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# Associations between sports participation, adiposity and obesity-related health behaviors in Australian adolescents

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## Abstract

**Background:** The purpose of this study was to examine the relationship between organized sports participation, weight status, physical activity, screen time, and important food habits in a large nationally representative sample of Australian adolescents.

**Methods:** Nationally representative cross-sectional study of 12,188 adolescents from 238 secondary schools aged between 12 and 17 years ( $14.47 \pm 1.25$  y, 53% male, 23% overweight/obese). Participation in organized sports, compliance with national physical activity, screen time, and fruit and vegetable consumption guidelines, and consumption of sugar-sweetened beverages and high-fat foods were self-reported. Weight status and adiposity (BMI, waist circumference) were measured.

**Results:** Organized sports participation was higher among males and those residing in rural/remote areas. Underweight adolescents reported the lowest levels of participation. Higher levels of participation were associated with an increased likelihood of complying with national physical activity (OR = 2.07 [1.67-2.58]), screen time (OR = 1.48 [1.19-1.84]), and fruit and vegetable consumption guidelines (OR = 1.32 [1.05-1.67]). There was no association between organized sport participation and weight status, adiposity, consumption of sugar-sweetened beverages or high-fat foods.

**Conclusions:** Participation in organized sports was associated with a greater likelihood to engage in a cluster of health behaviors, including meeting physical activity guidelines, electronic screen time recommendations, and fruit and vegetable consumption guidelines. However, participation in organized sports was not associated with unhealthy dietary behaviors including the consumption of sugar-sweetened beverages and high-fat foods. There is no association between participation in organized sports and likelihood to be overweight or obese. The role of sports in promoting healthy weight and energy balance is unclear.

**Keywords:** Overweight, Dietary behaviors, Physical activity, Screen time, Public health

## Background

Approximately 25% of adolescents in developed countries are overweight or obese [1,2]. Obesity is now recognized as one of the most pressing public health problems [3], reducing life expectancy and quality of life [4]. The World Health Organization, United Nations, and the International Olympic Committee have advocated that organized sports have an important role to

play in reducing the worldwide burden of obesity in childhood and adolescence [5-7]. For example, one study reported that participation in at least two organized sports per year may reduce the prevalence of adolescent obesity by up to 26% [8]. This may be due to its association with key obesity-related behaviors such as increased levels of physical activity and healthy dietary habits [9]. However, a recent systematic review found that there was no clear association between youth sports participation and weight status [10]. Youth sports participants were more physically active and consumed greater amounts of fruit and vegetables, but also consumed

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