



## ABSTRACT

## Strategy to fulfill fiber requirement in children

Diana Sunardi<sup>1</sup>

<sup>1.</sup> Department of Nutrition, Faculty of Medicine, Universitas Indonesia – Cipto Mangunkusumo Hospital

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Diet in childhood influences not only the immediate health of children but also may have an impact in a positive or negative manner on the future health status. Dietary fiber has many physiological effects including reducing postprandial glucose concentrations, improving fecal bulk, promoting laxation, interfering with fat and cholesterol absorption, and altering bacteria populations in the gut microbiome. The first years of life may be critical for the establishment of a healthy colonic microflora, as well as good eating habits. The supply of fermentable substrates to the colon may influence the balance of the microflora, and if the flora that is established early is maintained in the long term after gut barrier functions have matured, then early diet may be of major influence beyond infancy. The definition of dietary fiber covers a whole range of carbohydrates, other than NSP, such as resistant starch, fructo-oligosaccharides, galacto-oligosaccharides and some synthetic non-absorbable carbohydrates. Using this definition, fructo- and galactooligosaccharides present in breast milk as well as the amount of lactose that is not absorbed and escapes into the large intestine are counted in dietary fiber. Thus, human milk could be considered the first source of dietary fiber. Dietary fiber recommendations for children vary worldwide. The European Food Safety Authority set the dietary reference value for dietary fiber for children over 1 year of age at 2 g per MJ per day (~ 8.4 g per 1000 kcal or ~ 11.4 g for children aged 1 to 3 years) based on the amount of dietary fiber that is adequate for normal laxation. In the US for children over 2 years, dietary fiber recommendations were “age plus 5 rule”. While in Indonesia for children, the dietary adequacy of fiber is 11 gram for 6–11 m.o, 19 gram for 1–3 y.o and 20 gram for 4 – 6 y.o. The American Dietetic Association recommended a variety of solid plant foods for very young children, to ensure an adequate dietary fiber intake.

The dietary patterns of infants and young children have been shown to correlate to patterns in later childhood and even to adulthood. Infants given home-prepared fruits or vegetables more frequently at six months of age were more likely to eat more fruits. Many fruits and vegetables are rich sources of both soluble and insoluble fibers. Commercial weaning foods vary considerably in their fiber content.

#### Corresponding author:

Dr. dr. Diana Sunardi, MD, MS  
Medical Department of Nutrition, Faculty of Medicine,  
Universitas Indonesia  
Email: [diana\\_sunardi@yahoo.com](mailto:diana_sunardi@yahoo.com)

Dietary fiber intake should be increased gradually in childhood and may be accomplished relatively easily by increasing consumption of a variety of fruits, vegetables, cereal, and other whole-grain products.

Focusing on adequate dietary fiber intake at initiation of complementary feeding may be a strategy to help parents incorporate healthy foods into their child's diet and lead to higher intakes of foods like fruits, vegetables, whole grains, nuts, seeds, and legumes which are naturally rich in fiber and other key nutrients. Most NDC in the diet of young children is obtained from cereals, legumes, and vegetables, some from fruits and their juices, and some as thickeners, stabilizers, and fat substitutes in processed food. FOS, GOS, inulin, soy polysaccharide, resistant starch, and gums are also added to some dietary products, enteral formulas, and breast milk substitutes. Diversification of the diet exposes infants to a widening range of NDC in fruits, vegetables, legumes, and cereals. Rice, potato, and other nonwheat cereals are usually the cereal base for complementary foods, and fruit and vegetables are often added for flavor.

Family foods eaten by young children may contain increasing amounts of NDC, particularly those rich in fruit, vegetable, cereals, and composed of whole or unprocessed foods. Children have greater taste sensitivity, higher food neophobia and picky eating behaviors in early childhood, which may help explain the lower vegetable consumption. In addition, children have an innate predisposition for food items that are sweet, such as fruit, over those that are bitter or sour, such as some vegetables.

Behavioral factors, such as positive parental modeling, previous exposure to fruit and vegetables, and appropriate parenting practices increase a child's FVC. Recommendations should include offering a variety of different types of fruit and vegetables, offering fruit and vegetables using a variety of preparation methods, offering different colors and with a variety of textures.

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**Keywords:** children, diet, fiber intake

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