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Abstract

Effect of Obesity Prevalence on Vitamin C Intake Requirements †

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Abstract: Dietary requirements for vitamin C in age and gender groups are based on body weight. Mean body weight has increased since the requirements were set due to the increase in obesity prevalence. How does dietary adequacy change if the requirements are adjusted for current mean body weight? NHANES 2017–March 2020 survey data were obtained. Participants with complete demographic, dietary and body measures data were included (n = 12,409). Mean body weight was obtained for men and women, which was used to calculate the EAR according to the method used by the Institute of Medicine. Dietary adequacy was assessed according to the current and adjusted Dietary Reference Intakes (DRIs), using the Statistical Program for Assessing Dietary Exposure (SPADE) to obtain habitual intakes. Dietary intakes from food and dietary supplements were used. Using the current mean body weights for men and women, the DRIs increased from 75 to 85 mg per day for men and from 60 to 75 mg per day for women. When assessed against the current requirements, 42% and 33% of male and female participants, respectively, did not meet the EAR. With the adjusted requirements, 47% and 43% of male and female participants, respectively, did not meet the EAR. In the age/gender groups most at risk of inadequate intakes (adult men aged 19–30 and 31–50), the prevalence of inadequate intakes below the EAR increased from 59% and 52%, to 65% and 59% with the adjusted DRIs. The habitual intake analysis showed that when DRIs are adjusted linearly for increases in body weight due to obesity, the prevalence of inadequate intakes increased over the US population. For men aged 19–30 and 31–50, who are at the greatest risk of inadequate intakes, the increase in body weight further increases the proportion with inadequate intakes. This age/gender group shows the highest prevalence of biochemical deficiency and should be a focus of nutritional interventions to improving intakes. Assessment of the relevance of current DRIs in light of increased body weight due to a greater prevalence of obesity should be undertaken.

Keywords: obesity; dietary requirements; vitamin C

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