The primary school years

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Summary

- The most significant influence on a child's eating patterns is family eating behaviour, specifically in encouraging fruit and vegetable intake.
- The recommended 30% total energy from fat can be achieved by practical changes in eating pattern, such as limiting high fat snack foods to occasional or treat items.
- Saturated fat intake can be reduced to recommended levels by reducing intake from whole milk and yoghurt, ice-cream, and potato and snack items, and replacing part of this with monounsaturated and polyunsaturated fatty acid sources such as nuts, seeds, margarine or hummus dips.

"NUTRITION IS A FAMILY AFFAIR . . . families need to develop nutrition patterns as a group, as a whole family" (Christina Plaisted, Professor of Human Nutrition, University of North Carolina).[1] Increasingly, studies demonstrate the strong influence of family eating on children's food and nutrient intake.[2]

Fat intake,[3] milk intake and children's food choices have been shown to track from preschool or through primary school (ages 5–11 years) and into later years, emphasising the importance of developing healthy eating patterns in early years and through primary school.[4]

Messages from parents have considerable influence on later eating patterns. Parental restriction may damage the development of a child's self-control in eating, and girls whose mothers are perceived to diet frequently are more likely to diet, while sons of these mothers are more likely to be concerned about weight.[5] While younger children's intake is uninfluenced by the amount of food served, children aged over five years are influenced by the serving size offered, and eat more if more is served.[6]

Current intakes and recommendations

The National Nutrition Survey of 1995 reports that fat intake among Australian children in the 8–11-years age group provided 33.4% of total energy, with 14.3% from saturated fat, 11.8% from monounsaturated fat and 4.7% from polyunsaturated fat.[7]

The National Health and Medical Research Council's *Dietary guidelines for children and adolescents* recommend that dietary fat for children aged 5–15 years should provide 35% of energy, with not more than 10% of total fat as saturated fat.[8] This recommendation reduces to 30% of total energy from fat for children 15 years and over. Draft guidelines now under review recommend that children aged 5–14 years include about 30% of total energy as fat, with no more than 10% as saturated fat.[9] While total fat intake in 1995 was within that recommended in current guidelines (but several percentage points above that in the proposed revision), saturated fat intake was higher than the recommendation. The largest contributors to saturated fat intake in 1995 were milk products, frozen milk products, cheese and potato products.[7] The consumption of fruit and vegetables was well below recommended intake.[7] Promoting higher fruit and vegetable intakes may have multiple nutritional benefits, including an impact on fat intake,[10] as well as increased fibre, vitamin and antioxidant intakes.

Some controversy still surrounds the issue of recommendations for fat intake in children,[11] but studies have supported the efficacy and safety for growth and development of limiting fat intake to 30% of energy consumption in this age group.[12] Modelling based on Australian eating patterns[13] indicates that fat intake providing 30% of total energy can be achieved with practical and acceptable changes. Adequate intakes of other nutrients can be provided. Achieving the suggested level of 10% energy from saturated fat appears to be more difficult to achieve, and requires specific use of appropriate alternative fat sources of monounsaturated fatty acids and polyunsaturated fatty acids.

Relationship between fat intake and obesity

The early years of primary school are a period of risk for the onset of obesity, and overweight and obesity is the most significant nutritional problem for children in our community.[14]

Fat intake is one of a number of nutritional factors that is included in considerations of obesity. Cross-sectional surveys and longitudinal studies have related prevalence of obesity in children to levels of fat consumption. In United States 9–10-year-olds there was a relation between energy intake and adiposity, and also between fat intake and adiposity, with a negative relationship between carbohydrate intake and adiposity after controlling for sex, physical fitness and parental adiposity.[15] Children's preferences for high-fat-content foods and their total fat intake have been linked to parental adiposity and eating style.[16]

Putting recommendations into practice

A family eating pattern based on the "Healthy Diet Pyramid" or the *Australian guide to healthy eating*,[17] with a wide variety of foods, will provide adequate nutrients.

Dairy products can include reduced-fat varieties, but skim milk is not necessary. Foods with a high fat content should

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be replaced with lower-fat choices (eg, sandwiches or rolls instead of pastry, fruit-based frozen desserts instead of ice cream), and quantities of added fats (eg, butter, spreads and fried foods) should be minimised. Spreads and oils used should be from monounsaturated or polyunsaturated sources. Fish is often not a popular item with children, but should be encouraged to assure it a place in a consequent adult eating pattern.

Where fat intake is reduced, total energy needs must be met with increased amounts of cereal, fruit and vegetables.[13] Some children of lower primary school age with lower appetite (along with any younger children in the family) find achieving adequate energy intake difficult with this bulkier diet, and some discretion must be used within the family about the age at which the lower-fat diet is introduced. For such children, more liberal inclusion of monounsaturated and polyunsaturated fats can be used to restore energy density.

For Australian children, food prepared outside the home is somewhat higher in total fat than food prepared at home, whether eaten at home or away from home.[7] Where food prepared outside the home is a regular item in the family diet, consideration should be given to the choice of eating places and foods chosen.

Snack foods contribute significantly to energy intake over the day,[7] and should contribute similarly to nutrient intake. Information from teachers and parents emphasises the prevalence of potato crisps and high fat snack items in the school lunch box.[18]

Many children have access to a school-based lunch service and the favourite items are often high in fat, such as doughnuts and sausage rolls. Younger children need assistance with ordering better alternatives or limiting access to such high-fat-content foods. After-school snacks should include basic food items (eg, vegetable soup, bread or toast, fruit and milk or yoghurt).

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Adolescence and young adulthood

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DURING ADOLESCENCE AND YOUNG ADULTHOOD dietary fat continues to play important roles as an energy source, a significant cell structural component, a precursor to agents of metabolic function and a potent gene regulator.[1] Energy requirements for the final stage of growth can be highly variable, but the increasing prevalence of obesity suggests a problem with energy imbalance. Rather than being the result of excess food intake,[2] this has been attributed to reduced physical activity.[3] Physical activity levels decline substantially during adolescence and young adulthood.[4] Once obese, adolescents are generally even less active than their non-obese counterparts,[3] and this is not necessarily accompanied by greater energy or fat intakes.[5] Adolescents who are obese are more likely to become obese adults than younger children who are obese.[6] As overweight in adolescence is a more powerful predictor of risk of heart disease and atherosclerosis than overweight in adulthood,[7] the effect of reduced physical activity at this stage is compelling.

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Is dietary fat implicated in the development of obesity and heart disease risk at this stage?

The impact of dietary fat on obesity needs to be considered in the context of current body composition, physical activity