



Comparison of snack characteristics by diet quality: findings from a nationally representative sample of Australian adolescents

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Snacking is a common eating behaviour among adolescents accounting for more than a quarter of their total energy intake but the relationship between snacks and overall diet quality remains unclear⁽¹⁾. Hence, the aim of this study was to examine characteristics of snacks among Australian adolescents (12-18 years) according to their level of diet quality. This secondary analysis uses one day of 24-hour dietary recall data from the 2011 - 2012 National Nutrition and Physical Activity Survey (n = 935). Snacks were defined based on participant-identified eating occasions⁽²⁾. The Dietary Guideline Index for Children and Adolescents (DGI-CA) was used to assess adherence to the Australian Dietary Guidelines⁽³⁾, with the highest tertile of the DGI-CA score indicating high adherence. The means (95% confidence intervals [CI]) for daily snack frequency and snack energy density (ED; kJ/g) were estimated for boys and girls, using linear regression, adjusted for age, area-level disadvantage, and energy misreporting. The differences in means and proportions across tertiles of DGI-CA scores were tested by using F- and Chi square-tests, respectively. The results show no significant differences in the mean frequency of snacks across tertiles of DGI-CA scores in either boys (lowest tertile mean = 2.2, 95% CI [2.0, 2.4] snacks/day, highest tertile = 2.1 [1.9, 2.3]) or girls (lowest tertile = 1.9 [1.7, 2.1] snacks/day, highest tertile = 2.2 [1.9, 2.4]). The mean ED of snacks decreased as DGI-CA scores increased in both boys (lowest tertile = 8.42, 95% CI [7.1, 10] kJ/g, highest tertile = 6.32 [5.4, 7.4] kJ/g) and girls (lowest tertile = 8.99 [7.8, 10.3] kJ/g, highest tertile = 5.92 [5.1, 6.9] kJ/g). As DGI-CA scores increased, the proportion of both boys and girls consuming discretionary foods at snacks (such as soft drinks) decreased, while foods from the five food groups (such as apples) increased (p-values < 0.05). In conclusion, snack ED, but not frequency, and the types of foods consumed by adolescents at snacks varied by a level of diet quality. Snack ED decreased with increasing diet quality and adolescents with higher diet quality had higher intakes of foods from the five food groups and lower intakes of discretionary foods at snacks. Encouraging the consumption of lower-ED foods from the five food groups at snacks presents an opportunity to enhance adolescent diet quality. Future studies should explore snack-specific strategies to improve overall diet quality of adolescents.

Keywords: snacks; adolescents; energy density; diet quality

Ethics Declaration

Yes

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References

1. Hess JM, Jonnalagadda & SS, Slavin JL (2016) *Adv Nutr* 7, 466–475.
2. Leech RM, Spence AC, Lacy KE *et al.* (2021) *Int J Behav Nutr Phys Act* 18, 165.
3. Wilson JE, Blizzard L, Gall SL *et al.* (2019) *Nutr Res* 65, 43–53.