Investigation into the impact of enrichment of breakfast to different levels using proprietary and store cupboard products

S. Khweir, S. Wight, E. Bannerman, J. Jones

CITATION
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The abstract below was presented to the British Dietetic Association as a poster at the BDA research Symposium in Birmingham on 30 November 2012. This event included dietitians new to research as well as audits and research carried out in practice.

Background
Malnutrition remains prevalent within the UK with older adults at greatest risk (BAPEN, 2011) which can lead to dramatic consequences such as increased risk of infection (Gall et al., 1998). There is evidence that indicates the largest amount of energy (29%) is consumed at breakfast by hospital inpatients (McWhirter & Pennington, 1994). Food enrichment has been shown to be an effective intervention to increase energy intake (Lauque et al., 2000) however, the optimal level of enrichment and also which products to use to increase the energy and nutrient content of different foods is unknown. As consumption of the breakfast meal appears to be quite high, this may be a good opportunity to maximise dietary and nutrient intakes.

Aim
The aim of this study was to investigate the impact of enriching a scrambled egg breakfast using either proprietary or store-cupboard products on appetite parameters, energy and protein intake for the remainder of the day after for the enriched breakfasts were provided was randomised at subsequent sessions. A two-day washout period was scheduled between test breakfasts. The statistical analysis used to compare breakfasts included a one-way factor repeated measures ANOVA and post-hoc tests.

Results
Twenty volunteers (mean (SD) age 30.2 (14.8) years, range 18–63 years) consumed the five test meals. There was no significant difference between satiety, hunger, fullness or prospective consumption for the enriched breakfasts at any time point. Enriching the breakfasts caused total energy intake to significantly increase by 472kcals (p<0.05) between the control and level 2 store-cupboard (S2) and by 475kcal between store-cupboard 1 (S1) and S2. The mean (SEM) energy intakes were also significantly different by 358kcal between S1 and S2. There was no significant difference in estimated protein intakes after the test meals (n=20, p>0.05).

Conclusion
This study suggests that incorporating store-cupboard products into a breakfast of up to 840kcal and 30g protein increased total energy intake by 25% (472kcal) but did not alter protein intake. The enriched breakfasts were shown not to hinder satiety or subsequent intake in young subjects. As the level of fortification increased, energy density increased, which is likely to be the most significant factor affecting total energy intake. The above results suggest that store-cupboard materials were more effective in increasing total energy intake than proprietary products when enriching meals.

This indicates that using store-cupboard products may be an effective way to help increase total energy intake without impacting on satiety or subsequent intake later in the day. Further investigation with malnourished older adults who would benefit most from this intervention is required. Whether enriching only one meal in the day, or across all eating occasions is most effective also needs investigation.

Affiliations
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Sarah Khweir, Elaine Bannerman & Jacklyn Jones, Queen Margaret University, Edinburgh.

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