



## Editorial

# How Food Industries Can Help in Preventing Childhood Obesity and Metabolic Syndrome?

Roya Kelishadi<sup>1\*</sup>

1- Pediatrics Department, Child Growth and Development Research Center, Research Institute for Primordial Prevention of Non-communicable Disease, Isfahan University of Medical Sciences, Isfahan, Iran

Received: January 2015

Accepted: January 2015

The role of food industries in prevention and control of childhood obesity and the related consequences including metabolic syndrome (MetS) should be highlighted. Childhood obesity is considered as an underlying cause for the development of non-communicable diseases in adulthood. Therefore, primordial and primary prevention of such chronic diseases should be taken as a health priority. Dietary habits have an important role in the prevention and development of childhood obesity and its consequences. Different nutrients and foods might affect this process; however, the dietary pattern plays a more central role in this regard.

Given that most chronic non-communicable diseases origin from the early life, and as the dietary habits are formed in the early years of life, establishing healthy dietary habits for children and adolescents is of special concern. Food industries and providing healthy products have a crucial role in the dietary content of these vulnerable age groups. Different dietary patterns are considered to increase or decrease the risk of excess weight and related complications (1-7).

The balance between energy intake and energy expenditure is very important; therefore, by reducing the energy intake, low-calorie foods can be beneficial (8-10).

Carbohydrates, as the principal part of the diet, produce the highest daily energy requirement. Moreover, because of satiety responses, carbohydrate composition including the glycemic index (GI) affects calorie intake. Consumption of simple carbohydrates particularly sweets and sugar-

sweetened beverages has an essential role in the escalating trend of obesity in children and adolescents. Among the macronutrients, fat has the highest energy density; therefore, decreasing its consumption is considered as a global target for reducing the energy content. Low-fat diet consumption by overweight adolescents would decrease their body weight and serum insulin and leptin levels; on the other hand, it would increase serum adiponectin levels.

In addition to the fat content of foods, the type of fat, i.e. saturated and unsaturated fats, has many health effects for children and adolescents (8-11).

Salt intake has many adverse health effects, not only on blood pressure but also on weight gain. Processed foods and many snacks used by children and adolescents have high salt content (12).

Fiber intake has many beneficial effects, and it is documented that higher intake of fiber might reduce the risk of obesity and Mets. Some studies proposed that only dietary soluble fiber has such beneficial effects. It is well-documented that increasing the fiber intake in children and adolescents is associated with lower risk of future obesity and Mets (13,14).

Appropriate health policies and improvement in products developed by food industries are necessary for increasing the availability and affordability of nutrient-rich foods and beverages for children and adolescents.

### Financial disclosure

None of the author had any personal or financial conflicts of interest.

## Funding/Support

The current report was supported by Child Growth and Development Research Center, Research Institute for Primordial Prevention of Non-communicable Diseases, Isfahan University of Medical Sciences.

## References

- Joung H, Hong S, Song Y, Ahn BC, Park MJ. Dietary patterns and metabolic syndrome risk factors among adolescents. *Korean J Pediatr.* 2012;55(4):128-35.
- McNaughton SA, Ball K, Mishra GD, Crawford DA. Dietary patterns of adolescents and risk of obesity and hypertension. *J Nutr.* 2008;138(2):364-70.
- Ambrosini GL, Emmett PM, Northstone K, Howe LD, Tilling K, Jebb SA. Identification of a dietary pattern prospectively associated with increased adiposity during childhood and adolescence. *Int J Obes (Lond).* 2012;36(10):1299-305.
- Rodríguez-Ramírez S, Mundo-Rosas V, García-Guerra A, Shamah-Levy T. Dietary patterns are associated with overweight and obesity in Mexican school-age children. *Arch Latinoam Nutr.* 2011;61(3):270-8.
- Shang X, Li Y, Liu A, Zhang Q, Hu X, Du S, et al. Dietary pattern and its association with the prevalence of obesity and related cardiometabolic risk factors among Chinese children. *PLoS One.* 2012;7(8):e43183.
- Romero-Polvo A, Dena-Gutiérrez E, Rivera-Paredes B, Castañón S, Gallegos-Carrillo K, Halley-Castillo E, et al. Association between dietary patterns and insulin resistance in Mexican children and adolescents. *Ann NutrMetab.* 2012;61(2):142-50.
- Ritchie LD, Spector P, Stevens MJ, Schmidt MM, Schreiber GB, Striegel-Moore RH, et al. Dietary patterns in adolescence are related to adiposity in young adulthood in black and white females. *J Nutr.* 2007;137(2):399-406.
- Pan Y, Pratt CA. Metabolicsyndrome and its association with diet and physical activity in US adolescents. *J Am Diet Assoc.* 2008;108(2):276-86.
- Grundy SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, Gordon DJ, Krauss RM, Savage PJ, Smith SC, Spertus JA, Costa F. Diagnosis and Management of the Metabolic Syndrome. *Circulation.* 2005;112:2735-3752.
- Seagle HM, Strain GW, Makris A, Reeves RS; American Dietetic Association. Position of the American Dietetic Association: Weight Management. *J Am Diet Assoc.* 2009;109(2):330-46.
- Gidding SS, Dennison BA, Birch LL, Daniels SR, Gilman MW, Lichtenstein AH, Rattay KT, Steinberger J, Stettler N, Van Horn L. Dietary Recommendations for Children and Adolescents : A Guide for Practitioners. *Circulation.* 2005;112:2061-75.
- Kelishadi R, Gheisari A, Zare N, Farajian S, Shariatinejad K. Salt intake and the association with blood pressure in young Iranian children: first report from the middle East and north Africa. *Int J Prev Med.* 2013;4(4):475-83.
- McKeown NM, Meigs JB, Liu S, Saltzman E, Wilson PW, Jacques PF. Carbohydrate nutrition, insulin resistance, and the prevalence of the metabolic syndrome in the Framingham Offspring Cohort. *Diabetes Care.* 2004;27(2):538-46.
- Howarth NC, Huang TT, Roberts SB, McCrory MA. Dietary fiber and fat are associated with excess weight in young and middle-aged US adults. *Journal of American Dietetics Association.* 2005;105(9):1365-72.