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Giving Nutrition Advice to Child Athletes

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Active kids and teens play football, basketball, baseball, volleyball, soccer, tennis, and lacrosse. They participate on the swimming, cross-country, and track teams. And many parents send them to sports camps in the summer. They're full of energy and incredible athletes in their own right, and nothing can slow them down.

As dietitians, how do we counsel these youngsters and their parents on what kids should eat and drink to meet their nutrient needs, stay hydrated, stay healthy, and grow strong while they remain active?

The experts' thinking about the needs of active youths and child athletes is changing. While not everyone agrees with the specifics, there's one common refrain: Children are not small adults. Their rapid growth, increase in muscle mass, and changes in hormones may influence their nutrient and fluid needs in unique ways. Despite the increasing awareness of the uniqueness of child athletes, large gaps exist in our understanding of how their bodies react to physical stress and how their nutritional needs change as a result. Filling in those gaps isn't easy due to the ethical issues of using children in research and the difficulty in teasing out whether improvements in performance are due to the variable being tested or to increases in strength that occur naturally as children mature.

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Children vs. Adults

The basic nutritional needs of the adult athlete vary little. Energy, protein, carbohydrate, and fluid requirements will shift with increased training or participation, but an adult's basic nutrient needs are relatively constant. When scaled to size, children's nutritional requirements aren't much different from adults, but it's difficult to predict how a growing child's needs will change over time. Dramatic differences exist in growth patterns and the age at which adolescents reach adulthood, both of which affect nutrient and fluid requirements. Add to that the extra needs of the young athlete and there's much room for error, making it crucial that active youths consume balanced nutrient-rich diets.

Thomas Rowland, MD, a professor of pediatrics at Tufts University School of Medicine, offers this basic guideline: "Any child who's training should be gaining weight normally. If weight stabilizes or falls over time, calorie requirements aren't being met. Therefore, monitoring weight in child athletes is critical."

Fluid Requirements

A shift may be occurring in recommendations for fluid intake in active youths. In 2000, the American Academy of Pediatrics1 (AAP) stated that prepubertal children were less effective at regulating body temperature than adults and, therefore, were at greater risk of heat injury. The academy recommended that children drink fluids before and during prolonged physical activity, whether or not they're thirsty, as thirst was said to be a poor indicator of fluid needs.

However, in 2011, Rowland, who served on the committee that developed the 2000 AAP guidelines, published a paper in Sports Medicine2 that came to a different conclusion. He says evidence now suggests that children are actually better able to regulate body temperature than adults. Children sweat less, but they have a higher rate of blood flow under the skin, resulting in a more efficient cooling mechanism. And he says thirst alone may be an adequate indicator of dehydration and the need for fluid replacement in children. Maturation and body size are the primary factors that determine fluid needs.3

Suzanne Nelson, ScD, RD, head of sports performance nutrition at the University of California, Berkeley, says while this may be true in theory, kids typically are having too much fun to recognize or act on their thirst. It's important, she says, to supervise their fluid intake. "Just like you have to tell them 'It's cold outside, put on a jacket,' you have to tell them 'Here, drink something.'"

Sports Drinks and Energy Drinks

In 2011, the AAP published a statement on the use of sports drinks and energy drinks for children and adolescents, stating that child athletes can benefit from using sports drinks containing carbohydrate, protein, or electrolytes but are of little benefit for the average child engaged in routine physical activity.3 For them, water is sufficient. While Rowland says there's not enough child-based scientific evidence to promote sports drinks for hydration, whatever beverage the child will drink the most of is the best choice

to prevent dehydration. Nelson points out that children prefer flavored drinks, like sports drinks or chocolate milk, and either is preferable to soft drinks for rehydration.

Energy drinks, however, have no place in the diet of children or adolescents, whether or not they're athletes. These drinks are usually high in caffeine, providing as much as 220 mg in a 16-oz can (equal to the amount of caffeine contained in more than six 12-oz cans of most caffeinated soft drinks).

Miracle Foods

Often dietitians must accommodate not only the food likes and dislikes of active children and the nutrition convictions of their parents but also those of coaches and trainers, who may be looking for a quick fix, miracle pill, drink, or powder that will enhance performance. According to Nelson, "RDs can help parents and coaches recognize the power of food."

She recommends that active kids eat five or six smaller meals and snacks each day, such as cereal and a banana or a bagel with peanut butter for breakfast; turkey on a whole grain bun with lettuce and tomato, grapes, and low-fat milk for lunch; and whole grain crackers, fig bars, granola bars, and trail mix for snacks. Fluid intake, mainly water, should be encouraged throughout the day.

In addition, Nelson says, active kids may need 500 to 1,000 more calories per day than their sedentary peers. But it's important to assess kids' diets and not impose standard caloric formulas that may not fit where they are in the growth curve. Girls typically experience their biggest growth spurt between the ages of 12 and 13; boys between the ages of 14 and 15. But that's a guideline, not a hard and fast rule to which kids' bodies adhere.

Recommendations

The following are ways RDs can help active youths and child athletes get the fluids and nutrients they need.

- The AAP recommends a review of a child's or an adolescent's food and fluid intake along with physical activity as part of each yearly checkup. So remind parents to broach this subject with their child's pediatrician.
- RDs should educate parents and coaches about fluid replacement needs and beverage options.
- Dietitians should ask specifically about consumption of any sports or energy drinks and counsel against their use.
- Keep the lines of communication open with parents and coaches, and emphasize the power of food for young athletes.
- Apply the same guidelines for healthful diets that you would for less active children but also suggest additional healthful foods, such as string cheese, vanilla yogurt, crunchy peanut butter, pudding packs made with low-fat milk, and energy bars to provide the extra 500 to 1,000 kcal active youngsters may need.
- Suggest parents monitor weight in active children to ensure energy needs are being met.

Nutrition Numbers for Active Kids and Teens

The distribution of macronutrients recommended for active kids and child athletes is much the same as for less active peers.

Protein aids muscle recovery when consumed after exercise and should account for 10% to 15% of calories. Recommendations for total protein intakes are 0.95 g/kg/day for kids aged 4 to 13 and 0.85 g/kg/day for adolescents aged 14 to 18.

Carbohydrate is the most important source of energy for an active child or adolescent and should represent 55% of calories (more on heavy training days), about 5 to 8 g/kg of body weight.

Fat should account for 25% to 30% of total calories. High-fat foods may cause discomfort if eaten too close to the start of physical activity, but some fat is needed on a regular basis for growth. Emphasize healthful fat that's found in avocados, tuna, canola oil, soy, and nuts.

Fluid intake should be supervised and monitored during and after physical activity. This should result in an hourly fluid intake of 13 mL/kg (6 mL/lb). Fluid replacement postexercise should include about 4 mL/kg (2 mL/lb) for each hour of activity. More is needed for kids who sweat heavily.