

How Food Insecurity Impacts Student Athletes and How Athletic Trainers Can Help

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In his Heisman Trophy acceptance speech in December 2019, Louisiana State University quarterback Joe Burrow put the national spotlight on the issue of hungry kids. Speaking of his hometown he said, “I’m up here for all those kids in Athens and Athens County [Ohio] that go home to not a lot of food on the table, hungry after school.”¹ In your community, some of these hungry youths, adolescents and young adults may be student athletes.

Food Insecurity in Youths, Adolescents and Young Adults

The U.S. Department of Agriculture (USDA) defines food insecurity (FI) as “uncertainty or inability to acquire enough food to meet the needs of all members of a household because of insufficient money or other resources for food.”²

In 2018, 13.9 percent of households with children under the age of 18 experienced FI. USDA data from 2007 suggests that adolescents may be particularly at risk of FI as the occurrence of FI was about twice as common in households with adolescents as those with children under 4 years old.³ Among U.S. college students, FI incidence is estimated

at 32.9 percent on average, based on a systematic review.⁴

Factors that may increase risk of FI among college students include insufficient resources to purchase food, a lack of grocery stores on campus, inadequate transportation, lack of cooking facilities and poor cooking skills.⁵ Students from underrepresented backgrounds, including Black students and those identifying as other races or identities, have been identified as a higher risk for FI than White students.^{5, 6}

Food insecurity can affect many aspects of a student’s daily life. In adolescents, FI has been associated with lower cognitive function, lower school test scores, difficulty interacting with peers and increased rates of school suspensions.³ In college students, FI has been associated with poor mental health, decreased academic performance, increased rates of depression and anxiety and decreased ability to concentrate.⁷ Other negative psychosocial effects include resentment of students in easier circumstances, sadness and frustration or anger with the institution.⁵

Based on current knowledge of sports nutrition, it is reasonable to expect that FI could negatively affect the well-being, performance and injury recovery of student athletes. Athletes need a food intake that is adequate to maintain health and maximize training outcomes.

The primary nutrition need for athletes is adequate energy (calories). Recent research has focused on the concept of energy availability, the energy available for bodily function after subtracting the energy cost of exercise. Low energy availability has been associated with decreased performance in both male and female athletes.

Athletes’ diets should contain adequate carbohydrates for use as muscle and central nervous system fuel. Protein is important as a structural component of muscles, tendons and bones. Fat is an important fuel source and functions in cell membrane health and absorption of fat-soluble vitamins. Micronutrients, such as calcium, vitamin D, iron and antioxidants, play important roles in optimal muscle function and in recovery from

injury. Athletes with low energy intake may not obtain adequate nutrition from any one or all of these nutrient areas, which increases their overall nutrition risk.⁸

Identifying Athletes Experiencing FI

Athletic trainers are in a good position to identify athletes experiencing FI because athletes trust them and may be willing to confide in them.⁹ The American Academy of Pediatrics (AAP) developed a tool kit for addressing FI.¹⁰ It recommends a three-part approach consisting of screening for FI, connecting patients with food and nutrition resources in the community and supporting policies that increase access to adequate healthy foods.¹⁰ AAP developed the Hunger Vital Sign screening questionnaire that can identify households at risk of food insecurity through two validated questions.

The AAP tool kit suggests incorporating screening for FI into the routine workflow and to be aware of the sensitive nature of the subject. Students may be hesitant to expose their own or their family's FI.¹⁰ ATs and sports dietitians may want to incorporate FI screening into screening and assessment for relative energy deficiency in sports (RED-S)¹¹ as some of the RED-S performance deficits, such as decreased concentration, irritability and depression,^{5,6} are reported in food-insecure students, as well. In the big picture, just as pre-participation is a great time to screen for various medical and health concerns, this would also be an opportune time to assess for FI.

According to AAP, FI can't be identified by outward appearance. Student athletes experiencing FI may appear well-groomed and well-dressed or may have possessions, such as cell phones, that make it seem as if they are financially stable.¹⁰ Other factors that have been associated with FI risk for collegiate student athletes include living alone, living as a single parent, housing instability, utilizing multiple forms of student aid, being a first-generation college student, substance abuse, partner conflict and attending community college.^{6, 12, 13}

Demographic	Program	Description	For More Information
Middle/High School Students and Families	Supplemental Nutrition Assistance Program (SNAP)	Federal nutrition assistance for eligible low-income individuals & families	www.benefits.gov/benefit/361
	National School Lunch Program (NSLP)	Provides nutritionally balanced low-cost or no-cost meals each school day	www.fns.usda.gov/nslp/nslp-fact-sheet
	School Breakfast Program	Federally assisted meal program	www.fns.usda.gov/sbp/sbp-fact-sheet
	After School Meal and Snack Program	After-school snacks and meals through NSLP or Child and Adult Care Food Program (CACFP)	www.fns.usda.gov/school-meals/afterschool-snacks
	Summer Food Service Program	Free healthy meals for low-income children & teens	www.fns.usda.gov/sfsp/sfsp-fact-sheets
	Local Food Pantries	Varies, visit resource for online locator	www.foodpantries.org/
College Students	Campus Meal Plan	Varies	Contact individual institution
	SNAP	Federal nutrition assistance for eligible low-income individuals & families	www.benefits.gov/benefit/361
	Special Supplemental Nutrition Program for Women, Infants and Children (WIC)	for qualifying women & children up to age 5; may help athletes w/a family	www.benefits.gov/benefit/368
	College and University Food Bank Alliance (CUFBA)	Provides support, training and resources for campus food pantries	www.cufba.org
	Swipe Out Hunger	Allows student to donate unused meal points	www.swipehunger.org

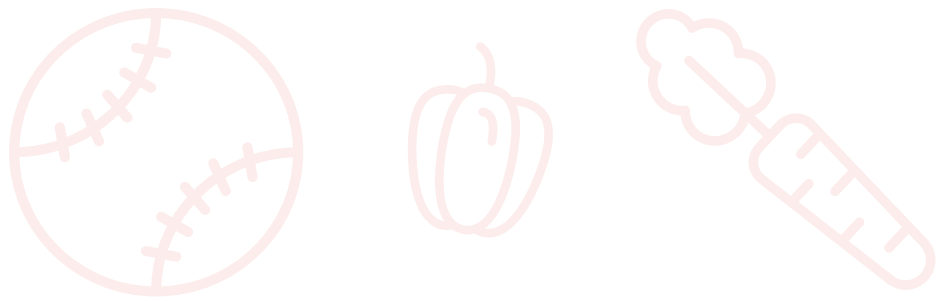
In your sports medicine program, consider developing specific policies and procedures about identifying and responding to FI.¹⁰ It will be helpful to have a complete list of federal and local nutrition programs, food pantries and emergency food access points in your community for a quick referral for student athletes. This way, a student athlete identified as struggling with FI can be referred for assistance.^{3,10} AAP suggests identifying a hunger champion – a staff person who is well acquainted with available programs and who can coordinate policies and screening and referral procedures for your organization.¹¹

Food Insecurity and the Middle, High School Athlete

There is not a lot of athlete-specific research on FI and this age group. In a study of rural high school students, students experiencing FI were less likely to participate in strenuous physical activity or participate in sports teams. In this population, girls were more likely to experience hunger than boys.³

The degree of FI for middle and high school athletes varies from community to community.¹⁶ For this group, school breakfast and lunch programs are a significant resource. School breakfast programs have been

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associated with higher cognitive function and academic outcomes. Although school breakfast and lunch programs can provide a significant amount of food for student athletes, athletes with FI still may not be able to meet their daily needs easily.¹⁴

Schools that offer after-school educational enrichment programs, which may include athletics, may be able to provide after-school snacks through the National School Lunch Program or the Child and Adult Care Food Program.¹⁶

Brett Singer, MS, RD, CSSD, sports dietitian at Memorial Hermann IRONMAN Sports Medicine Institute, said he has had success working with high school students and parents by asking questions and keeping an eye out for FI issues. His team works to help students set affordable goals, including making good choices in the school cafeteria. He stresses that good communication is important, including with coaches and parents. Based on feedback from social media, he said he thinks students do a good job of taking sports nutrition messages home.¹⁷

Food Insecurity and the Collegiate Athlete


As with younger age groups, there is not a lot of research on FI and college athletes. But, higher rates of disordered eating behaviors have been reported among students with FI.⁷ Research supports screening collegiate student athletes for FI because of findings that FI experiences (either in high school or college) may lead to a preoccupation with food or even food hoarding.¹⁸

Diana Nguyen, MS, RD, CSSD, director of sports nutrition at North Carolina State University, said she sees a lot of FI among scholarship and non-scholarship athletes. Although NCAA regulations changed in 2014 to allow schools greater leeway in fueling student athletes,¹⁹ an individual school's budget may not stretch far enough to meet the needs of all student athletes. Athletes who come from FI families may be trying to send any extra money home and may need additional support and education to develop food habits that support their performance.²⁰

On college campuses, there is likely a registered dietitian or certified specialist in

sports dietetics to refer athletes. The health center and/or food service provider are great places to start to find a qualified professional. Nguyen works to support student athletes with education about healthier and less expensive options within each food group. She goes to the grocery store with athletes and points out good deals, such as sales and cost savings by purchasing larger containers versus single-serving containers.²⁰

Jennifer Doane, ATC, RD, CSSN, of Advantage Nutrition and Wellness in Allentown, Pennsylvania, consults with smaller colleges. She recommends providing bonus cards, e-coupons and online product marketing site coupons as good ways to get discounts.²¹

The combination of athlete trust and professional expertise puts the AT in an ideal position to identify FI. Policies and procedures that include using the validated screening questions combined with awareness of food resources allow athletic trainers to help athletes experiencing FI with appropriate referrals. With the support of ATs, they can improve their nutrition status for optimal performance and recovery from any potential injury or illness in the face of FI. 

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