Why it is Important for School-age Children to Have Breakfast – A Commentary

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Objectives: In this commentary we emphasize the importance of breakfast for children, both from the point of view of proper nutritional education and as a strategy for the prevention of obesity. Methods: We reviewed the international literature, drawing particularly on information regarding the possible negative effects of skipping breakfast. Results: Obese children often do not eat breakfast and may face metabolic problems such as insulin resistance and hypercholesterolemia. The child who does not eat breakfast often becomes an adult who does not eat breakfast. The role of parents is fundamental in the acquisition of correct eating habits. Conclusions: The awareness that habits during childhood become elements of everyday life in adulthood, makes us understand the importance of the long-term consequences of skipping breakfast during childhood and adolescence.

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The central role of breakfast as part of a healthy lifestyle is well recognized and documented.[1,2] Breakfast provides support for the energy and nutritional needs that are essential to face the day both physically and mentally.[3] The promotion of a healthy breakfast is not only part of the nutrition education program, but also part of a more complex primary and secondary policy of overweight prevention in childhood.[4] There is increasing evidence linking breakfast consumption and obesity, even in pediatric populations of different ethnicities.[5-7] In fact, the first observations on the beneficial impact of breakfast in pediatric practice were published in the 1950s,[8] but it was later, with the spread of adult and pediatric obesity, that its importance was defined in promoting a healthy lifestyle.

The risk of excess weight is higher in children who do not habitually eat breakfast.[9,10] "Skipping" breakfast represents a predisposing factor for obesity-related metabolic complications: an increase in the waist-to-height ratio, a validated index of abdominal obesity have been documented in adolescents who habitually fail to eat this first meal of the day.[10,11] Not having breakfast also has been associated with dysmetabolic conditions such as insulin resistance and high LDL cholesterol levels.[12,13] In parallel, the European study HELENA (*Healthy Lifestyle in Europe by Nutrition in Adolescence*) highlighted the strong positive correlation between daily breakfast intake and improved cardio-respiratory performance, as well as a better cardiovascular profile, especially in male adolescents.[14] The risk of "abandonment" of breakfast seems to be higher in the adolescent age groups. There is, in fact, a significant association between age and lack of breakfast consumption.[15] Moreover, there has been a downward age trend for this habit, so that it is now occurring even in younger children.[5]

Literature suggests that the parental role is fundamental in the acquisition or "non-acquisition" of the habit of eating breakfast.[16] Children also learn

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through their parents at the table – that is, they tend to eat breakfast if their parents do, making it a "transmissible" habit.[17,18] The influence of the parental model is also evident in adolescents,[19] and although there are few studies focused on this complex interaction, lower socio-economic status and lower cultural level of the family environment seem to be factors contributing to the lack of breakfast consumption.[20,21] Therefore, it is not surprising to note that higher levels of obesity seem to be reached in children who do not usually take meals together with their families.[22,23]

Thus, to support the acquisition of a healthy lifestyle, the potential role of schools must be highlighted, because of their substantial educational contribution to children. The school environment offers opportunity to teach healthy nutrition. Several studies illustrate the positive impact of school cafeteria programming in promoting better food quality and encouraging breakfast consumption.[24-26] Therefore, intervention strategies for the prevention of pediatric obesity must have the direct involvement of schools,[27] although such campaigns are not without possibility of failure, as reported in a Canadian study.[28] There are many factors that can determine the success or failure of these interventions, so adequate planning of the educational program is necessary to optimize the short- and long-term results, and probably should be part of a wider health promotion campaign.

The complex influence of breakfast on health has been studied from a neuro-psychological viewpoint.[29] There seems to be a greater state of stress, anxiety and depression of mood in adolescents who habitually skip breakfast.[30-32] However, the results on school and academic performance are controversial.[33-35]

Of course, dealing with breakfast means addressing the meaning of a "healthy breakfast." The quality of consumed products must be considered, so much so that special measuring instruments have been created, such as the "Breakfast Quality Index."[36] Furthermore, this item is so important that, when breakfast consumption is seen as the only objective, there is a real risk of observing an increase in weight, with a paradox and (partially) unintended results.[37]

The literature clearly indicates the benefits of eating low glycemic index carbohydrates and fibers. In particular, children who consume whole grains at breakfast not only have better vitamin and mineral intake, but more frequently are of normal weight than their peers, without the risk of increased sodium intake.[4,38] In particular, the consumption of fortified cereals and milk at breakfast is a wise choice from a nutritional point of view, leading to a significant improvement in nutritional biomarkers such as ferritin, olotranscobalamin, 5-methyltetrahydrofolate, 25 (OH) vitamin D and the activation coefficient of erythrocytic glutathione reductase.[39]

It is well known that fiber intake is associated with a greater sensation of satiety, minimizing the intake of commercial snacks during the day.[40] On the other hand, evidence reveals that habitual consumption of a breakfast with a high glycemic index results in stimulation of insulin secretion and a consequent increased risk of metabolic syndrome.[41] One should not forget that breakfast, in addition to representing an energetic start to the day, offers the opportunity to take important trace elements. A study conducted of children and youth aged 4-18 years in the United Kingdom showed that the habit of "breakfast skipping" negatively affects the intake of folate, vitamin C, calcium, iron and iodine.[42] Children who habitually eat breakfast have a better diet in terms of fiber intake but also in terms of vitamin D, B-complex vitamins, zinc, and potassium, an observation recorded across different ethnic groups.[43]

IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

The awareness that habits during childhood become elements of everyday life in adulthood makes us understand the importance of the long-term consequences of food choices made during developmental ages. The child who does not eat breakfast frequently becomes the adult who does not eat breakfast and this "tracking" considerably amplifies cardio-metabolic risks.[13]

What is surprising, in the analysis of pediatric literature on the role of breakfast is the remarkable concordance of results in different populations and ethnicities, despite different eating habits,[44,45] strengthening the awareness that paying attention to the "most important meal of the day" can be a strategy to promote the growth of a healthy child and the well-being of a healthy adult.

It would certainly be intriguing to evaluate, in the different ages of childhood and adolescence, the school performance among persons who regularly have breakfast, compared to those who skip it. Another interesting point of study would be to focus on the effects of a breakfast at the table with the whole family, particularly to see if this could promote the habit of taking breakfast regularly.

Breakfast is a key meal on which the nutritional balance of the whole day depends, especially for children and adolescents. Additionally, having children eat breakfast supports several guidelines and objectives of the World Health Organization.[46-49] As they are growing, children's bodies need energy and nutrients to a larger extent than in adulthood. Breakfast also should be a moment of family sharing, with parents and children sitting at the table, and eating in a relaxed setting. The fight to prevent and control obesity for children and youth can begin at home by eating a breakfast that includes a variety of tasty and nutritious food that also offers an enjoyable and social moment of family sharing.

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