



## Metabolisable energy from nuts and patterns of nut consumption in Australia: secondary analysis of the 2011-12 National Nutrition and Physical Activity Survey

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Nut consumption in Australia does not meet recommended levels, and concern regarding the impact of nuts on body weight is a reported barrier to regular intake, due to their high energy content<sup>(1)</sup>. Nut intake is not associated with higher body weight<sup>(2)</sup>, which may be explained by their lower metabolisable energy<sup>(3)</sup>. Hence, total energy intake may be overestimated among nut consumers. Nut consumption patterns in Australia are also unknown. This study aimed to describe the metabolisable energy from nuts, and nut consumption patterns of the Australian population. A previously developed nut-specific database was expanded to include the metabolisable energy of nuts based on nut type and form, and applied to the 2011-12 National Nutrition and Physical Activity Survey (NNPAS). Mean metabolisable energy was compared to mean energy intake determined using Atwater factors for nut consumers. Additionally, nut consumption patterns were also explored, including the proportion of nuts consumed at meals and snacks, proportion of nuts consumed alone or combined with other foods, and timing of nut intake. Among nut consumers, the mean metabolisable energy from nuts, based only on nut type, was 241.24 (95% CI: 232.00, 250.49) kJ/day. The mean metabolisable energy when considering both nut type and form was 260.69 (95% CI: 250.18, 271.21) kJ/day, while energy from nuts using Atwater factors was 317.60 (95% CI: 304.85, 330.35) kJ/day. Nuts were more likely to be consumed as snacks, with approximately 63% of all nut intake (in grams) occurring as a snack. Nuts were frequently consumed with other foods and beverages, with only 27% of nuts consumed alone or with plain water. Furthermore, nuts were most often consumed after midday (68% of intake) rather than in the morning (32% of intake). Application of metabolisable energy data to the 2011-12 NNPAS has a significant impact on the calculation of energy intake from nuts. Nut consumption patterns identify most nut consumption occurring as snacks and two-thirds of nut intake occurring in the afternoon and evening. These findings may inform strategies to promote nut consumption in Australia.

**Keywords:** metabolisable energy; nut consumption.

### Ethics Declaration

Yes

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