

## **Parallel Session RTD Line 4 / Psychological Predictors of weight loss**

### **Lecture 3: Hunger motivation, food choices and preferences during weight loss and weight maintenance**

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#### **Abstract**

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In DiOGenes, obese/overweight adult volunteers initially followed an 8 week low calorie diet (LCD). Every family in which at least one parent lost  $\geq 8\%$  of initial body weight was then randomised to one of 5 ad libitum dietary intervention diets for 6 or 12 months: Low Protein [LP]/Low GI [LGI]; LP/High GI [HGI]; High Protein (HP)/LGI; HP/HGI and Control (CTR). This sub-study investigated the relationship of hunger motivation and food choices/preferences, measured around a standard test meal, to LCD weight loss and subsequent weight control in a subgroup of the Diogenes cohort (Subgroup A). The main aim of this sub-study was to assess the relative importance of hunger and hedonics as determinants of energy intake and food choices/preferences that undermine weight control (weak satiety versus hedonic responsiveness).

151 adults (56 males, 95 females; mean age 41, mean BMI 34.3kg) from 6 European countries (i.e. 6 of the RTD1 centres; LIFE, UM, HNR, DIFE, UNAV and IE) participated in the meal test before (Clinical Investigation Day [CID]1) and after (CID2, n=123) the LCD. On both test days, they consumed the same homeogenous pasta lunch meal (395kcal; 13%E P; 26%EF; 61%C; 295g) and completed Visual Analogue Scale (VAS) questionnaires on subjective hunger, fullness, desire to eat and prospective consumption before and after the meal up until 3 hours post meal. Subjects also completed the Leeds Food Choice Questionnaire (FCQ) before and after the meal. The FCQ is composed of 2 parts; a Forced Choice Photographic Questionnaire (FCPQ) and a Food Preference Checklist (FPC). All questionnaires were available in each RTD1 language and were adapted for cultural relevance as necessary.

We hypothesised that a lower preference for high fat foods and a high satiety quotient (SQ) for hunger (strong satiety response) would predict success at weight loss and subsequent weight control. The results showed that a lower SQ for hunger and a lower frequency of pre meal high carbohydrate (HC) food choices both predicted greater LCD weight loss. Further analyses explored the relationship between LCD-induced changes in food choice and hunger motivation and body weight change (kg) during the dietary intervention period. Here a decrease in the SQ for prospective consumption and an increase in the SQ for fullness (which both represent a blunted satiety signal capacity) were related to an increase in body weight. Other significant predictors of weight gain included an increase in the frequency of post meal HC food choices (CID2>CID1). In conclusion, these results indicate the potential of culturally relevant quantitative measures of food choice and hunger motivation to act as predictors of weight control during dietary interventions.