Position of The American Dietetic Association: Dietary guidance for healthy children aged 2 to 11 years

ABSTRACT

It is the position of The American Dietetic Association that children aged 2 to 11 years should achieve healthful eating habits and participate in regular physical activity to promote optimal physical and cognitive development, attain a healthful weight, and reduce the risk of chronic disease. The health status of US children has generally improved over the past 3 decades; however, the number of children who are overweight more than doubled. This change has broadened the focus of dietary guidance to address nutrient overconsumption, physical activity patterns, and the attainment of optimal health through chronic disease prevention. This position reviews what US children are eating and explores trends in dietary, food, and nutrient intakes, and the impact of school meals on children's diets. Dietary recommendations, guidelines, and the impact of physical activity are also presented. The position outlines the roles of parents and caregivers in influencing the development of healthful eating behaviors. Public policy implications provide guidance to dietetics and other health professionals. The position calls for The American Dietetic Association to join forces with other health and food industry professionals for translating dietary recommendations and guidelines into achievable and healthful messages. Specific directions are provided to improve the nutritional well-being of children. *J Am Diet Assoc. 1999; 99:93-101.*

POSITION STATEMENT

It is the position of The American Dietetic Association that children aged 2 to 11 years should achieve healthful eating habits and participate in regular physical activity to promote optimal physical and cognitive development, attain a healthful weight, and reduce the risk of chronic disease.

INTRODUCTION

The health status of US children has generally improved over the past 3 decades as evidenced by lower rates of infant mortality and a decline in the major deficiency diseases of the past (1). During the past decade, however, the number of children who are overweight has more than doubled. Approximately 11% of American children are overweight and an additional 14% have a body mass index between the 85th and 95th percentiles, which puts them at increased risk for becoming overweight (2). Thus, overweight is currently a much more prevalent condition among US children, including low-income children, than underweight and growth retardation (3,4). In the face of this change, dietary guidance for US children has broadened from an earlier focus on issues of nutrient underconsumption and deficiency to include concerns related to nutrient overconsumption, physical activity patterns, and the attainment of optimal health through chronic disease prevention (5). Because children younger than 2 years of age and adolescents (aged 12 years or older) have unique nutritional requirements and concerns, this position focuses on healthy children aged 2 to 11 years. This position does not include children with special health needs who are at increased risk for nutrition-related problems (6).

Healthful eating habits in childhood prevent chronic undernutrition and growth retardation as well as immediate childhood health problems such as iron-deficiency anemia and dental caries (7). Although chronic undernutrition is now rare in the United States, it has been estimated that as many as 8% of 12-year-olds in the United States experience food insecurity, which has profound effects on children's emotional, behavioral, and cognitive development (8,9). However, the availability of feeding programs in schools increases the probability that children will eat breakfast and thus improve their educational (10) and nutritional status (11). Also, iron-deficiency anemia has an adverse effect on cognitive development. Although the prevalence of iron deficiency has decreased among preschool children during the past decade, continued efforts are needed to monitor its impact, particularly among children in low-income households. Healthful eating habits for all children can best be achieved by consumption of a varied diet in moderation (12) that includes foods from each of the major food groups, as illustrated by the US Department of Agriculture (USDA) Food Guide Pyramid (13).

There is a pressing need for US children to achieve eating and physical activity patterns that will enable them to attain healthful weights and prevent long-term health problems, such as coronary heart disease, cancer, stroke, and osteoporosis. Childhood adiposity, in and of itself, has been shown to influence adult mortality and morbidity (14,15). In addition, chil-

dren who are overweight are more likely than normal-weight children to become obese adults (16), which increases their lifetime risk of coronary heart disease, hypertension, type 2 diabetes mellitus, gallbladder disease, osteoarthritis, and some cancers (17,18). Children who are overweight also often experience psychological stress, poor body image, and low self-esteem (19,20).

Excessive intake of fat, especially saturated fat, has been associated with subsequent development of chronic diseases such as cardiovascular disease, diabetes, and certain cancers (21,22). The important role of fiber in the diet has been recognized by numerous health organizations (12,22,23). Dietary fiber decreases the risk of several chronic diseases, including heart disease, obesity, diabetes, and colon cancer (23-25). Diets high in fiber also contain less fat, cholesterol, and energy than diets low in fiber. Data indicate that higher intakes of fruits and vegetables are associated with a lower risk of cancer at most sites (26,27) and may reduce the risk of coronary heart disease (28,27). Failure to meet calcium requirements in childhood can impede the achievement of maximal skeletal growth and bone mineralization, increasing the risk of developing osteoporosis later in life (7,30). Lastly, food choice and physical activity behaviors have been shown to track throughout childhood until late adolescence (31). Given these findings, it has been suggested that major gains in public health would be made if children's diets in the United States were more in line with the Dietary Guidelines for Americans (12,32) and if physical activity levels were increased (33).

WHAT ARE AMERICAN CHILDREN EATING?

Dietary intake data have been collected from US children in both large, nationwide surveys and smaller, longitudinal studies (34-43). Despite some survey design differences, there are consistent findings of trends in children's current nutrient intakes and eating patterns.

Trends in Dietary Intake

Total energy intake of US children has increased or, in some cases, remained stable, whereas energy intake per kilogram body weight has decreased (43-45). The percentage of energy intake from protein and carbohydrate has increased. In contrast, the percentage of energy intake from total fat has decreased from 38% to 33%, and percentage of energy from saturated fat has decreased from 16% to 11% (43,44,46). The decrease in fat intake reflects a decrease in intakes of palmitic, stearic, and oleic fatty acids.

Trends in nutrient intakes of 10-year-old children are consistent with national trends in the food supply and trends in the types of foods consumed by children (47-49). In the Bogalusa Heart Study (42), there was an overall decline in the total amount of milk, vegetables, soups, breads, grains, and eggs consumed, with an increase in the total amounts of fruits and fruit juices, carbonated beverages, poultry, and cheese consumed. The percentage of total fat from milk, fats/oils, pork, mixed meats (ie, combination dishes including meat), eggs, and desserts has decreased, and the percentage of fat from poultry, cheese, and snacks has increased. Between 1977 and 1994, milk consumption declined by 24% among boys and by 32% among girls aged 6 to 11 years (50). During the same period, there were changes in the type of milk children consumed. The proportion of children drinking reduced-fat or fat-free milk has doubled since the late 1970s, and by 1994 these milk categories were consumed more frequently than whole milk (51). Other shifts in food consumption include a decrease in egg consumption, an increase in consumption of poultry, and substitution of margarine for butter (42,49,50).

Current Food and Nutrient Intake

On average, reported mean energy intakes of children aged 2 to 11 years meet the 1989 Recommended Dietary Allowances (RDAs) for energy (43). However, energy intakes are often underreported in dietary surveys (52) and it has been demonstrated that the 1989 RDA for energy is set higher than children's actual energy needs (53), indicating that many US children are in positive energy balance. Although the diets of children are healthier today, approximately 70% of US children still exceed the current dietary recommendations for total and saturated fats (43).

Average intake of most vitamins and minerals in 2- to 11-year-olds exceed 100% of the RDA (43). After age 11, there is an increase in the percentage of youth and adolescents who do not meet the RDAs, particularly for iron (in girls) and zinc, or the Dietary Reference Intakes (DRIs) for calcium (43,54,55).

The macronutrient composition of children's diets is no different from that shown in young adults (44,46). What may be different, however, are the types of foods consumed and their contribution to intakes of specific nutrients (41,42). Lifestyles and eating behaviors, which change throughout the life cycle, influence the types of foods consumed. For example, the percentage of total fat from milk decreases and the percentage of total fat from meats increases in the diet as children get older (40). Similarly, studies have shown regional and ethnic variations in types of foods consumed and their contribution to the diet, yet the macronutrient composition of children's diets remain unchanged (38,39).

Average dietary fiber intake among children ranges from 11.2 g (3- to 5-year-olds) to 14.0 g (6- to 11-year-olds) (43); these levels of intake have remained virtually the same since 1976 (55,56). Vegetables, soups, fruit, and fruit juices contribute close to 40% of the total dietary fiber of 10-year-olds (56).

Children are not eating the recommended amounts of fruits and vegetables (43,57,58). Ninety-one percent of children aged 6 to 11 years are not consuming the recommended minimum of 5 servings of fruits and vegetables per day, averaging 2.5 servings daily. Similarly, in a study of 4-year-old Latino children, the mean number of servings of fruits and vegetables consumed per day was 2.8 (59).

The food choices of most US children do not meet the recommended intake of food groups outlined in the Food Guide Pyramid (40). The percentage of 2- to 19-year-olds who do not meet recommendations ranges from approximately 70% for fruits, grains, meats, and dairy to approximately 64% for vegetables. The number of servings from the vegetable and meat groups increased in 2- to 19-year-olds, whereas those from the fruit group decreased. These data emphasize the need for a total diet approach that encourages the consumption of fruits, vegetables, and grains, with an emphasis on lower-fat options (41).

Approximately 82% of children aged 6 to 11 years consume snacks, accounting for 20% of total daily energy intake and 19% of total fat and saturated fat intake (43). Sixty-seven percent of children aged 6 to 11 years consume food away from home, accounting for close to one third of total daily energy, fat, and saturated fat intakes (43).

Impact of School Meals on Children's Diets

More than 26 million children, 66% of children aged 6 to 10 years, participate in the National School Lunch Program daily (60). For some 10-year-olds, approximately 50% to 60% of their total daily intake of energy, protein, cholesterol, carbohydrate, and sodium comes from school meals (61). The contribution of school meals to total daily intake of vitamins and minerals ranges from 45% for iron to 77% for calcium. School

lunch provides 22% of energy intake, with 39% of the energy coming from fat and 14% of energy from saturated fatty acid. One third of the total sodium intake and 8% of total sucrose intake comes from school lunch (61).

Breakfast is an important meal for growing children. Studies have documented a significant positive relationship between eating breakfast and school performance (62,63) and overall nutritional well-being of children (64-66). Children who skip breakfast (approximately 14%) have total nutrient intakes that are lower than children who consume breakfast at school or at home (64).

Beginning with the 1996-1997 school year, schools participating in the USDA's national school meals programs were required to serve meals that complied with the Dietary Guidelines for Americans (67). This change enhances the coordination of school foodservice with classroom nutrition education; reinforces messages about healthful eating, which emphasizes the total diet and not any single food or nutrient; and gives students opportunities to practice healthful eating skills (7). Across the country, school meals are becoming more healthful in an effort to improve the nutritional status of children. Dietetics professionals need to partner with the food industry in promoting this national effort.

Tracking of Nutrient Intakes in Children

Tracking is a term used to indicate the likelihood of a child to remain in a respective rank for nutrient intake in relation to his or her peers. Several studies have examined the nutrient intakes of children at 2, 3, and 4 years old and compared them with their intake in subsequent years to determine whether nutrient intakes tracked over time (68,69). Data suggest that tracking nutrient intake should begin in children as young as 3 to 4 years. One study showed that 36% to 57% of children in the highest quintile of fat intake at 3 to 4 years old remained in that quintile at 5 to 6 years old, and 57% to 86% remained in the top 2 quintiles. At 7 to 8 years old, 40% to 67% of those with the highest fat intake at baseline were still in the top quintile, and 60% to 93% remained in the top 2 quintiles (69). Milk consumption during childhood can also track over time, affecting lifetime milk consumption. Among a sample of elderly adults, the frequency of milk consumption during childhood was found to be the strongest predictor of current milk intake (70). Other evidence indicates that children's food choices track from 6th to 12th grade and, therefore, suggest that health promotion interventions should begin before 6th grade, before these patterns become resistant to change (31).

DIETARY RECOMMENDATIONS AND GUIDELINES FOR CHILDREN

In the late 1980s, sufficient evidence of the relationship between dietary factors and chronic disease risk in children existed to prompt more than 10 scientific organizations to issue dietary recommendations and guidelines for children older than 2 years old (71). These dietary recommendations and guidelines for children should be viewed both quantitatively (recommendations) and qualitatively (guidelines). The quantitative recommendations are ultimately to reduce total fat and saturated fat intakes. However, the precise percentage of dietary fat intake to support normal growth and development while still reducing atherosclerosis risk is not known, and there are case studies of parents and children who overinterpret the need to restrict fat intakes. Therefore, the American Academy of Pediatrics Committee on Nutrition (72) recommends that children older than 2 years old gradually adopt a diet that by the age of 5 years reflects the following pattern of nutrient intake: saturated fatty acids should be less than 10% of total energy; total fat over several days should be no more than 30% of total energy and no less than 20% of total energy, and dietary cholesterol should be less than 300 mg per day.

Ideal dietary fiber intake has not been defined; however, several organizations and researchers have proposed a daily intake of 25 to 35 g dietary fiber for adults (73-75). More recently, the recommendation for children older than 2 years is to increase dietary fiber intake to an amount equal to or greater than their age plus 5 g per day (76), to achieve intakes of 25 to 35 g per day after the age of 20 years.

Recommendations have also been made that children should increase their fruit and vegetable consumption to 5 or more servings daily (77). Qualitative guidelines are put forth in the Dietary Guidelines for Americans (12), and the Food Guide Pyramid (13) is an excellent tool for educating consumers on how to achieve the dietary recommendations.

The DRI for calcium exceeds the 1989 RDA for calcium by 500 mg for 9- and 10-year-olds (1989 RDA=800 mg, 1997 DRI=1,300 mg) (78). This change was based primarily on evidence that calcium intakes at levels above the 1989 RDA can increase bone mineral density in children (79,80), thus decreasing their risk of developing osteoporosis later in life (30). It is very difficult to meet children's calcium needs without a source of milk in the diet (81). Among a large sample of US children, only those with a source of milk in the noon-time meal met or exceeded 100% of the 1989 RDA for calcium (82). Thus, including 3 servings a day of milk or dairy products in children's diets is recommended (12).

Can Children Follow These Dietary Recommendations and Guidelines and Have Adequate Intake of Energy, Protein, Vitamins, and Minerals Essential for Growth?

The appropriateness and safety of applying dietary recommendations for fat to young children is still debated (83-86). Numerous studies have been conducted to assess the feasibility, efficacy, and safety of lowering children's dietary fat intake in an effort to determine if the dietary guideline to limit total energy from fat to 30% is appropriate for children over the age of 2 years. These include population studies (87), therapeutic attempts for children with hyperlipidemia (88-90), and community- or school-based interventions that were designed for a general population (91-93). In the Dietary Intervention Study in Children (89), lower fat intake in high-risk children receiving a dietary intervention did not result in adverse effects on growth or serum measures of micronutrients (94). These findings are consistent with other studies that clearly demonstrate the positive effect of modifying the eating behaviors of children on their serum lipid profiles, while maintaining adequate intakes of energy, essential fatty acids, vitamins, and minerals (95). Other studies have shown that the vitamin and mineral content of the diet can potentially be improved when fat is reduced in the diet (96-98). Several of these studies were of short duration, although well controlled and closely monitored.

A select number of studies, several of which have methodologic limitations, imply that unsupervised dietary fat restriction can have negative effects on childhood growth, development, and nutritional status (99-103). Because the observations from these studies were not longitudinal in nature and the subjects were not instructed on fat-modified diets, the effect of low fat intakes on long-term growth and development of cardiovascular risk factors cannot be determined. Data from the third National Health and Nutrition Examination Survey show that total energy intake has increased and fat intake has decreased in the diets of US children, yet the prevalence of obesity has increased (2,46). Thus, decreasing

fat intakes in US children has not resulted in an increased prevalence of growth retardation or poor weight gain.

Data from Nicklas et al (98) document the positive impact of educational efforts on promoting the US Dietary Guidelines in children in a general population without compromising their nutritional status. In fact, data from the Child and Adolescent Study for Cardiovascular Health showed that vitamin and nutrient density in the diet increased with decreasing fat intake (98). Computer modeling studies have proposed changes showing that the RDA for most minerals, trace elements, and vitamins can be met within a fat-reduced, balanced diet, without major changes in meal patterns or dietary habits (104-106). Peterson and Sigman-Grant (107) showed that exclusive use of selected fat-reduction strategies (ie, nonfat milk instead of reduced-fat or whole milk, lean meats instead of higher-fat meats, or fat-modified products instead of full-fat products) can facilitate achievement of the current dietary recommendations in children. Yet children's overall nutrient intake differs depending on the strategies used. Dietetics professionals working with children and their parents need to be alerted to the potential pitfalls of specific fat-reduction strategies and be knowledgeable of ways to overcome them.

These studies answer the questions raised by some researchers (84,86,108,109) regarding the appropriateness of applying adult dietary recommendations to children. The body of evidence from research now indicates that children can safely consume a diet that conforms to the US Dietary Guidelines, as long as energy intake is adequate and there is variety and moderation in the diet. There is no evidence that children's diets that contain adequate energy and 30% of total energy from fat have any negative health effects (5).

Long-Term Health Benefits of Following a Diet that Conforms with Current Dietary Recommendations

Childhood eating patterns can have long-term health effects. Although heart disease generally does not become symptomatic until adulthood, risk factors associated with coronary artery and hypertensive disease develop during childhood (110-114). Dietary intake is a major environmental determinant of cardiovascular disease, the No. 1 killer in the United States. Yet limited information is available about the influence of diet on cardiovascular disease early in life. However, descriptive studies of diets of children and young adults (34-39,41-45,115,116), observations of diets in different international populations (21), and observations of serum lipoprotein changes with diet manipulation in children (88-90) show that dietary intake relates to cardiovascular disease risk factors. Studies confirm that children with hypercholesterolemia consuming diets containing 30% of energy from fat not only grow and develop normally, they also have decreases in their elevated low-density lipoprotein cholesterol levels (89).

Clinical studies demonstrate that calcium intakes at levels above the 1989 RDA can increase bone mineral density in children (79,80). As a result, the Food and Nutrition Board established DRIs for calcium that are higher than the 1989 RDA for older children (78). Getting enough calcium in childhood, adolescence, and early adulthood, when bones reach their maximum density, lowers the risk of developing osteoporosis later in life (117).

PHYSICAL ACTIVITY

Physical activity can aid children in achieving healthful weights (118) as well as promoting their attainment of psychological well-being (119) and optimal bone health (120). Hence, physical activity is an important component of any effort to reverse the trend of increased obesity in US children and osteoporosis later in life. Although US children are more active than US adults, a Centers for Disease Control and Prevention (CDC) survey showed that 48% of girls and 26% of boys do not exercise vigorously on a regular basis (33). At the same time, participation in school-based physical education classes is declining; daily enrollment dropped from 42% of students in 1991 to 25% in 1995 (119). Vigorous activity levels are the lowest among girls (121,122), non-Hispanic blacks, and Mexican Americans (121). In addition, one quarter of all US children watch 4 or more hours of television each day, and hours of television watched is positively associated with increased body mass index and skinfold thickness (121).

In 1997, CDC published guidelines for school and community programs aimed at promoting physical activity among young people (33). Included in the guidelines are a recommendation for daily physical education in schools and suggestions on how to develop effective programs that modify the focus from competitive sports toward emphasizing an active lifestyle through enjoyable participation in physical activity. Clearly there is nothing wrong with competitive youth athletic programs, but these cannot serve the needs of all children. Programs need to be broadened to include activities that appeal to all children, not just those who are athletically gifted. Figure 1 includes suggestions on ways to encourage children to be more active.

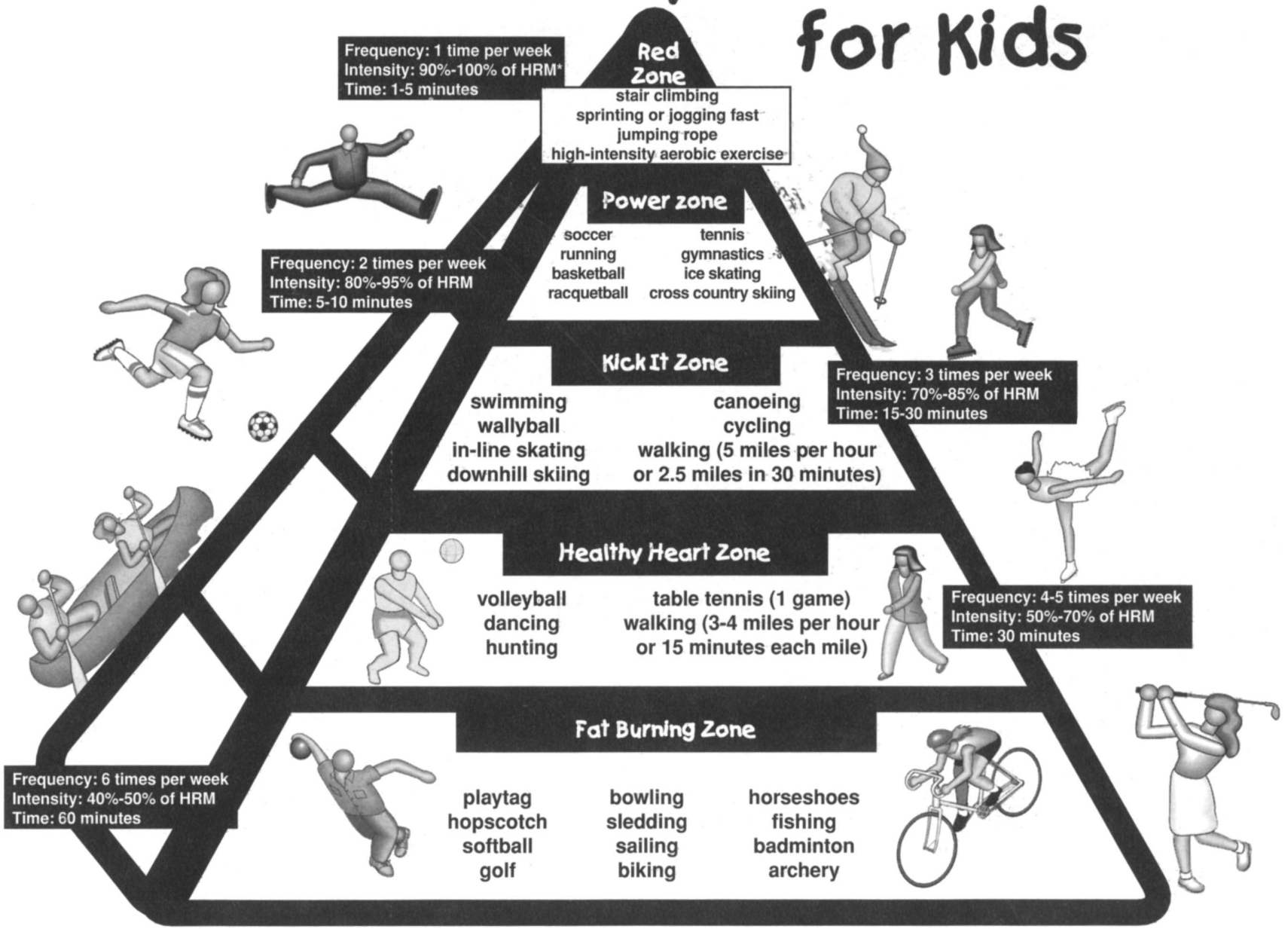
ROLE OF PARENTS AND CAREGIVERS IN THE DEVELOPMENT OF HEALTHY EATING BEHAVIORS

Environmental and personal factors have an important influence on dietary behavior. Factors other than health concerns, such as taste preferences, cultural norms, and food availability, influence dietary behavior when it comes to making food choices (123). Parents have a major impact on their children's eating and physical activity patterns. Nutrient intakes are known to aggregate in families, with the strongest associations found between mothers and their children (124). In addition, children's eating behaviors are influenced by characteristics within the family unit, such as the number of meals eaten together (125). Children's preferences for high-fat foods, total fat intakes (126), and time spent in sedentary activities (127) have been positively associated with parental adiposity.

It is well known that children's food preferences are a major determinant of their food selection; that is, "children won't eat what they don't like" (128). It is important to realize, however, that children's food preferences are learned through repeated exposure to foods. With a minimum of 8 to 10 exposures to a food, children will develop a clear increase in preference for that food (129). Thus, parents and other child caregivers can provide opportunities for children to learn to like a variety of nutritious foods by exposing them to these foods.

Young children are known to adjust their meal size according to the energy density of food available (130) and are able to adjust their food intake across successive meals to tightly regulate energy intake for 24-hour periods (131). However, child feeding practices have been shown to influence children's responsiveness to energy density and meal size (132). When parents assume control of meal size or coerce children to eat rather than allowing them to focus on their internal cues of hunger, children's ability to regulate meal size in response to energy density is diminished (133). This seems especially problematic among girls with a high body mass index and may play a later role in the chronic dieting and dietary restraint that has become common among US adolescent girls (133). In summary, perhaps some of the best advice regarding child feeding practices continues to be the division of parental and child responsibility advocated by Satter (134), who states that

Fitness Pyramid for Kids



*HRM—Heart Rate Maximum

Adapted from Mauch, Razler, Schumacker, Strand, Terbizza.

1. Mauch L, Roesler R, Strand B, Terbizan D, and Schumacher J. The Middle School Fitness Education Pyramid. F.E.P. Sales and Consulting. 1977.
2. Strand B, Mauch L, Terbizan D. The Fitness Education Pyramid—Integrating the Concepts with the Technology. Journal of Physical Education, Recreation and Dance. Vol 68, no 6, August 1997.
3. Web site: http://www.corpcomm.net/nrmauch/index.html.

parents are responsible for presenting a variety of healthful foods to children and deciding the manner in which these foods are presented and children are responsible for whether and how much they eat.

IMPLICATIONS FOR PUBLIC POLICY

Implications from the pediatric studies of chronic disease risk indicate that it has become imperative for dietetics professionals to develop practical methods to begin prevention of chronic disease early in life. Prevention strategies, both the high-risk (89,135) and public health approach (92,113,136,137), encourage primary intervention to follow the dictum of "first do no harm." As quoted from Berenson et al (138), their central thrust should be to help young generations grow up with healthful habits from the beginning, liberated from the harm of adverse lifestyles that were unwitting consequences of 20th century economic development. Beginning prevention early by improving lifestyles and focusing on healthful food choices within the context of the total diet has the potential for a major impact on the future of adult chronic diseases.

The school is consistently recognized as an appropriate site for health education and promotion (7). Much of the early research in school health education focused on knowledge-based classroom programs. These early studies typically reported positive changes in student knowledge and attitudes but failed to improve health behaviors or make positive changes in physiological risk. Many knowledge-based studies did not consider the multiple factors in the etiology of health behaviors. Eating habits appear to be influenced by the interaction between individuals and their social and physical environments, not simply by knowledge of the healthfulness of foods. Lytle and colleagues (116) emphasized the importance of making nutrition messages developmentally appropriate and delivering specific behavioral messages to help children make informed food choices. Several successful programs incorporate the multicomponent prevention model, beginning in elementary school and extending to high school (92,110,113, 136,137). All of these programs include school meals as a component for promoting the intake of a varied diet within the context of the Dietary Guidelines for Americans. Other community-based settings, such as day care, youth clubs, and sports facilities, provide access to children but have not been adequately explored as sites for providing health promotion and education for children.

The effect of television commercials on children's food consumption and behavior is an important public health issue and needs to be addressed on a national level. It is evident that food advertisements aimed at children are generally contrary to what is recommended for healthful eating for children (139). Dietetics professionals need to be proactively involved in providing leadership in helping parents and teachers educate children to become responsible and informed consumers. Dietetics professionals can also provide input during the development of federal legislation and regulations to advocate for actions that ensure that the messages reaching children are consistent with dietary recommendations.

Finally, the high prevalence of prolonged food insufficiency and episodic hunger among low-income children and its devastating effects (8) indicate an urgent need for sustained government funding of food and nutrition programs designed to create a safety net of public assistance for these children. Safety net programs include the USDA Food Stamp Program; the Special Supplemental Nutrition Program for Women, Infants, and Children; School Breakfast Programs; School Lunch Programs; the Summer Food Service Program; and the Child and Adult Care Feeding Program.

CONCLUSION

Most US children do not meet the Food Guide Pyramid (13) recommendations, especially for the fruit, grain, and dairy groups. In addition, the majority of US children do not meet the Dietary Guidelines for Americans (12) for total and saturated fat. The dietary guidelines were meant to be just that: guidelines that are an achievable goal for all Americans over the age of 2 years. The strategies one uses to achieve those guidelines should reflect age, gender, ethnic, and regional differences in food consumption patterns. The best tool for helping the US public meet the US Dietary Guidelines is the Food Guide Pyramid. This tool is broad enough to encompass food preferences and differences in food choices among various segments of the population. Key messages of the US Dietary Guidelines are the importance of variety, moderation, and balance in food choices. These key messages need to be sensitive to cultural diversity. Various ethnic food guide pyramids and a vegetarian meal planning pyramid are available from The American Dietetic Association (140). In addition to providing key messages, there is a need to incorporate behavioral strategies that build on enhancing self-efficacy and self-esteem in children. Children need to develop the confidence that they can successfully make changes in their eating and physical activity patterns. There is an ongoing need for nutrition intervention and education for the US pediatric population (41), and dietetics professionals have the training and skills to meet these needs.

Dietetics professionals can take an active role in promoting dietary recommendations and guidelines for children after the age of 2 years. The American Dietetic Association needs to join forces with other health professional organizations and food industries to work toward translating dietary recommendations and guidelines into achievable and healthful messages for children in the United States.

Directions for Dietetics Professionals

- Support and promote the Dietary Guidelines for Americans for healthy children after the age of 2 years.
- Support and promote the use of the Food Guide Pyramid as a guide for meeting the dietary recommendations.
- Support and promote the use of the Kid's Activity Pyramid to encourage physical activity among children.
- Disseminate existing comprehensive health education programs.
- Support and promote the implementation of the Dietary Guidelines for Americans in school meals.
- Conduct effective nutrition education training programs for physicians, child nutrition personnel, and other health care providers.
- Foster communication and partnerships across all health-related disciplines.
- Develop and implement strategies for educating parents and caregivers on how to foster a more healthful lifestyle in the home environment.
- Advocate for the need to increase federal and state funding of nutrition education programs.

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