

Letter to Editor**Milk in School Lunch and Nutritional Adequacy, Asian Journal of Dietetics 2019 –
A Comment**Edem M. A. Tette¹, Juliana Yartey Enos^{2*}¹Department of Community Health, University of Ghana Medical School, College of Health Sciences²Department of Epidemiology, Noguchi Memorial Institute for Medical Research, College of Health Sciences, University of Ghana, Legon**Dear Editor:**

The study by Matsumoto et al. (2019) reported that while calcium intake was higher among adolescent girls who had milk as part of their school lunch, intakes of niacin, vitamin B12, iron, copper and sodium were higher among students who did not have milk as part of their school lunch (1). They found no significant differences in total nutritional inadequacy and inadequacy for each nutrient among the two groups and concluded that habitual nutrient intake adequacy for Japanese junior high school female students was independent of milk provision in school lunch programs (1). This finding is disconcerting as dairy products such as milk have been recommended for preventing undernutrition and treating stunting in children (2). In addition, it has been reported that there may be a small but limited window of opportunity to minimise stunting in adolescence due to delayed skeletal growth (3). The “milk in school lunch” might therefore be beneficial to stunted adolescents who may have missed earlier opportunities for correction.

Stunting, which is a manifestation chronic malnutrition, is defined by a height-for-age z-score of more than 2 standard deviations below the World Health Organization (WHO) Child Growth Standards median (4). In 2016, an estimated 154.8 million (22.9%) children under 5 years of age globally were reported to be stunted. This included 87 million children in Asia, 59 million in Africa and 6 million in the Latin American and Caribbean regions (4). Global interest in stunting stems from its association with poor cognitive development, child mortality and poor adult health. Furthermore, studies have documented associations between childhood stunting and an increased risk of degenerative diseases such as diabetes, hypertension and coronary heart disease in later life (5). Consequently, the Global Nutrition Targets aim at a 40% reduction in the number of children under 5 years of age who are stunted by 2025, which is also a target of the Sustainable Development Goals (4).

Milk is considered as a standard reference protein, a panacea in malnourished states and is used in the preparation of F75 and F100 nutritional supplements for treating severe acute malnutrition or wasting (2). More recently, studies have explored its use for preventing and treating stunting because stunting has been associated with limited consumption of animal food sources including milk (6). The South East Asian

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Nutritional Survey, for instance, reported lower stunting and underweight among children who consumed dairy products on a daily basis compared with those who did not (7). One of the most successful food policies in the last century was the “Milk in Schools Scheme” for school children in post-war Britain and Japan (8,9). Thus, providing milk for school children may be one of the ways the world can alleviate the enormous burden of undernutrition and stunting, improve calcium and other nutrient intakes and obtain other benefits such as improvements in cognitive function (10).

In the article by Matsumoto et al. (1), although the mean height of adolescents in the milk group was higher than the non-milk group, which is expected, the authors concluded that providing adolescent girls in school with milk may not always translate into nutrient sufficiency as it also depends on the diet consumed at home or complementing the milk. The observation may also be related to the skipping of breakfast among adolescents as recently reported in another study by Matsumoto et al. (11). While further studies are needed to unravel these observations in other contexts, including resource-limited settings where the home diet is often inadequate, their findings suggest that in these school settings, milk provision should be considered complementary and attention should probably be focused on promoting milk consumption in early childhood or younger school-age children. The Food and Agriculture Organisation (FAO) promotes milk in schools through “school milk conferences” and a “world school milk day” (12). Such initiatives must be supported and strengthened by nutrition sensitive food and agricultural policies that promote milk production and consumption by children and adolescents, since providing milk in schools, though expensive, can provide long-term developmental and socioeconomic benefits to society.

REFERENCES

1. Matsumoto M, Masumoto A, Sakamoto A, Saito A, Ikemoto S. Adolescents' Habitual Nutrient Intake Adequacy was Independent of Milk Provision in School Lunch in Japan: A Cross-sectional Study of Japanese Junior High School Female Students. *Asian J of Dietetics* 1(4): 90-99. 2019.

2. Michaelsen KF. Cow's milk in the prevention and treatment of stunting and wasting. *Food Nutr Bull* 34(2): 249-51. 2013.
3. Wiley A. Does Milk Make Children Grow? Relationships Between Milk Consumption and Height in NHANES 1999-2002. *Am J Hum Biol* 17(4): 425-41. 2005.
4. de Onis M, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J. Development of a WHO growth reference for school-aged children and adolescents. *Bulletin of the World Health Organization* 85: 660-7. 2007.
5. WHO. WHA Global Nutrition Targets 2025: Stunting Policy Brief. https://www.who.int/nutrition/topics/globaltargets_stunting_policybrief.pdf
6. Headey D, Hirvonen K, Hodinott J. Animal Sources of Food and Child Stunting. *American Journal of Agricultural Economics* 100(5): 1302-1319. 2018.
7. Nguyen Bao KL, Sandjaja S, Poh BK, Rojroongwasinkul N, Huu CN, Sumedi E, Aini JN, Senaprom S, Deurenberg P, Bragt M, Khouw I; SEANUTS Study Group. The Consumption of Dairy and its Association with Nutritional Status in the South East Asian Nutrition Surveys (SEANUTS). *Nutrients* 10(6): 759. 2018.
8. Atkins P. The milk in schools scheme, 1934 -45: 'nationalization' and resistance, *History of Education* 34(1): 1-21. 2005.
9. Takahashi E. Secular Trend in Milk Consumption and Growth in Japan. *Human Biology* 56(3): 427-37. 1984.
10. Lee R, Singh L, van Liefde D, Callaghan-Gillespie M, Steiner-Asiedu M, Saalia K, Edwards C et al. Milk Powder Added to a School Meal Increases Cognitive Test Scores in Ghanaian Children. *J Nutr* 148(7): 1177-1184. 2018.
11. Matsumoto M, Hatamoto Y, Sakamoto A, Masumoto A, Ikemoto S. Breakfast skipping is related to inadequacy of vitamin and mineral intakes among Japanese female junior high school students: a cross-sectional study. *Journal of Nutritional Science* 9: 9. 2020.
12. Michael Griffin. Overview of worldwide school milk programmes. FAO 2005. http://www.fao.org/fileadmin/templates/est/COMM_MARKETS_MONITORING/Dairy/Documents/Overview_of_worldwide_school_milk_programmes.pdf