

THE DRINK HODGEPODGE - A COMPARISON OF THE SATIATING EFFICIENCY OF DIFFERENT TYPES OF DRINKS

Maria Julia Goloso-Gubat, MSc Nutrition and Health
Wageningen University and Research Centre, The Netherlands

ABSTRACT

Background: Human appetite studies recognize that beverage intake causes unnoticed energy contribution, especially in the younger population. This has been identified as a contributory factor in the increasing weight gain trend, prompting an investigation on the satiating efficiency of commonly consumed beverages, the drink hodgepodge. Findings from this study serve as useful bases for nutrition education programs to promote healthy eating and lifestyle. **Objectives:** To determine: (a) the differences in satiating efficiency of selected lunch test drinks in terms of the amount of individual *ad libitum* intake; (b) possible correlations of intake with liking, viscosity, and energy density, and; (c) the presence of sensory-specific satiety. **Methods:** Twenty-six (26) unrestrained university students (21 females and 5 males) aged 24-29 years, of different nationalities, and with normal BMI participated in the study which was conducted at the Wageningen University and Research Centre, The Netherlands. Five (5) drinks were used as “lunch” test drinks (whole milk, cola, thick yogurt, thin yogurt and soya-based fruit drink). Two (2) other drinks referred to as “non-lunch” “test drinks/foods were used in the assessment of sensory-specific satiety. The order of presentation of the drinks was randomized within and across participants. Test sessions were scheduled at lunchtime. Each participant joined 5 test sessions, which were separated by at least one (1) day. On every test session, participants were given 1000g (H or approximately 1L) of each “lunch” test drink which they consumed *ad libitum*, i.e. “as much or as little as they like”. They were given a pre-determined amount of plain biscuits (4 pieces for males; 3 pieces for females) which they had to consume along with the lunch test drinks. *Ad libitum* consumption was standardized to 15 minutes per test session. The amounts of intake for the “lunch” test drinks were measured by weight (g) and subsequent energy intakes (kJ) were calculated based on label claims. Influences of liking for the food/drink and viscosity on the amounts of intake (g and kJ) were investigated using the General Linear Model (GLM) Univariate Analysis of Variance and Spearman rank correlation. Exploratory analyses on the correlation of energy density (kJ/100g) with mean amounts of intake (g and kJ) for the “lunch” test drinks were done by Pearson correlation analyses. Sensory-specific satiety was assessed by the differences in mean changes in liking and desire to eat between the “lunch” and “non-lunch” drinking foods using Paired T-tests. Statistical significance was consistently set at p-value = 0.005. **Results:** Satiating efficiency differed significantly between “lunch” test drinks both in terms of the amount of *ad libitum* (g) and energy intakes (kJ). Higher ratings for liking for the food/drink were positively associated with the amount of intake (g and kJ). Intake for thick yogurt was lower than intake for thin yogurt although changes in hunger and fullness ratings were not significantly different between them. Energy density (kJ/100g) was not significantly correlated with the amount of food/drink intake (g) but it was significantly correlated with energy intake (kJ). Sensory-specific satiety in terms of desire to eat was observed only in yogurts. **Conclusions:** Satiating efficiency is influenced by combined

multiple food/drink and sensory attributes, e.g. liking for the food/drink and viscosity. **Recommendations:** It is recommended that a replicate of this study be conducted locally in selected urban high schools and/or universities, to determine the presence of the drink hodgepodge phenomenon, and to assess the contribution of beverage consumption on energy intake of the young Filipino population. Along with this, studies on the correlations of age group and socio-demographic factors with beverage consumption may be undertaken.

