

Summer Meeting, 10–12 July 2018, Getting energy balance right

## Evaluating the impact of high protein snack foods compared with standard protein snack foods on energy intake and appetite ratings for social drinkers: a pilot study

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Consumption of alcoholic beverages may stimulate food energy intake and contribute to passive overconsumption<sup>(1)</sup>. As protein is the most satiating of all the macronutrients, substituting protein for fat or carbohydrate in the diet may promote satiety and minimise excess consumption<sup>(2,3)</sup>. The aim of this study was to assess the difference in food energy intake between consuming high protein snack foods compared with standard protein snack foods, after ingestion of a moderate dose of alcohol.

A randomised single-blind crossover trial, involving nineteen participants aged 19–31 years, was conducted. Participants attended two separate study visits one week apart, where they ingested white wine (30.0 g of alcohol) and offered *ad-libitum* access to either high protein savoury snacks (15.9 g protein /100 g) with a protein-fortified dip or standard protein savoury snacks (4.4 g protein /100 g) with dip which were matched for fat and carbohydrate content. Food energy intake was measured by weighing pre- and post-snacks and calculating energy consumed. Visual analogue scales were completed at 0, 15, 30, 45, 60, 90, 120 and 180 minutes after consumption of the wine to measure subjective feelings of hunger, fullness and desire to eat.

There were no significant differences in mean food energy intake between the high-protein snacks and standard protein snacks ( $P = 0.28$ ). Mean protein intake was significantly higher in the high protein snack group than in the standard protein snack group ( $P < 0.001$ ) whereas no significant differences were observed between the groups for mean fat intake ( $P = 0.25$ ) and mean carbohydrate intake ( $P = 0.38$ ). There were no significant differences between the groups for total area under the curve (tAUC) for median hunger, median fullness and mean desire to eat (all  $P > 0.05$ ).

	High protein snacks (n = 19)		Standard protein snacks (n = 19)	
	Mean	SD	Mean	SD
Food energy intake (kilojoules)	4664	1402	4343	1297
Protein intake (grams)	46.4 <sup>a</sup>	13.8	12.9 <sup>a</sup>	4.8
Fat intake (grams)	55.6	18.5	59.3	20.0
Carbohydrate intake (grams)	105.0	33.9	111.0	33.8
Hunger tAUC (mm*180 mins)	6060 <sup>b</sup>	3748 <sup>c</sup>	6428 <sup>b</sup>	3666 <sup>c</sup>
Fullness tAUC (mm*180 mins)	9154 <sup>b</sup>	4774 <sup>c</sup>	9345 <sup>b</sup>	4089 <sup>c</sup>
Desire to eat tAUC (mm*180 mins)	7838	1161	7229	2719

<sup>a</sup> $P < 0.05$  for differences between groups; <sup>b</sup>median reported; <sup>c</sup>interquartile range reported.

In conclusion, *ad libitum* consumption of high protein snacks did not reduce food energy intake or induce greater satiety compared with consumption of standard protein snacks, after ingestion of a moderate dose of alcohol. This suggests that alcohol consumption may be indiscriminate in stimulating consumption of food, regardless of protein content. These initial data warrant further investigation to substantiate these findings, as well as replicating these methods with consumption of different types of alcoholic beverages.

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