

Elevate HEALTH

A quarterly research digest
of the President's Council
on Fitness, Sports & Nutrition

Series 17, Number 1
Spring 2016



fitness. sports. nutrition.

Healthy Foods and Beverages for Youth in Sports

In partnership with



DEPARTMENT OF KINESIOLOGY
School of Public Health-Bloomington



President's Council on
Fitness, Sports & Nutrition

Opening Commentary

Misty Copeland, Member
President's Council on Fitness, Sports & Nutrition

Guest Authors

Michelle Draxten, MPH, RD
Lifestyle Medicine Program for
Weight Management
University of Minnesota Physicians

Toben F. Nelson, ScD
Division of Epidemiology and
Community Health
School of Public Health
University of Minnesota

Editor-in-Chief

Rachel K. Johnson, PhD, MPH, RD, FAHA
Robert L. Bickford, Jr. Green and Gold
Professor of Nutrition
Professor of Pediatrics
University of Vermont

Editorial Board

Alexandra Evans, PhD, MPH
University of Texas at Austin

Diane L. Gill, PhD
University of North Carolina at Greensboro

Jeffrey I. Mechanick, MD, FACP, FACE, FACN
Icahan School of Medicine at Mount Sinai

Leah E. Robinson, PhD
University of Michigan

Diane Wiese-Bjornstal, PhD
University of Minnesota



This publication is made possible by a
co-sponsorship agreement with Indiana
University School of Public Health-
Bloomington, Department of Kinesiology.

*The findings and conclusions in this paper are those
of the authors and do not necessarily represent
the official position of the President's Council on
Fitness, Sports & Nutrition or the U.S. Department
of Health and Human Services.*



As a ballerina, I have the opportunity to spend long days doing what I love to do—dance. It requires a great deal of discipline in order to push my body further to reach my goals. Along with the countless hours of practice and outside physical activity pursuits, fueling my body with the proper nutrients is an important component of being an athlete and ballerina.

When I was younger, I spent time participating in various activities as a part of my local Boys & Girls Club. It gave me the chance to be active through play and learn about healthy food options that would help

me as I started to focus more on dance. My time as a young athlete and learning about how to properly fuel my body to ensure I could become the best dancer I could be has shaped my life to this day.

On a typical day, I try to eat foods high in protein accompanied by fruits, vegetables, and whole grains. For snacks, frozen grapes and pistachios are some of my favorite treats. Hydration is also an important part of my training schedule. I drink a lot of water to make sure my muscles have enough stamina to dance the title role in *The Firebird* and other demanding performances.

In this issue of *Elevate Health*, Michelle Draxton, M.P.H., R.D., and Toben F. Nelson, Sc.D., explore the need for parents, doctors, school officials, public health leaders, and youth themselves to create opportunities to make healthy foods and beverages more readily available for young athletes. The authors provide examples of why healthy eating is a challenge for many young athletes, explain what young athletes should eat and drink, and offer some suggested solutions for making healthy foods available for young athletes.

“My time as a young athlete and learning about how to properly fuel my body to ensure I could become the best dancer I could be has shaped my life to this day.”

—Misty Copeland

Healthy Foods and Beverages for Youth in Sports



Each year, more than 44 million youth in the United States participate in sports, and two out of three high schoolers play on at least one sports team.

Nutritious eating habits promote healthy development and allow young people to perform their best in school and other activities. Parents, doctors, school officials, public health leaders, and youth themselves have recognized the importance of adopting better eating habits and creating opportunities to make healthy foods and beverages more easily available. Working together, these groups have made significant efforts to improve the foods and beverages available in many schools. Although much more can be accomplished in school settings, overall, these changes have led to better diets and healthier students.^{1,2}

One setting that has received comparatively less attention for encouraging healthy eating is youth sports.³ Youth sports are terrific venues for promoting health because sports touch the lives of many youth. Today, youth sports are more popular than they have ever been.⁴ More than 44 million youth in the United States participate in sports each year, and two in three students in high school play on at least one sports team at their school or in their community.^{5,6} Sports, including soccer, basketball, tennis, and dance, among others, offer youth an opportunity to engage in vigorous physical activity while they learn how to work together, have fun, and compete toward a common goal. For these reasons and many more, participation in sport can promote healthy development for youth and adolescents.^{7,8}

Unhealthy Eating is an Accepted Part of Youth Sports

Unfortunately, youth sport activities are not currently living up to their potential as a setting for promoting healthy eating. According to the *Dietary Guidelines for Americans*, healthy eating emphasizes foods such as fruits, vegetables, whole grains, lean meats, and low-fat milk products. Healthy eating provides a balance of protein, carbohydrates, fat, water, vitamins, and minerals and a limited amount of calories. Unhealthy eating includes foods and beverages that are high in fat, sugar, sodium, and calories. It is possible for youth to find unhealthy food and beverage options most anywhere they go, including from vending machines, concessions, convenience stores, and fast food restaurants. This is especially true in youth sport settings.





Youth who participate in sports consume more fast food, more sugary drinks, and more calories overall than youth who are not involved in sport.^{3,9,10} The foods and beverages that are convenient and widely available to youth in sport settings are generally unhealthy.¹¹⁻¹³ For example, concession stands are common in youth sport settings. Typical choices at concession stands include items such as chocolate and other candy, ice cream, salty snacks, sugary beverages, and high-fat, calorie-dense entrees such as hot dogs and pizza. Healthier alternatives are rare. Additionally, parents often organize schedules for providing treats after each game for their child's team. These treats often include candy, doughnuts, chips, and sugary drinks. Parents report that team members and other parents can have a negative reaction when offering healthy choices for post-event treats, such as fruit. Youth sport schedules often overlap with regular family meal times and encourage eating away from home.^{9,12,14} Eating meals outside the home at fast food restaurants is associated with excess body weight and indicators of poor cardiovascular health.¹⁵

Physical Activity and Eating Habits in Sport Are Out of Balance

The widespread availability of unhealthy foods and beverages in sport settings helps contribute to a cultural norm of accepting, and even expecting, unhealthy eating as a part of youth sport. Parents and coaches view post-game snacks, concession stand items, and fast food meals in youth sport as an occasional indulgence that is permitted, even if it is inconsistent with the foods prepared at home.^{12,16} We have heard anecdotally, and when conducting systematic focus group research, that part of the reason that coaches and parents may relax their usual standards for healthy eating is that they see youth engaging in vigorous exercise during sport.^{12,16} Parents and coaches report that they believe this activity offsets the potential downside of any unhealthy foods or beverages they may have consumed.^{12,16} A common view of post-game treats is exemplified by the following statement from the parent of a child participating in sport: "These kids have been running around for an hour. They can have ice cream."

Despite this belief, research suggests that parents, coaches, and young athletes may overestimate the amount of physical activity sports provide. Studies that objectively measure the amount of physical activity youth gain during sports have found that only about one in four achieve recommended levels of daily activity.^{17,18} The U.S. Department of Health and Human Services (HHS) *Physical Activity Guidelines for Americans, 2008* recommend that children and adolescents accumulate 60 minutes of moderate to vigorous physical activity each day.¹⁹ Examples of moderate intensity physical activity for adolescents include baseball, yard work, hiking, and brisk walking while examples of vigorous activity include jumping rope, bike riding, karate, basketball, and cross-country skiing.¹⁹ The objective evidence suggests that participating in sports provides an average of 30 minutes of the recommended 60 minutes of physical

activity.^{17,18} While most sports involve vigorous physical activity, they also involve considerable time in light activity or no activity, such as waiting on the sidelines to enter the game and standing around between plays or while receiving instruction from coaches. The amount of energy expended in sport can vary by type of sport, age of the participant, coaching practices, and other factors, but the data suggest the amount of energy expended in sports is relatively modest.^{17,18} If youth consume the types of foods that are widely available in youth sport settings, they may be overcompensating for the amount of energy they expended in the sport's activity by taking in extra calories. They are also consuming foods and beverages that may fail to provide the appropriate balance of nutrients that comprise a healthy diet.



Physical activity studies suggest only about one in four students who engage in sports achieve recommended levels of daily activity.

Why is Healthy Eating So Challenging for Young Athletes?

Recent research has started to identify some of the challenges to healthy eating for youth involved in sports.^{3,12} A significant contributor to the lack of healthy eating in youth sports is simply the busy schedules that many families with young children confront. Youth sport practices and competitions occur on several occasions each week at night, and on weekends. In some cases these events can entail considerable travel. Families with multiple children involved in sport and other activities can feel stretched thin simply from transporting them to various locations. Parents who participated in our research told us that youth sport activities reduce the frequency of family meals at home.¹² Parents and youth involved in activities want foods and beverages that are convenient and easy

Youth who attend sport competitions that involve several games or events over the course of a day often rely on foods and beverages from the concession stand.



to consume while they are “on the go.” The time pressures of their children’s activities regularly lead them to pick up fast food and eat in the car on the way to or from youth sport events. Youth who attend sport competitions that involve several games or events over the course of a day often rely on foods and beverages from the concession stand.

Normative attitudes and behaviors also contribute to unhealthy eating in youth sport settings. Widespread availability of unhealthy foods and beverages makes them appear to be acceptable and expected. One former youth athlete who participated in our research told us:

When I was younger and participated in sport tournaments, the concession stand was always something I looked forward to because they carried various sweets, popcorn, pizza, sloppy joes, and nachos. Now, looking back, I’ve realized how terrible I ate at tournaments and how I didn’t feed my body the right foods to give me energy for my games. I never really paid attention to how ironic it is that sporting events serve junk food instead of promoting healthy eating.

In addition, teams will often have a post-game treat or meal at a fast food restaurant. Parents and coaches reported to us that the social benefits for the team (e.g., team bonding) often outweigh the importance of eating a more nutritious meal.^{12,16} Parents who are committed to good nutrition can find it difficult to voice their concerns in these situations.

Finally, parents and coaches of teams reported that they did not feel they had adequate knowledge about nutrition and the best ways to properly feed young athletes. Participants in our research reported that they were sometimes confused by seemingly conflicting advice about nutrition in the media and they wanted clear guidance about what was best for youth involved in sports.^{12,16}

Eating meals outside the home at fast food restaurants is associated with excess body weight and indicators of poor cardiovascular health.



Table 1. Estimated Calorie Needs per Day by Age, Gender, and Physical Activity Level

Age (Years)	MALES			FEMALES		
	Sedentary	Moderately Active	Active	Sedentary	Moderately Active	Active
6–8	1,400	1,600	1,800–2,000	1,200–1,400	1,400–1,600	1,600–1,800
9–13	1,600–2,000	1,800–2,200	2,000–2,600	1,400–1,600	1,600–2,000	1,800–2,200
14–16	2,000–2,400	2,400–2,800	2,800–3,200	1,800	2,000	2,400
17–18	2,400	2,800	3,200	1,800	2,000	2,400

Source: *Dietary Guidelines for Americans, 2015*

What Does a Developing Young Athlete Need to Eat?

Despite the many challenges, youth who participate in sports can benefit from eating a well-balanced, nutritious diet. In general, the dietary needs of youth athletes do not significantly differ from their non-sport participating counterparts. The *Dietary Guidelines for Americans 2015–2020*²⁰ recommend a balanced intake that consists of fruits and vegetables, grains (with at least half whole grains), fat-free or low-fat dairy, a variety of protein foods, and oils. Also recommended is limiting the amount of saturated fat, added sugars, and sodium (salt). Consuming a variety of these foods provides adequate macronutrients and micronutrients needed to support youth development and optimal sport performance. Macronutrients are nutrients the body needs in larger amounts (e.g., carbohydrate, protein, and fat) and micronutrients are nutrients the body needs in smaller amounts (e.g., vitamins and minerals). Each macro- and micronutrient plays an essential role in healthy youth development. The roles macronutrients play in the body and food sources of each are described below.

Carbohydrate: Carbohydrate is the main fuel source for the body. Once digested, the body converts carbohydrate to glucose that will be used for energy or stored for later use in the muscles and liver. There are two types of carbohydrate: simple and complex. Simple carbohydrates are digested more quickly and are found in fruit, vegetables, and dairy. Complex carbohydrates are digested more slowly and are found in a variety of foods including bread, pasta, and rice.

Sources: Whole grains (pasta, bread, rice), dairy, fruit, vegetables

Protein: Protein helps regulate the function of cells, tissues, and organs in the body. For athletes, protein is also important for muscle repair and recovery.

Sources: Lean meat and poultry, fish, beans, dairy, eggs, nuts/seeds

Fat: Fat provides energy when carbohydrate is not available, is essential for the absorption of some vitamins (A, D, E, and K), and aids in maintaining body temperature.

Sources: Oil, avocado, nuts/seeds

How many daily calories does a youth athlete need?

Nutritional needs for athletes depend on many factors including age, gender, sport, and activity/competition level. Depending on activity intensity (e.g., sedentary, moderate or vigorous intensity), different daily calorie needs are recommended for youth by the United States Department of Agriculture (USDA) and HHS.²⁰ Examples



of moderate intensity activities include riding a bike and walking briskly. Vigorous (i.e., active) activities include running, jumping rope, and playing sports such as basketball, soccer, tennis, and hockey.¹⁹ These activities should make youth sweat and breathe hard. The calorie recommendations based on different activity levels for males and females are shown in Table 1. Finding the right balance between energy expenditure and energy intake will help an athlete avoid energy deficit or excess. Energy deficit can delay growth and puberty, as well as impact bone density, and energy excess can lead to overweight.^{21,22}

Eating Before an Activity/Sport

For youth involved in sport, eating before an activity is essential to provide the body with enough energy for best performance. For activities that are in the morning, eat breakfast at least one hour in advance. Finding a good combination of complex and simple carbohydrates with some protein and fat, such as a piece of whole wheat toast (complex carbohydrate) with peanut butter (protein and fat) and a small banana (simple carbohydrate), will provide a slow release of energy throughout the activity. For activities that occur after school, athletes could benefit from eating a snack about an hour before the activity to allow enough digestion time to prevent stomach discomfort during the activity. Some individuals may experience discomfort from meals/snacks that are higher in fat and fiber before activity. A combination of carbohydrates, lower fat, lower fiber, and plenty of plain water may be ideal.



Many youth athletes compete in all-day tournaments or have several games in one day. In this case, eating and hydrating between activities is important to fuel the body for the rest of the event.

Some small meal examples may include yogurt with fruit, an apple with peanut butter, or whole grain crackers and string cheese. There are a variety of nutritious food options for young athletes to eat before an activity. Parents and coaches can work with their athletes to ensure that a balanced pre-activity meal is consumed by the athlete prior to sport participation.

Eating During an Activity/Sport

Many youth athletes compete in all-day tournaments or have several games in one day. In this case, eating and hydrating between activities is important to fuel the body for the rest of the event. Eating five to six small meals throughout the day could be a good approach. These meals can consist of a variety of easy to digest, nutrient-dense ingredients that provide sustainable energy for the athletes to support their nutritional needs throughout the competition. When events are less than two hours apart, a nutrient-dense, high-carbohydrate snack like fruit with yogurt or a granola bar is ideal. A regular meal (e.g., whole wheat sandwich with lean meat and vegetables, a piece of fruit, and milk) can be eaten when games are longer than a few hours apart.

Eating After an Activity/Sport

Consuming carbohydrate- and protein-containing foods within a couple of hours post-activity can help to replenish energy stores that were used to fuel the activity and repair muscles. Parents, coaches, and young athletes should aim for whole foods (i.e., less processed) and foods that are bright and colorful (e.g., fruits and vegetables), such as whole wheat spaghetti with tomato sauce, chicken breast, a salad with a variety of vegetables, and milk.

A carbohydrate- and protein-containing meal or snack soon after activity can help to replenish energy stores and repair muscles.

Table 2. Amount of Water Recommended Before, During, and After Activity

Before activity	Drink 2–3 cups (16–24 ounces) of water two to three hours before activity.
During activity	About ½–1 cup (~3–8 ounces) of water every 20 minutes for 9–12 year old athletes and up to 4–6 cups (~34–50 ounces) per hour of water for adolescent athletes and those who sweat excessively.
After activity	Drink 2–3 cups (16–24 ounces) of water after activity for every pound of body weight lost.

Source: American Academy of Pediatrics²⁷

Should young athletes consume more of some nutrients?

Overall, a well-balanced diet with plenty of water is adequate for youth who participate in sport. However, assuring athletes consume adequate amounts of calcium, vitamin D, and iron should be considered.²³ Calcium supports muscle contraction, bone growth, and strength. The Recommended Dietary Allowance for calcium is 1,000 mg/day for 6–8 year olds and 1,300 mg/day for 9–18 year olds.²⁴ Calcium-rich foods include



A well-balanced diet for youth who participate in sport should include the Recommended Dietary Allowance of calcium, vitamin D, and iron.

dairy products, dark leafy green vegetables, and fortified cereals. Vitamin D is also essential for bone health and aids in calcium absorption. The Recommended Dietary Allowance for vitamin D is 600 IU/day for 6–18 year olds.²⁴ Vitamin D-rich foods include egg yolks, tuna, fortified milk, orange juice, and cereals. Iron helps with muscle repair and improves the body’s ability to transfer oxygen to working muscles. The Recommended Dietary Allowance for iron is 10 mg/day for 6–8 year olds, 8 mg/day for 9–13 year olds, 11 mg/day for 14–18 year old males and 15 mg/day for 14–18 year old females.²⁵ Iron-rich foods include meat, poultry, beans, dark green vegetables, and iron-fortified cereals.

Is there anything athletes should limit?

The body’s ability to perform will be enhanced if an athlete limits foods that are high in saturated fat, added sugars, and sodium. This includes fast food, processed foods, sweetened beverages (non-diet soft drinks/sodas, sweetened teas, flavored juice drinks, energy drinks, etc.), and snacks and beverages with added sugar. Unfortunately, these characteristics describe the foods and beverages that are typically available in youth sport settings. Not only could these foods and beverages inhibit athletic performance, but they can increase body weight and promote chronic disease. Youth involved in sports should choose foods that will fuel their body healthfully and provide sustainable nutrition for their needs as they compete.

Hydration for Youth Sports

Water is the best choice

Just like eating the right foods, athletes need to stay hydrated. Drinking fluids before, during, and after activity and sport will prevent dehydration and improve performance and recovery. Athletes should never be thirsty and plain, non-flavored water should always be the first choice. Drinking water is crucial to avoid dehydration in young athletes. A few signs of dehydration include thirst, decreased urine output, dark yellow-colored urine, dry mouth, headaches, irritability, dizziness, and weakness. In addition to preventing dehydration by replacing fluids that have been lost through sweat, water helps with digestion and regulates body temperature. The American Academy of Pediatrics recommends athletes be adequately hydrated pre-activity and continue to hydrate during and after activity (see Table 2).²⁷



What about sports drinks?

Sports drinks are heavily targeted to youth as a performance enhancer. Sports drinks are designed to replace lost fluid and electrolytes and provide additional carbohydrates for energy. However, they contain extra calories, added sugars, and sodium that many young athletes do not need. If an athlete has been exercising for more than an hour and/or in hot and humid temperatures, sports drinks may be warranted. Otherwise, hydrating with plain water is the ideal choice.

Finding the Right Balance

Many parents believe their child needs a lot of additional calories because they are being physically active in sport. As we noted in Table 1, however, active youth do not require considerably more calories than their peers who are less active. Young athletes (less than 12 years old) rarely burn enough energy (calories) through sport to require a supplemental snack. The additional calories may leave them vulnerable to excess weight gain. In recent years, it has become common for parents to provide snacks after games and practices. These snack foods are often high in calories and low in nutrients. Parents have a unique and important role when it comes to providing foods for their young athlete because parents are the primary influencer at this age.

Providing water and nutrient-dense snacks should be the focus, not “treats.” As young athletes turn into adolescents, the primary influencer often shifts from parents to coaches and peers. Educating coaches, parents, and young athletes about proper fuel for enhanced performance is essential to reduce the likelihood of calorie overcompensation; that is, consuming too many calories post-game/practice than expended (burned). Parents and coaches may need additional education about the amount of calories and the right balance of foods their young



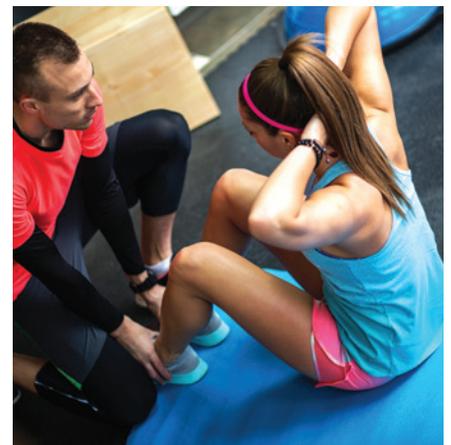
athletes need. Unless a child is an endurance athlete or participating in an all-day event, three well-balanced meals that meet their caloric and nutrient needs, and possibly light nutritious snacks between meals, should supply sufficient energy.

Providing a Healthy Food Environment

A healthy food environment is one that provides nutritious foods and beverages that are affordable, convenient, and accessible in a way that makes them an easy choice. It also limits access to foods and beverages that have high levels of fat, sugar, sodium, and calories.

The food environment at most youth sporting events is not very healthy. On game days, concession stands are stocked with high calorie, high sugar, and low nutrient foods such as hot dogs, pizza, “walking tacos,” candy, and sodas/soft drink. The culture of concession stands has been to raise money for the hosting organization, as foods commonly served are high in demand and low in cost to prepare and/or offer. Parents also routinely provide post-game snacks that are sugary, salty, or fatty, rather than nutritious. Fast food restaurants are a convenient choice for busy families shuttling their children to various activities, including

As young athletes turn into adolescents, coaches and peers often take on a key role as primary influencers concerning food choices.



sport practices and events, but these venues tend to offer foods and beverages that are unhealthy.^{12,16}

Not only are these foods commonly available in youth sport settings undesirable for athletic performance, but some parents have expressed their concerns over the lack of available healthy options during sport events.^{12,16} Barriers to including healthful foods at sporting events include lack of sport nutrition knowledge and resistance to change because organizations rely on them for fund raising. Public health professionals are working with key stakeholders to improve the food environment in the home, in schools, at worksites, in child care centers, and in health care facilities. A similar focus is needed to improve the food environment in youth sport settings. Concerted effort is needed to improve the quality and offer more fresh, local, and healthy food and beverage options, provide appropriate portion sizes to meet the nutritional needs of young athletes, and support those settings by implementing and enforcing strong standards.²⁶

What Can Be Done?

As a Parent

Many parents feel helpless when it comes to feeding their athlete healthy foods. Being aware of the food environment and talking about it with other parents and coaches is a great first step. Other parents may share concerns about the food environment in youth sport. Parents can create a coalition to voice concerns, bring awareness, and generate change. Consider volunteering at or coordinating the concession stand at the next youth sporting event.

Planning ahead is another great strategy to assure that young athletes are eating nutritious foods. Parents can pack a cooler with sandwiches, string cheese, nuts, yogurt, fruits, and vegetables for their child to eat during the event. Don't forget a water bottle filled with ice and water, too!

Prevent dehydration and improve recovery by drinking fluids before, during, and after activity.



As a Coach

Coaches wear many hats including teacher, mentor, and motivator, among others. Coaches can also provide advice to their athletes about nutrition when they have access to the right information. Young athletes look up to coaches for guidance, giving coaches a unique opportunity to educate athletes to eat healthy and fuel their bodies for performance. Encourage healthy snacks if needed after practice/events and minimize team outings to restaurants. While gatherings may be important for team building, eating out can encourage unhealthy eating and overeating. Coaches can encourage team events that involve healthier food options as well as provide opportunities for team camaraderie. Coaches are also excellent role models and can show young athletes how to choose and eat healthy foods by eating healthily themselves.

As an Organization

Sport organizations play a critical role in providing structure, enforcing regulations, preventing injury, and promoting health in youth sport. Organizations frequently find it difficult to balance offering healthy foods and raising funds to support their activities. A big argument in response to making changes to offer healthier food and beverage choices is that the consumer demand for healthy foods (e.g., fruit at concession stands) is low, and therefore does not make economic sense. Organizations should talk to parents and coaches about their concerns and preferences for foods and beverages offered at concessions stands. Doing a cost analysis of food items currently offered and sold could justify reducing or eliminating unhealthy options.

Offering a wide range of candy options may actually limit opportunities to raise money because candy generates less profit and often results in a considerable amount of unsold inventory. Carefully assessing the items that generate profits, not simply considering which items sell, can help provide a stronger reason for selecting the specific items sold in concession stands. Limiting or even eliminating candy can result in increased profits for the organization.

Organizations should develop guidelines and policies around foods and beverages that are offered at sporting events, as well as those that are allowed to be consumed during practices. For example, many indoor facilities try to avoid spills of sugary drinks, which cause more problems for maintaining a clean environment, by limiting beverages to water only. Develop a “wellness coalition” to assure these policies are being enforced. For fund raising, shift the focus away from food-related sales and consider selling t-shirts or other fun, non-food related items.

Table 3. Additional Tools and Resources

SOURCE	URL
The Harvard Nutrition Source	hsph.harvard.edu/nutritionsource/
NEDA (National Eating Disorder Association) Toolkit for Coaches	nationaleatingdisorders.org/coach-trainer
Fuel Up to Play 60	fueluptoplay60.com/
American Academy of Pediatrics Fluid Guidelines	nfhs.org/sports-resource-content/position-statement-and-recommendations-for-hydration-to-minimize-the-risk-for-dehydration-and-heat-illness/
President’s Council on Fitness, Sports & Nutrition, Physical Activity Guidelines for Americans	fitness.gov/be-active/physical-activity-guidelines-for-americans/



Conclusions

Sports are a fun and engaging opportunity for children and adolescents to develop healthy habits they can carry with them into adulthood. One of those skills can be healthy eating. However, the way youth sports are currently operating may be teaching youth and families unhealthy eating habits. Change is needed to support healthy, growing, youth athletes. More attention is needed to change the types of foods and beverages that are available and accepted in youth sport settings. Youth, parents, and coaches can become more aware of the unhealthy options that are available and speak out to make their preferences known. Parents can help organizations offer healthier options and figure out ways to make those options feasible and sustainable and align with fund raising goals. Organizations can commit to promoting health as a priority.

Considerable change has occurred to improve the foods and beverages available in schools with the attention, commitment, and leadership of many different stakeholders. Similar change is needed, and is possible, for youth sport.

Scientific Summary

Gail Woodward-Lopez, MPH, RD

Associate Director of Research, Nutrition Policy Institute; Senior Technical Advisor, UC NEOP Evaluation Unit, University of California–Berkeley

Today, more youth than ever are participating in sports. Unfortunately, we have not taken advantage of this excellent opportunity to support healthy eating. Concession stands at youth sporting events and snacks provided by parents tend to consist of processed foods high in fat, sodium, and added sugar. Busy family schedules and social pressures make these unhealthy, convenient foods attractive. Therefore, it is no surprise that youth that participate in sports eat more calories, fast food, and sugar-sweetened beverages than those who do not.

The dietary needs of youth who participate in sports are not radically different from those of other youth. A balanced and varied diet that emphasizes fruits, vegetables, and whole grains; includes a small amount of fresh, lean meats, limited amounts of fat, added sugars, and sodium (salt); and includes plenty of water to ensure hydration should meet the needs of young athletes. It is

important not to overestimate caloric needs, which vary only modestly with different levels of physical activity typical among youth in the United States. Three healthy meals with a light nutritious snack should be sufficient in most cases. Although nutritional supplements are not usually needed, special attention to foods high in calcium and iron is particularly important for female and endurance athletes. Water is the best source of hydration. Sports drinks are only warranted for prolonged vigorous exercise and caffeine should be avoided.

Parents, coaches, and sports organizations can help support healthy eating among young athletes by increasing awareness, improving their own practices, and implementing policies to ensure that healthy foods are served and promoted at the venues where students participate in sports activities and celebrations.

References

Young athletes look up to coaches for guidance, which gives coaches a unique opportunity to teach them how to eat for optimal health and fuel their bodies for performance.



1. French SA, Story M (2013). Commentary on Nutrition Standards in the National School Lunch and Breakfast Programs. *JAMA Pediatrics*, 167(1), 8–9.
2. Nanney MS, et al. (2014). Recommended School Policies Are Associated with Student Sugary Drink and Fruit and Vegetable Intake. *Preventive Medicine*, 62, 179–81.
3. Nelson TF, et al. (2011). Do Youth Sports Prevent Pediatric Obesity? A Systematic Review and Commentary. *Current Sports Medicine Reports*, 10(6), 360–70.
4. Sabo D, Veliz P (2008). Go Out and Play: Youth Sport in America. San Francisco, CA: Women's Sport Foundation. Accessed online at womenssportsfoundation.org/home/research/articles-and-reports/mental-and-physical-health/go-out-and-play.
5. National Council on Youth Sports (2008). Report on Trends and Participation in Organized Youth Sport. Stuart, FL: Author. Accessed online at ncys.org/pdfs/2008/2008-ncys-market-research-report.pdf.
6. National Federation of State High School Associations (2013). *Annual Report*. Accessed online at nfhs.org/media/885658/2013-nfhs-annual-report.pdf.
7. Hartmann D, Kwauk C (2011). Sport and Development: An Overview, Critique, and Reconstruction. *Journal of Sport and Social Issues*, 35(3), 284–305.
8. Fraser-Thomas JL, Cote J, Deakin J (2005). Youth Sport Programs: An Avenue to Foster Positive Youth Development. *Physical Education and Sport Pedagogy*, 10(1), 19–40.
9. Bauer KW, et al. (2009). Socio-Environmental, Personal, and Behavioural Predictors of Fast-Food Intake among Adolescents. *Public Health Nutrition*, 12(10), 1767–74.
10. Croll, JK., et al. (2006). Adolescents Involved in Weight-Related and Power Team Sports Have Better Eating Patterns and Nutrient Intakes than Non-Sport-Involved Adolescents. *Journal of the American Dietetics Association*, 106(5), 709–17.
11. Irby MB, Drury-Brown M, Skelton JA (2014). The Food Environment of Youth Baseball. *Childhood Obesity*, 10(3), 260–5.
12. Thomas M, et al. (2012). Exploring Parent Perceptions of the Food Environment in Youth Sport. *Journal of Nutrition Education and Behavior*, 44(4), 365–71.
13. Kelly B, et al. (2008). Double Standards for Community Sports: Promoting Active Lifestyles but Unhealthy Diets. *Health Promotion Journal of Australia*, 19(3), 226–8.



14. Rydell SA, et al. (2008). Why Eat at Fast-Food Restaurants: Reported Reasons among Frequent Consumers. *Journal of the American Dietetic Association*, 108(12), 2066–70.
15. Kant AK, Whitley MI, Graubard BI (2015). Away From Home Meals: Associations with Biomarkers of Chronic Disease and Dietary Intake in American Adults, NHANES 2005–2010. *International Journal of Obesity*, 39(5), 820–7.
16. Levine Less E (2014). Youth Sport Coach Observations and Perceptions of the Youth Sport Food Environment (2014). In *Division of Epidemiology and Community Health*, Minneapolis: University of Minnesota.
17. Leek D., et al. (2011). Physical Activity during Youth Sports Practices. *Archives of Pediatrics and Adolescent Medicine*, 165(4), 294–9.
18. Wickel EE, Eisenmann JC (2007). Contribution of Youth Sport to Total Daily Physical Activity among 6- to 12-Year-Old Boys. *Medicine & Science in Sports & Exercise*, 39(9), 1493–500.
19. United States Department of Health and Human Services (2008). *Physical Activity Guidelines for Americans, 2008*, U.S. Department of Health and Human Services. Accessed online at health.gov/paguidelines/pdf/paguide.pdf.
20. United States Department of Agriculture and United States Department of Health and Human Services (2015). *Dietary Guidelines for Americans, 2015–2020*: Eighth Edition. Washington, DC: U.S. Government Printing Office. Accessed online at health.gov/dietaryguidelines/dga2010/dietaryguidelines2010.pdf.
21. Meyer F, O'Connor H, Shirreffs SM (2007). Nutrition for the Young Athlete. *Journal of Sports Sciences*, 25(Suppl 1), S73–82.
22. Committee on Nutrition and the Council on Sports Medicine and Fitness. Sports Drinks and Energy Drinks for Children and Adolescents: Are They Appropriate? *Pediatrics*, 127(6), 1182–9.
23. Purcell LK, Canadian Paediatric Society, Paediatric Sports and Exercise Medicine Section (2013). Sport Nutrition for Young Athletes. *Journal of Paediatrics and Child Health*, 18(4), 200–2.
24. IOM (Institute of Medicine) (2011). *Dietary Reference Intakes for Calcium and Vitamin D*. Washington, DC: The National Academies Press. Accessed online at iom.nationalacademies.org/Reports/2010/Dietary-Reference-Intakes-for-Calcium-and-Vitamin-D/DRI-Values.aspx.
25. IOM (Institute of Medicine). Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington, DC: The National Academies Press. Accessed online at iom.nationalacademies.org/-/media/Files/Activity%20Files/Nutrition/DRI/DRI_Elements.pdf.
26. Lee V, Mikkelsen L, Srikantharajah J, Cohen L (2008). *Promising Strategies for Creating Healthy Eating and Active Living Environments*. Healthy Eating Active Living Convergence Partnership; Prevention Institute. Accessed online at preventioninstitute.org/index.php?option=com_jlibrary&view=article&id=59&Itemid=127.
27. Bergeron MF, Devore C, Rice SG (2011). Council on Sports Medicine and Fitness and Council on School Health. American Academy of Pediatrics: Policy Statement—Climatic Heat Stress and Exercising Children and Adolescents. *Pediatrics*, 128(3), E741–E747.