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Support for Benefit of Physical Activity on Satiety, Weight Control, and Diabetes Risk

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Dear Editor:

Several recent articles in the Journal¹⁻³ examined different, complementary facets of the relationship between physical activity, dietary choices, obesity risk and risk of diabetes mellitus. We believe that taken together, the articles provide important support for the importance of regular exercise as a short-term influence on satiety and long-term influence on diabetes risk. Tinker and her associates¹ concluded that three randomized controlled diabetes prevention trials reduced diabetes risk whereas the Womens Health Initiative-DMT did not, in part because the three previous trials had included physical activity in the lifestyle intervention whereas the WHT-DMT did not. Why should increasing physical activity make such a difference in the impact of dietary modification on risk of diabetes? One reason is that increased physical activity appears to improve the healthfulness of food preferences, thereby reducing passive overconsumption of energy.⁴ This is evidenced by the dose-response pattern observed by Palmer and her associates² between an increasing proportion of study participants reporting at least 1 hour per week of physical activity and decreasing consumption of sugar-sweetened soda beverages (goodness of fit chi square(2) = 205.4, $p < .0001$). Total beverage intake usually increases with increasing physical activity; it is therefore striking to see average sugar-sweetened soda beverage consumption actually decrease with increasing proportion of study participants reporting physical activity. Previous research has demonstrated that long bouts of aerobic physical activity increase the perceived sweetness of beverages.⁴ If we assume that commercial soda beverages have a sweetness optimized for a sedentary population, it is then likely that heavy exercisers will dislike these commercial beverages because of their perceived excessive sweetness. Harding and her associates³ furthermore reported a dose-response relationship between an increasing proportion of subjects who were physically active and quintile of plasma vitamin C concentration. Plasma vitamin C is a useful biomarker for fruit and vegetable intake because 90% of vitamin C intake derives from fruit and vegetable intake. The intake of minimally processed fruit and vegetables, in turn, is becoming recognized as a sustainable way of increasing satiety with fewer calories,⁵ thereby leading to the kind of sustained weight loss that should, in turn, reduce risk of diabetes. Intervention trials are needed to confirm the nature and quantity of physical activity needed to motivate adherence to the healthier, high-satiety food choices that these articles have demonstrated can protect healthy adults from lifetime risk of diabetes.

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