The Journal of Nutrition – July 2018
Media Summaries

The following articles are being published in the July 2018 issue of *The Journal of Nutrition*, a publication of the American Society for Nutrition. Summaries of the selected articles appear below; the full text of each article is available by clicking on the links listed. Manuscripts published in *The Journal of Nutrition* are embargoed until the article appears online either as in press (Articles in Press) or as a final version. The embargoes for the following articles have expired.

Iowa teens who drink more milk are taller than those who drink less milk

Rapid preschool weight gain linked to adiposity and blood pressure in Mexican children

Breastmilk composition – is there an effect of maternal weight-loss surgery?

Iowa teens who drink more milk are taller than those who drink less milk

Short stature is considered a hallmark of chronic undernutrition during infancy and childhood around the world. For this reason, infant length and child height are typically measured and compared to healthy norms at each health checkup. This is particularly true in regions of the world where malnutrition is common and short stature (stunting) is endemic. However, in higher-income countries like the United States where obesity is more common than undernutrition, less attention is paid to a child's height, and little is known about whether nutrient intake and food patterns are associated with height. The July 2018 issue of *The Journal of Nutrition*, however, includes findings from a study conducted by Dr. Teresa Marshall and others at The University of Iowa suggesting that drinking more milk during childhood and adolescence might actually make you taller.

The study was conducted as part of the Iowa Fluoride and Iowa Bone Development Studies initiated in the early 1990s to investigate relationships between total daily fluoride intake and several health outcomes, such as tooth decay, tooth mottling, and bone health. Briefly, this study followed >1000 children from birth through adolescence and involved collection of dietary data and measuring the participants' height multiple times. For the present study, information collected from 353 boys and 364 girls were used to determine if there were relationships between average consumption of various beverages (milk, water and other sugar-free drinks, 100% juice, and sugar-sweetened beverages) and height at 17 years of age.

After statistically adjusting for other factors related to both milk consumption and height (for example, calorie intake, family income, and mother's education), the research team found that for every additional cup of milk a child consumed daily, his or her height was about one-sixth of an inch greater. Although similar relationships were found for total calcium intake, none were found for the other beverage types. The scientists urge additional studies aimed at determining potential health implications of their findings.

Reference Marshall TA, Curtis AM, Cavanaugh JE, Warren JJ, Levy SM. Higher longitudinal milk intakes are associated with increased height in a birth cohort followed for 17 years. *Journal of Nutrition* 2018; 148(7):1144-49

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Rapid preschool weight gain linked to adiposity and blood pressure in Mexican children

Mounting evidence suggests that rapid weight gain during the first year of life might predispose children to becoming obese and increase risk for other poor health outcomes such as cardiovascular disease and type 2 diabetes. However, most of this evidence comes from studies conducted in high-income countries. In contrast, most studies in lower-income countries have not found these associations during the first year of life, probably because the data were collected prior to 1990 when food was less available and children more active. This gap in knowledge is important because as the economies of developing countries improve, obesity rates tend to rapidly increase – a phenomenon referred to as the "nutrition transition." Mexico is a perfect example of this reality; whereas just decades ago most Mexicans were underweight or healthy weight, today 70-74% of Mexican men and women are overweight or obese. As such, finding ways to curb these alarming trends has tremendous public health importance. In a study published in the August 2018 issue of *The Journal of Nutrition*, Dr. Juan Rivera (National Institute of Public Health, Cuernavaca, Mexico) and colleagues report that keeping an eye on weight gain during the preschool years might be important in this regard.

Rivera's study was conducted as an offshoot of the POSGRAD study, originally designed to better understand the impact of omega-3 fatty acid supplementation during pregnancy on cognitive outcomes of infants. POSGRAD was initiated in 2004 and collected detailed information on not only cognition but also other outcomes such as growth, blood pressure, and indicators of cardiometabolic risk such as blood pressure, blood sugar, and circulating insulin. Here, the researchers utilized a subset of the data to investigate whether faster growth patterns from 1 month to 4 years of life predicted increased body fat and when the children were 5 years old.

Their results suggest that, indeed, children who had rapidly gained weight as preschoolers were more likely than those who gained weight more slowly to have more body fat when they were 5 years old. These relationships were even stronger when they adjusted for the child's height. Moreover, more rapid weight gain was associated with higher blood pressure and blood insulin levels. The researchers urge additional studies designed to further understand the short- and long-term health implications of their findings.

Reference Ramirez-Silva I, Rivera JA, Trejo-Valdivia B, Stein AD, Martorell R, Romieu I, Barraza-Villarreal A, Alvila-Jiménez L, Ramakrishnan U. Relative weight gain through age 4 years is associated with increased adiposity, and higher blood pressure and insulinemia at 4-5 years of age in Mexican children. *Journal of Nutrition* 2018; 148(7):1135-43.

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Breastmilk composition – is there an effect of maternal weight-loss surgery?

With no end in sight to today's alarming obesity trends, many overweight individuals are opting to undergo bariatric (weight-loss) surgery – which not only helps with weight loss but also improves health and overall quality of life. One of the concerns, however, with these types of surgeries is that they can lead to nutritional deficiencies because of reduced digestion and absorption in the gastrointestinal tract. This is particularly true for fat-soluble micronutrients, like vitamin A. Recent studies have suggested that bariatric surgery-induced nutrient deficiencies might be particularly concerning during pregnancy, when a mother's nutritional status can impact her developing fetus. In a paper published in the August 2018 issue of *The Journal of Nutrition*, however, researchers in Belgium report their findings that having undergone bariatric surgery does not appear to negatively influence the concentration of nutrients in breastmilk.

This study, led by Dr. Goele Jans, utilized samples and data collected as part of the AURORA study, designed primarily to investigate the impacts of bariatric surgery on the health and wellbeing of reproductive-age women. A total of 86 breastfeeding women were studied beginning in the first week postpartum and continuing until 6 weeks postpartum. Most of the women were healthy weight or overweight but some were obese; 11 had previously undergone some sort of bariatric surgery. Breastmilk was collected from each woman at least once and analyzed for fat, carbohydrates, protein, and vitamin A.

One month after giving birth, milk collected from women who had undergone bariatric surgery was higher in protein than that collected from healthy-weight and overweight women who had not had weight-loss surgery. One week later, carbohydrate concentration of milk produced by women who had undergone surgery was higher than that collected from healthy-weight women. Vitamin A content of milk did not different among groups. The authors concluded that these shifts in milk composition would not marginalize the quality of milk produced by women undergoing weight-loss surgery, and that breastfeeding should continue to be encouraged.

Reference Jans G, Devlieger R, De Preter V, Ameye L, Roelens K, Lannoo M, Van der Schueren B, Verhaeghe J, Matthys C. Bariatric surgery does not appear to affect women's breast-milk composition. *Journal of Nutrition* 2018; 148(7):1096-1102.

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