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Column Editor

summary

Proper nutrition for young athletes is essential for proper growth, health, and athletic performance. The diet should focus on adequate amounts of carbohydrate, protein, calcium, iron, and fluids.

As strength and conditioning professionals, we are frequently asked questions regarding proper nutrition for optimal performance in sport as well as overall health. Much of the available literature related to the nutritional needs of athletes has focused on adults. This particular overview study by Haymes (1), which was based on a keynote lecture, discusses the present knowledge of nutritional needs and concerns for exercising youths. The article focuses on carbohydrate, protein, fluid, calcium, and iron needs in young athletes and has a brief section on nutrient deficiencies in aesthetic sports.

Carbohydrates

Research shows that as exercise intensity increases, carbohydrates must sup-

Proper Nutrition for Young Athletes

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ply more energy, and less fat will be used. During light and moderate exercise, the balance is closer to 50:50. Children appear to burn more fat and less carbohydrate than do young adults during moderate-intensity exercise; children are better able to use fat as a source of energy. In addition, the ability to use carbohydrate during high-intensity exercise may be less developed because children appear to have lower glycolytic enzyme activity and therefore produce less lactate. The conclusion is that carbohydrates should be the major energy source in the diets of children and adolescents.

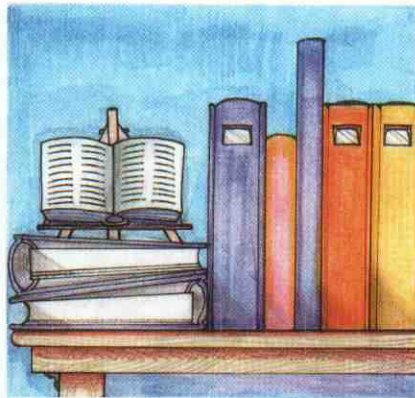
Protein

Because protein is needed for growth, protein requirements are higher in children than in adults. As in other areas, most of the research has focused on adult athletes. In the youth studies available, protein intakes have ranged from 2.2 g/kg of body weight (young male soccer players) to 1.0–1.5 g/kg of body weight (young female ath-

letes). The percentage of the total energy intake in these studies was 15 to 17%.

Fluids

Children are susceptible to heat illness; in fact, they seem to be less tolerant during exercise in a hot, dry environment than are adults. One possible reason is that children can reach their maximal heart rate sooner than can adults. Young athletes may not replace fluids as readily as they should on their own; therefore, it may be advisable to have them drink at set intervals. Both water



and sport drinks are recommended, although carbohydrate-electrolyte drinks are more readily consumed. Flavor also seems to play a role in the amount of fluids consumed. According to the article, children drank significantly more grape- and orange-flavored drinks than apple-flavored drinks or plain water.

Calcium

Calcium is important for both bone length and mass. Calcium supplementation seemed to have the greatest effect on prepubescent children, although physical educators and coaches are cautioned that the calcium intake of the children they work with should be of concern. Young female athletes who participate in sports such as running, gymnastics, and ballet, were especially found to consume less than the recommended daily intake (1300 mg/d).

Iron

Similar to the statement above regarding calcium intake for young female athletes, the same concerns exist for iron intake. In addition, adolescent boys also need more iron because blood volume is expanding and the hemoglobin concentration is increasing. Adolescent girls need more iron to replace iron in the blood that is lost through menstruation. Iron deficiency is the most common nutritional deficiency in the Western world and is most prevalent in young adolescent boys and girls.

Disordered Eating

Research has found the highest incidence of disordered eating to occur in aesthetic sports (gymnastics, figure skating) and bodyweight-dependent sports (judo, endurance sports). Most of these studies have focused on female athletes. Female athletes with inadequate energy intake may develop menstrual irregularities, including primary and secondary amenorrhea. This could cause low bone-mineral density and possibly lead to stress fractures.

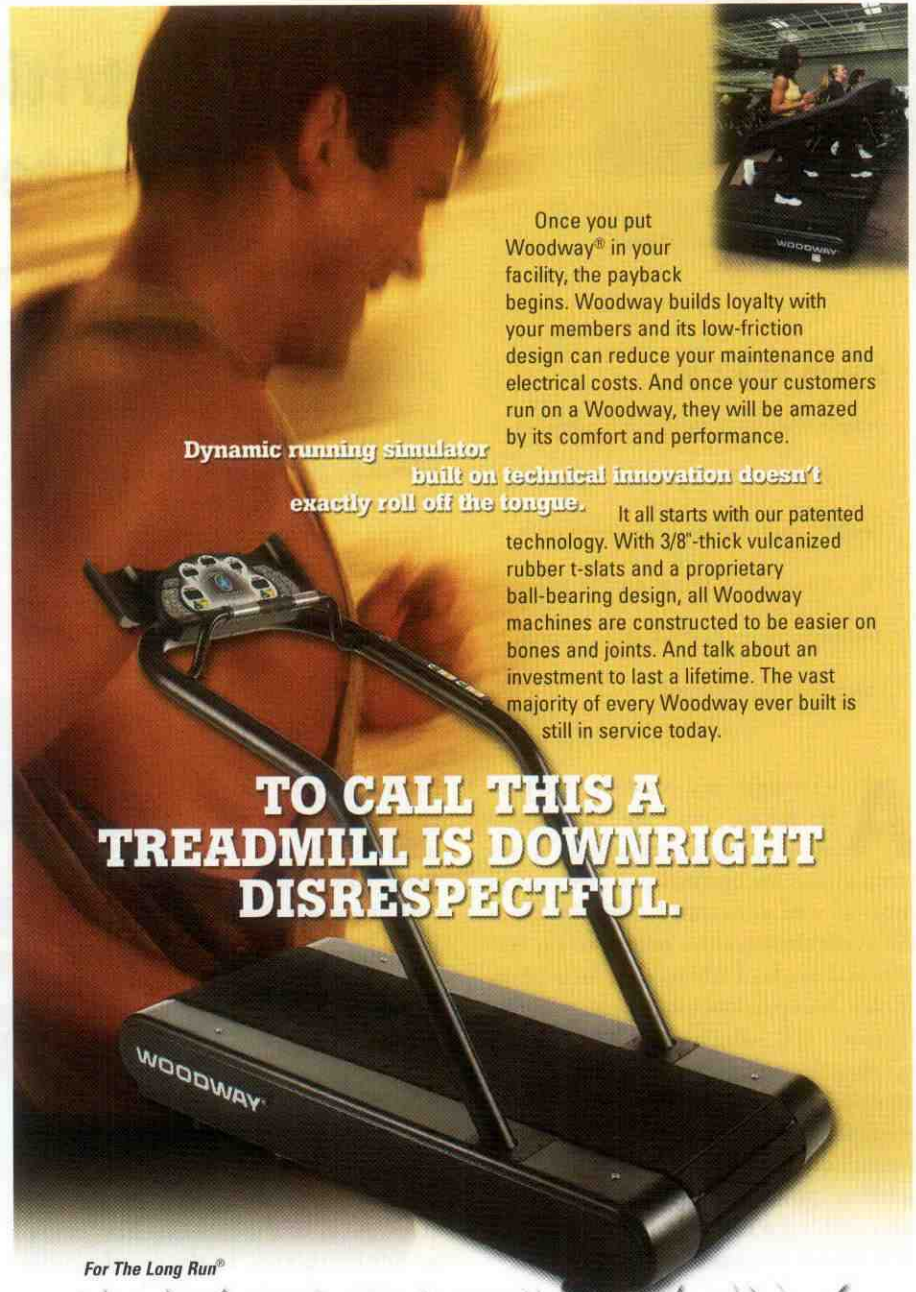
Recommendations

The author recommends a diet for children that is high in carbohydrates (55–60%), contains low to moderate amounts of fat (25–30%), and has an adequate amount of protein (about

15%). Following the Food Guide Pyramid was suggested as one of the best methods to ensure a balanced diet. ♦

Reference

1. Haymes, E. Nutritional concerns for exercising youths. *J. Phys. Education Recreation Dance*. 74(5):24–27. 2003.



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