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A moderate view on fat restriction for young children

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The American Dietetic Association (ADA) position paper, "Dietary guidance for healthy children aged 2 to 11 years" (1) joined with a number of professional organizations in taking what I call an enthusiast stance in endorsing the fat recommendations of the US Dietary Guidelines for children aged 5 years and up: 30% or less of energy from total fat, 10% or less from saturated fatty acids, and 300 mg cholesterol or less daily. (In this article, I will term this set of recommendations "low fat.") Although I agree with the points made in this article about optimizing children's nutritional health, I do not endorse a low-fat diet for children. In my view, restricting children's fat intake risks their growth and health, creates problematic relationships between parents and children, and undermines children's lifelong eating attitudes and behaviors.

A MODERATE VIEW OF THE LITERATURE

While researching my book, *Secrets of Feeding a Healthy Family* (2), I read the same articles cited in the position paper. I did not want to have my hands tied in giving practical food management and feeding advice to parents, but I also did not want my guidance to be harmful. I arrived at what I call a moderate position. Whereas the enthusiast view is that a high-fat diet causes heart disease, and dietary fat restrictions can prevent or cure it, the moderate view is that evidence is not strong enough to warrant sweeping changes, and that overall nutritional well-being remains the priority. I am unconvinced by the data from the studies that form the basis of our current nutrition policy for adults (3-6) and, by extrapolation, for children. The enthusiasts, of course, think otherwise and their view currently predominates. Given the nature of the consensus process, the moderate position has not been getting much attention, but I am not alone in taking this stand (7-10).

The literature of diet and cardiovascular disease is so vast, technical, and contradictory that opposite conclusions can be reached, depending on the interpretation and conviction of the reader. Over the years, as the recommendations for children's fat intake have become more and more restrictive, the research evidence directly supporting those restrictions has remained essentially the same. For the most part, documentation about dietary modification for children has been extrapolated from research on adults. Even for adults, the evidence supporting dietary fat modifications is modest and open to interpretation. However, at all ages, the evidence supporting nutritional well-being and overall health is so considerable that it is axiomatic.

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The justification, real or implied, given for extending the US Dietary Guidelines to young children is that fat restriction is effective in preventing heart disease in adults, and that it will be even more effective if we start in childhood. The flaw in that reasoning is that—although enthusiasts claim "striking" improvements in heart disease statistics with dietary modification—in reality, health improvements are modest and uneven, adherence is poor, and eating attitudes and behaviors are negatively affected (11-14).

Eating Attitudes and Behaviors

The impact on eating attitudes and behaviors is most concerning. According to ADA's biannual survey of American dietary habits (15), there is a considerable gap between knowing and doing. In response to questions about whether they were doing all they could to achieve balanced nutrition and a healthful diet, only 25% of people currently fit into the "I am already doing it" category (and 18% of these adherents thought it was best to eat no fat at all). For 35%, the attitude was "I know I should but...", and for 40% the attitude was "Don't bother me." Particularly for the "I know I should" group, the gap between perceived standards and actual behavior was broad: a whopping 34%. This gap represents pain: the conflict and anxiety about falling short of eating standards. A meta-analysis of surveys and focus groups since 1980 found US adults to be reluctant to change their diets and adhere to dietary recommendations because they thought recommendations were confusing and that sanctioned foods were less tasty, more difficult and time-consuming to prepare, and more expensive (16).

Attitudinally, at least, emphasis on overall dietary quality is suffering. A 1998 Food Marketing Institute survey (17) showed that the primary nutritional concern for 59% of respondents was dietary fat avoidance (up from 27% in 1988), with nutritional value of food assigned priority by only 12% of respondents, and a "desire to be healthy and eat what's good for us" by 3%.

Community and work-site interventions show that although it is difficult to change diet, it is less difficult to make people wary about eating. Participants in community interventions have changed their eating behaviors very little, but they have become more aware and concerned about the connection between diet and disease. Such data are concerning. Any dietary intervention that sets unrealistic standards for food selection and eating is likely to be inconsistently applied, prone to disruption, and a source of a great deal of conflict and anxiety for the eating public.

The good news in the midst of this discouraging attitude survey data is that commitment to family meals remains strong. According to a Food Marketing Institute/Better Homes and

Gardens survey (18), parents and children eat dinner together on an average of 5 times per week. When asked why they believed family dinner to be important, survey respondents said they believed strongly that eating meals together strengthens family ties and unity, and that children who have family dinners eat a more healthful diet. They believed eating together gave important opportunities for family communication and promoted a better family atmosphere, including giving a sense of stability and togetherness.

THE REALITY OF CLINICAL INTERVENTION

Because the task of preventing cardiovascular disease has been perceived as so urgent, we have acted on the basis of insufficient evidence from long-term interventions. Even if people could get their standards and behavior to come together, it is unclear how much reward they would reap for their efforts. Patients in carefully supervised clinical studies have considerable trouble adhering to a modified-fat, low-cholesterol diet and, when they do, they have modest and variable responses. For some people, blood lipids are downright resistant to dietary modification (19).

Research on Children

For children, there are no direct data about the effects of population-wide dietary fat modification and longitudinal blood lipid and mortality changes. Nor is there likely to be, because the ethical and logistical implications of such investigation are prohibitive. We have only treatment data from projects like the Dietary Intervention Study in Children (20) and the Finnish work with infants and toddlers (21), which reassure us that children can grow well on low-fat diets. Questions about safety rise from clinical observations that are typically brushed aside by the "hard scientists" on the basis that observations and data were poorly controlled, and by enthusiasts on the grounds that parents were overzealous. If nutritional and growth impairment occurs because of low-fat diets, it is immaterial whether the observations can stand up to scientific rigor. Making "do no harm" our primary goal means such dietary calamities have to be taken into account.

The most chilling and persuasive argument for early dietary modification is that the atherosclerotic process begins in childhood. However, that argument becomes far less compelling when carefully examined. Almost all children, regardless of national origin, diet, and sex, develop fatty streaks in their major arteries (22). Since children everywhere, on every kind of diet, develop fatty streaks, it is unclear what can be done to prevent them. The fatty streaks in question are reversible and do not necessarily progress to the hardening and plaque formation that is characteristic of heart disease. It is only after puberty that the hardening process continues, and then only for some people. Only after age 30 years does the process become important (23). Furthermore, blood lipid values for children do not remain the same over time. Most children whose blood lipids are high grow out of it (24).

THE PRACTICALITIES OF THE FORMULA

Rather than attempting to resolve the ambiguity in the research data and adding still another voice to the theoretical discussion about whether a formula for managing fat percentages should be universally applied to children, we as dietetics professionals are in a position to examine the practical implications of applying such a formula. The argument that fat restrictions are safe for children is based on carefully con-

trolled intervention trials (20,21). The opposing argument is based on clinical reports of children who have grown poorly on unsupervised low-fat diets (7). The distinction, of course, is in the care with which the diet is administered. When fat restriction is imposed as a public health measure, no such careful administration is possible.

There is certainly an ongoing need for nutrition education for parents and other adults serving the pediatric population, and I do recognize that the position paper was careful to emphasize the importance of supporting children's overall nutritional welfare. However, inserting that caveat is not enough. Whether we intend it or not, the typical interpretation of today's nutrition policy makes avoidance of dietary fat and saturated fat a compelling priority, with fat restriction emphasized at the expense of adequate intake of energy and nutrients. Consumers are too worried to be sensible. Unless we take our stand clearly and unequivocally on behalf of overall dietary quality and the preservation of positive eating attitudes and behaviors, anything we say will simply sound like more of the same. Based on the principle of avoiding unnecessary energy intake, I support moderate, but not low, fat intake and I do not think it is wise to set a specific goal for fat intake. Whether or not we intend it that way, that imposes a food-intake agenda, an agenda that can make parents into police officers with children's eating as surely as if we put the child on a weight-reduction diet.

The nutritional risk inherent in providing restricted-fat menus to preschoolers was demonstrated by the computer modeling study done at Pennsylvania State University (25), an article that has the distinction of being used for supporting evidence by enthusiasts and moderates alike. A careful reading of the article shows that researchers applied a number of fat-reduction strategies to achieve a 1-week menu that included preschoolers' favorite foods, including replacing high-fat meat exchanges with lean meat exchanges; replacing higher-fat milks with skim milks; using low-fat food preparation techniques; and avoiding added fat at the table, such as butter, margarine, salad dressing, and gravy. All diets were made isocaloric after modifications were applied. With 4- to 5-year-old children, only one fat-reducing strategy could be used before diets became too low in fat and other nutrients. With 2- to 3-year-old children, it was difficult to meet nutrient recommendations with even one fat-reducing strategy.

AN ALTERNATIVE POSITION

I prefer to recommend optimizing the menus of families and others who feed children rather than attempting to achieve particular percentages and ratios of dietary fat or levels of dietary cholesterol. It is unrealistic and dangerous to try to make children's normally inconsistent eating conform to nutritional prescriptions. With fat restriction as with energy restriction, "externally controlling food intake (whether directly or indirectly) blocks children's sensitivity to internal regulators, undermines homeostatic mechanisms, interferes with social and emotional development, and ultimately may make children's [diets less desirable] than they otherwise would be" (26, p 864). Such attempts also lead to struggles between parents and children regarding eating attitudes. These struggles can become internalized and create distorted eating attitudes and behaviors that last a lifetime. In the long run, these distortions can seriously undermine overall health.

Because a child's nutritional environment is mediated by adults, we would be far more helpful if we would make our

priority helping parents feed children consistently, rather than making recommendations that undermine the process. The bottom line is that children get fed. To feed children well, family meals are essential. To grow up with intact eating capabilities, children must have meals and reliable access to food. Every family has foodways, and every family has a definition of what makes up an enjoyable and satisfying meal that is rewarding to cook, serve, and eat. If we honor those foodways, many people will naturally and gradually increase the variety in their diets and improve dietary quality. On the other hand, if we handicap the family cook by insisting that the only legitimate way of feeding children is to follow a plan that consumers in general find too hard, too confusing, too expensive, and not good-tasting enough, we will have only raised the barriers to an already beleaguered family meal.

The Division of Responsibility in Feeding

I appreciate being cited by the position paper in recommending the application of a division of responsibility in feeding, with adults providing the what, when, and where of feeding, and children remaining in charge of the how much and whether of eating (27). It is important, however, to examine the implications of that recommendation. The division of responsibility assumes that children have considerable capability with eating, but manifesting those capabilities depends on parents' effectively executing feeding tasks. Parents are responsible for choosing and preparing food, for maintaining the structure of meals and snacks, for making eating times pleasant, and for providing mastery expectations. Given parents' successful execution of their tasks, children will increasingly gain capability with eating behavior and food acceptance, retain the ability to regulate food intake, grow in a constitutionally appropriate way, and maintain positive eating attitudes and behaviors. We can help parents execute their feeding tasks if, rather than exhorting them to understand and apply formulas for planning meals and snacks, we support them in attending to their own values, foodways, and possibilities for feeding their families. Rather than setting up rules for food selection, I am far more comfortable with the recommendations made in an earlier ADA position paper that said food choices in a total diet should not be unduly restricted because of the energy, fat, or sugar content of any one food or unduly emphasized for any other reasons (28).

Making the distinction between adults' tasks and children's capabilities has implications for nutrition education as well. Teaching children food rules in hopes that they will, on their own, achieve nutritional goals represents a crossing of the lines of division of responsibility and is an exercise in futility. Furthermore, it confuses and alarms children about food. Young children are not cognitively or developmentally able to select food responsibly. Although children can learn about the Food Guide Pyramid (29) and may even be able to place food on the Pyramid, they are not developmentally ready to apply that learning to making value judgments about food. Rather than teaching food selection, nutrition education can reinforce, support, and enhance the capabilities of food acceptance and food regulation that children have learned at home (30).

Family Meals

The family meal must be appealing enough for all family members, and it must offer children enough fat and flexibility in caloric density so their energy needs are met. Throughout the growing-up years, children's energy needs are high and their stomach capacities are limited. Energy requirements

vary considerably between children and fluctuate substantially over time. Children vary enormously in their fat intake from one meal to the next, one day to the next, and one year to the next (31). When children's energy needs are high (presumably because they are particularly active or growing rapidly), they prefer foods that they have found by experience to be those of high satiety value (32). Given these data, and that from the Pennsylvania State University study (25), it seems that the strategy for managing dietary fat for children is clear: At a given meal, include foods of a variety of caloric—and fat—densities. If fat-reduction strategies are used, limit them to one at any given meal. To support children's abilities with food regulation, offer some foods that are low in fat (eg, vegetables and fruit), some moderate (eg, meat, chicken, and fish prepared with added fat or fat-containing casseroles), and some high (eg, salad dressings, table spreads, or whole milk). Then allow children to pick and choose from the foods available, eating as much or as little as they want. This approach will allow children to apply their considerable abilities with food selection and regulation to eating what they need at any given time to maintain nutritional status and energy balance. Children are good regulators, and they eat more or less of all foods—including high-fat food—depending on their energy needs.

Many are alarmed by this moderate position and think I am saying there is no problem and we need not try to do anything to improve child nutrition. Not true. Our children need our support so they can be provided with the foods and feeding environments they need to grow and develop physically, socially, and emotionally. For children to learn to like a variety of foods and to regulate their food intake, they depend on adults to choose wholesome food and provide them with regular meals and snacks.

In providing food for children, the emphasis must be positive: regularly providing appealing family meals. By way of maintaining and improving nutritional status and even moderating fat intake, menus are enhanced and real or presumed risk reduced when parents are encouraged to add to rather than take away from the diet: add fruits and vegetables; add a variety of breads and cereals; add milk and milk products; add meat and other protein sources. On the principle that increasing the variety of dietary fats does not appear to hurt and it might even help, I can even go along with encouraging variety in fat usage by including monounsaturated, polyunsaturated, and saturated fats. However, I cannot go along with egg restriction. Since the literature indicates that dietary cholesterol has a modest effect on blood cholesterol (33), it is safe enough to have moderate rather than restrictive cholesterol intake. I am comfortable with children's eating an egg a day or even more. Unconventional and breathtaking though that recommendation may be, in my judgment, running the risk/benefit equation on eggs is straightforward. It is difficult to feed a family without depending on eggs, and lightening up on egg restriction would allow families easy access to the original convenience food for children. Eggs are highly nutritious, easy to like, easy to chew and swallow, easy to keep on hand, and easy to cook in an assortment of appealing ways.

Emphasizing variety (without implying that variety means "eating foods you do not like") can result in a normal mixed diet that is moderate, not low, in fat, saturated fat, and cholesterol. I feel on safe ground in making these recommendations, since the diet of third graders is already moderate in fat, saturated fat, and cholesterol—containing, on average, 33% of energy from fat, 13% of energy from saturated fat, and 220 mg

cholesterol (34,35). Trying for more (or less, as the case may be) involves a substantial increase in precision, attention to detail, and risk of error. Certainly, as recommended by the position paper, dietitians have the ability to instruct and follow up with families to safely achieve such a complex prescription. Children with familial hyperlipidemia can be given careful and informed medical nutrition therapy under the supervision of a qualified dietetics professional. However, it is unrealistic to assume that we could provide such instruction and follow-up to every family with young children.

Child Nutrition Programs

I would like to see these moderate tactics extended to child nutrition programs as well. All currently recommend, implicitly or overtly, fat restriction for children beginning at least by age 5 years. Although fat restriction for children aged 2 to 5 years is not policy, low-fat meal planning and food preparation are standard procedure in many programs (36). For the School Nutrition Program, with its high proportion of on-staff nutrition professionals who directly supervise food preparation, ensuring nutritional adequacy while restricting dietary fat is a huge undertaking, but it is possible. For the other programs, no such safeguards exist. Feeding is done by parents or paraprofessionals who may or may not have careful instruction and supervision. Furthermore, these programs serve younger children and a high proportion of low-income children. For all children, but particularly for children whose economic circumstances make food security an issue, ensuring the child's overall nutritional status is far more important than imposing strategies that may or may not prevent disease in later life.

SUMMARY

As dietetics professionals, rather than debating dietary prescriptions, we must make our priority evaluating whether those prescriptions can be reasonably and consistently translated into food selection and eating patterns. This is nothing new to us. We have long advised physicians about the practicality of diet prescriptions and often recommended that prescriptions be moderated. In my view, we are at our finest when we are advocates for people and their relationships with food rather than arbiters of diets. Rather than emphasizing what people should eat, we must emphasize what is possible and reasonable for them to eat. In my experience, the gap between knowing and doing will continue as long as the knowing is unrealistic. Clinical experience makes it clear that if a diet prescription is unrealistic, it will not do any good. In attempting to apply unrealistic dietary prescriptions, we do not help people. We just make them into dietary cripples.

It has been extraordinarily difficult to lighten up on the particular diet prescription of the US Dietary Guidelines. Given the emphasis on preventive nutritional care and the urgency with which the messages are delivered, I and many other dietetics professionals believe our hands are tied: We must go along with the US Dietary Guidelines. If we relax our efforts to persuade people to eat in accordance with the prescription, we have been led to believe we will do them irreparable harm.

The data do not support such a threat, either for children or for adults. There is enough inconsistency in the evidence linking dietary fat and heart disease to make prevention a hope, not a guarantee. Before we apply the formulas we love so well (yes, I love them too), we must consider what our attempts to apply a formula will do to people's eating attitudes and behaviors and to the feeding relationships between adults and chil-

dren. People manage to feed themselves and their children, and they eat the way they do for reasons that grow out of their cultural traditions, preferences, and practicalities. Sweeping changes carry the risk of undermining serviceable foodways, so it is reasonable to recommend such changes only on an individual basis and, for the public, on the basis of compelling evidence. No such evidence exists.

Because the scientific evidence for the connection between childhood diet and heart disease is debatable, it is legitimate for us to be advocates for children by recommending doing less, rather than more. "Less" in my view, does not mean doing nothing at all. It means helping families enjoy food and optimize normal eating patterns, rather than attempting to achieve a particular prescription for dietary fat.

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Should dietary fat recommendations for children be changed?

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This issue of the *Journal* contains 2 articles by my esteemed colleagues that many may take to mean that dietary fat intakes of 30% of energy are inappropriate for young children (1,2). These assertions deserve critical consideration. They are at variance with a position paper of The American Dietetic Association (ADA) (3) and also with the recommendations of many expert groups that have examined the same evidence.

The Dietary Guidelines for Americans (4) suggest eating patterns for healthy Americans, including children over the age of 2 years. They target 10% or less of energy from saturated fat and 30% of total energy from fat. Olson and Satter (1,2) do not clearly define how low the "low-fat" diets for children are that they are criticizing. Do they consider the fat recommendations in the Dietary Guidelines for Americans to be too low? Dietary patterns that target 30% of energy may be desirable for a variety of reasons, although there is nothing magical about the 30% number. A diet following such a fat recommendation may be more nutrient dense than a higher-fat diet. Such a diet may also be more beneficial than a higher-fat diet in reducing risks of other diseases. Finally, such a diet may have different effects on the regulation of food intake than does a diet higher in fat.

The research evidence is not yet clear on whether these assertions about lower-fat diets are causative or not. More research is needed. However, the effects of a moderate-fat diet on nutrient intakes and heart disease risk factors are somewhat better researched. More information is available than was mentioned by Olson and Satter (1,2). Their comments about nutritional amnesia, with respect to the relevant findings from the Child and Adolescent Trial for Cardiovascular Health (CATCH), are particularly puzzling. CATCH was a school-based intervention trial sponsored by the National Institutes of Health that involved thousands of schoolchildren in the third and fifth grades. Cardiovascular risk factors were clearly present among many of these children (5). CATCH targeted a healthful eating plan that included levels of saturated fat and total fat specified in the US

Dietary Guidelines, and many children approached these levels. Both intervention and control groups decreased their total fat and saturated fat intakes, and neither linear growth nor body weight were adversely affected in either group (6,7). The intervention group also ate less saturated fat and total fat and increased intakes of certain minerals and vitamins that tend to be low in the diets of children; healthful changes in blood lipid levels were also evident (8). These positive dietary changes were achieved in school and community-based settings, not in clinical settings, and they are now being implemented in many schools across the country.

In contrast to the lack of material on CATCH in the articles by Olson (1) and Satter (2), much space was devoted to a little over a dozen case reports of growth problems as evidence that a diet of 30% of energy from fat may not be advisable in children. These cases actually involved extremely low-fat diets (apparently less than 20% of energy) and so their relevance is questionable. Moreover, most of the cases were from a single group. In addition, the denominator (ie, the number of children who consumed similar diets and did not develop problems, either in the physicians' practices from which the cases were drawn or elsewhere throughout the country) remains unknown. In any event, the authors may be beating a dead horse. No authoritative expert group suggests that extremely low-fat, low-energy diets that restrict linear growth are appropriate for children.

A more relevant criticism of prior public health recommendations on dietary fat is that saturated fat (and *trans* fatty acid intakes, which seem to behave like saturates) may have been underemphasized. Saturated fat deserves more emphasis. The emphasis on total fat may have arisen in part from the view that it is easier to decrease saturated fat by counseling people to reduce total fat than it is to focus on saturated fat. There is no question that it is possible for skilled dietitians to keep saturated fat and cholesterol at acceptable levels in higher-fat diets. However, parents may find this more difficult to accomplish using foods that US children commonly eat today. It may be easier to decrease saturated fat by emphasizing it more in counseling. Saturated fat is clearly much more highly associated with blood cholesterol-raising effects. For that reason, it deserves priority in counseling for reduction of heart disease risk. Also, saturated fat seems to be in greater excess than total fat. On average, children and adolescents get 33% to 34% of their energy from total fat and 12% to 13%

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