P75 Does food architecture have an effect on perceived satiety?
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Background – Food macronutrient composition is linked to satiety, but does not define the physical architecture of foods. Little is known about the effect of food architecture on satiety for the same macronutrient composition.

Objective – To determine the effects of food architecture with other factors in determining perceived satiety.

Design – Fifteen lean subjects (8 male, 7 female) who were non-smokers, non-diabetic, regular breakfast eaters, non-athletic, not on medication affecting appetite and complying to a questionnaire (1) were selected. Subjects consumed a breakfast test meal (188g) of beef steak (BS) or beef mince (BM). As a control for method familiarization, cereal with milk (CM) was used. Subjects fasted overnight, consumed the test meal with 200ml water and recorded feeling of satiety on a pre-constructed scale. Pizza lunch was provided and subjects ate until comfortably full. Food intake for the rest of the day was recorded and energy intake was calculated using Food Works Software Version 3.02 (Australia).

Outcomes – Subjects reported being moderately hungry, prior to the test meal consumption. Subjects felt fuller 3 hours after BM than BS consumption although the difference was not significant. Satiety scores were significantly lower (P<0.05) after CM at all points of recording except at the 75th min.

Conclusions – Food from similar raw material with difference in its architecture may exert some differences in satiety perception after BS or BM breakfast but differences were not significant. A more extreme difference in food architecture e.g. a sausage-type meat emulsion will now be studied in comparison to the beef steak.

Reference

P76 Effect of food intake on total body bone mass accretion in Chinese girls
Q Zhang1,2, H Greenfield1, K Zhu1, LH Foo1, GS Ma2, X Du1, CT Cowell, DR Fraser1
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Background – Nutrition is known to have an important influence on bone mass accretion during puberty.

Objective – To assess, in a longitudinal study, the effect of differences in food intake on total body bone mass accretion in Chinese girls during puberty, using a mixed model analysis.

Design – Subjects were 377 Chinese girls who had participated in a two-year milk supplementation trial and a three year follow-up study from the ages of 10 to 15 yr. Total body bone mass was measured by dual energy x-ray absorptiometry at baseline and then at 12, 24, 48 and 60 m later. Food intake was estimated from a 7-d food record at baseline and then subsequently from a 3-d food record over two weekdays and one weekend day. The quantity of cereals, vegetables and fruit, legumes and nuts, meat, eggs, dairy products, and “other” foods consumed was estimated from these records.

Outcomes – After adjusting for age, total body bone mineral content (tBMC) from baseline to the end of the follow-up study was positively associated with the quantity of dairy products (β=0.043, P=0.01) and eggs (β=0.172, P=0.03) consumed for all subjects, with or without milk supplementation. In contrast, when tBMC of the control group (representing typical girls in China at puberty) was analysed separately, the only dietary association was with consumption of dairy products (β=0.075, P=0.02). For all subjects, the foods associated with tBMC were dairy products and eggs during the intervention study (P<0.05). However, during the 3 yr follow-up study positive associations were found with the intake of dairy products (P=0.05). The effect of dietary variation on total body bone mineral density (tBMD) differed slightly from that on total body BMC in the intervention trial and the follow-up study. In general, tBMD was positively associated with the consumption of eggs (P<0.05).

Conclusions – The quantity of dairy products consumed was the most significant dietary factor related to total body BMC in Chinese girls at puberty. The quantity of eggs consumed might also be related to bone mass accretion in these subjects.

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