternoon workout! A granola bar or some graham crackers pre-exercise can make a difference!

MISSING LINK #6: Beneficial protein intake

Some runners eat too little protein; others eat too much. For example, a 150 lb. (68 kg) high school runner may need 0.5-1.0 g protein per pound of body weight (1-2 g pro/kg); this translates into about 75-150 g protein per day. A teenage runner can easily consume this amount:

Breakfast:	3 eggs	18 g protein
Lunch:	Tuna sandwich	35 g
Snack:	1 protein bar	20 g
	12 oz chocolate milk	12 g
Dinner:	1 chicken breast	50 g
	16 oz milk	16 g
	Total	*151 grams*

In contrast, a vegetarian runner on a reducing diet could easily underconsume protein if foundation of the menu is —

Breakfast:	oatmeal	5 g protein
Lunch:	salad w/ 1/4 c. chickpeas	3 g
Dinner:	1 garden burger	11
	Total:	*19 grams*

Too little protein contributes to poor recovery, muscle wasting, and suboptimal results from hard training.
Solution: By meeting with a sports dietitian, a student athlete can learn his or her protein requirement and how to translate that into food.

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MISSING LINK #7: Iron to prevent needless fatigue due to anemia
Iron-deficiency anemia is common, particularly in females. Anemia causes needless fatigue and reduced performance. A survey of collegiate athletes indicates 20% of the female volleyball and basketball players were anemic, as were 50% (yikes!) of the soccer team. (Eichner) Anemia is particularly common among women who have heavy menstrual blood losses, but eat neither red meat nor iron-enriched breakfast cereal.
Solution: Athletes who feel needlessly tired should get their blood tested (including serum frritin) by their MD. To help prevent anemia, they wan to to eat an iron-rich diet—
• red meat, or iron-rich alternatives (dark-meat chicken or turkey, salmon, tuna)
• iron-fortified cereals (Wheaties, Raisin Bran, Grape-Nuts)
To enhance iron absorption, include with each meal a source of vitamin C, such as orange juice, berries, broccoli, tomato and other fruits and vegetables.

MISSING LINK #8: Post-run food.
At the end of a hard run or track worlout, runners haven't finished their training until they have refueled! *Solution:* Encourage your team to plan ahead. Each runner should have recovery foods readily available, no excuses.

MISSING LINK #9: Recovering with both carbs + protein
Recovery foods should offer a foundation of carbohydrate with some protein as the accompaniment. A reasonable target is about 60 g carb (240 calories of carbs) and about 20 g (80 calories) of protein. Some popular choices include Greek yogurt with honey, chocolate milk, cereal with milk, and pasta with meat sauce. They need not buy protein shakes; standard fare works fine!
Solution: Runners may not feel hungry for solid foods after a hard run, but they are likely thirsty. A fruit smoothie (made with Greek yogurt) is excellent for recovery, as is a chug of chocolate milk. Both contain carbs to refuel, and protein to build and repair muscles plus reduce muscle soreness.

MISSING LINK #10: Rest days that allow time for muscles to refuel
Rest is an important part of a training program; muscles need time to refuel and heal. Depleted muscles may need more than 24 hours to replace glycogen stores. Hence, rest days with little or no exercise *enhance* a training program.
Runners who want to lose weight commonly hesitate to take a rest day; they fear they will "get fat." These runners need to understand:
1) On a rest day, they will feel just as hungry because the muscles need food to refuel.
2) They will gain (water) weight. For each one ounce of stored glycogen, the muscles store about 3 ounces water. This water gets released during exercise; it is beneficial.
Solution: Plan adequate time to rest and refuel. Notice how much better the athletes are able to run the day after a rest day.

MISSING LINK #11: Adequate Fluids
Runners who stay well hydrated can train harder and perform better. For each one percent of body weight lost via sweat, the heart has to beat 3 to 5 more times per minute (Casa); this creates needless fatigue!
Solution: Teach your athletes they should be drinking enough fluid to need to urinate every 2 to 4 hours. The urine should be a light color. If they sweat heavily, they should learn how much sweat they lose (and thereby need to replace) during a workout. They can do this by weighing themselves (with minimal clothing) before and after a one-hour run. For each pound of sweat lost per hour, they should drink at least 16- 24 ounces fluid.

MISSING LINK #12: Sodium before exercising in the heat.
Research with trained cyclists reports they rode 20 minutes longer to exhaustion (99 vs. 79 minutes) in 90°F heat when they drank a pre-ride beverage with about 1,000 vs. 150 mg sodium (and no fluids during the ride) (Sims).
Solution: If your athletes train for extended amounts of time in the heat, they want to consume salty foods beforehand. This holds water in the body and reduces the risk of becoming dehydrated.

MISSING LINK #13: The sports dietitian (RD, CSSD)
Serious athletes generally have a support crew that includes a coach, sports psychologist, medical doctor, physical therapist and massage therapist. But to their detriment, some fail to have a sports dietitian on their team. Oops.
*Solution:*Use the referral network at www.SCANdpg.org to find a local registered dietitian who is a Board Certified Specialist in Sports Dietetics (RD CSSD). This professional can help your athletes—
• resolve struggles with "no time" to eat properly.
• find pre-exercise fuel that reduces stomach problems and "transit trouble."
• attain a desired weight and percent body fat.
• transform disordered eating into effective fueling.

The bottom line: Don't let nutrition be your athletes' missing link! You will always win with good nutrition!

References
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