

Parallel Session RTD Line 1 / Diet and weight (re)gain prevention

Lecture 1: Effect of protein and glycemic index in ad lib diets for prevention of weight regain: the Diogenes multicentre, randomised, dietary intervention

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Abstract

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In DiOGenes, obese/overweight adult volunteers from families in 8 European countries initially followed an 8 week low calorie diet (LCD). Adults who lost $\geq 8\%$ of initial body weight were randomised to one of 5 ad libitum intervention diets to be assessed for ability to prevent weight regain: Low Protein [LP]/Low GI [LGI]; LP/High GI [HGI]; High Protein [HP]/LGI; HP/HGI and Healthy Diet as a control [CTR]^{1,2,3}. Subjects completed clinical measures on 3 occasions (i) before the weight loss period (ii) the end of weight loss i.e. before the intervention period, (iii) end of 6 month intervention period.

1209 adults (mean age 41 years, BMI 34kg/m²) were screened. A total of 932 adults initiated the LCD period, and 773 adults from 634 families were randomised to the 5 diets. The aim for the diets was a difference in protein intake of >10 energy% and in GI of >10 units. Of those 773 adults, 263 (2 centers) were provided with all foods for free using a shop system, and 510 (6 centers) were provided dietary instruction only.

548 adults (71%) remained at the end of the intervention period. The drop out rate was highest in the LP/HGI diet group (37.4%), and assignment to both HP and LGI diets was associated with lower drop-out rate ($p=0.046$ and $p=0.021$ respectively).

The initial weight loss was 11.04 kg, and the subsequent weight changes during the 6 month intervention were (kg, mean, 95% CI); LP/LGI: 0.33 (-0.74, 1.40); LP/HGI: 1.67 (0.48, 2.87); HP/LGI: -0.38 (-1.70, 0.93); HP/HGI: 0.57 (-0.65, 1.78) and CTR: 0.84 (-0.17, 1.86) respectively, and an ANOVA test on these 5 diets (completers analysis) did not find a significant difference in change in body weight between groups ($p=0.081$). There was no interaction between the effect of HP and LGI, but the individual effects of HP and LGI diets, as compared to a LP/HGI diet, and as analysed with linear regression analysis were -1.25 kg (-2.17, -0.336) ($p=0.008$) and -1.20 kg (-2.11, -0.286) ($p=0.010$) respectively. No overall significant differences between groups were found for changes in body fat mass, fat free mass, sagittal height, waist and hip circumferences.

In this large randomised study at 8 different European centres, both a higher protein content and lower glycemic index improved retention and weight loss maintenance.

1) The trial is registered at www.clinicaltrials.gov with the identifier no. NCT00390637

2) Larsen et al. The Diet, Obesity and Genes (Diogenes) Dietary Study in 8 European countries – a comprehensive design for long term intervention. In press, Obesity Reviews

3) Moore et al. Strategy to manipulate ad libitum macronutrient intake, and glycaemic index, across eight European countries in the Diogenes Study. In press, Obesity Reviews