

The clock genes and meal timing and composition a new approach for the management of obesity and type 2 diabetes

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Background: Although dietary restriction often results in initial weight loss, the majority of obese dieters fail to maintain their reduced weight. Diet-induced weight loss results in compensatory increase of hunger, craving and decreased ghrelin suppression that encourage weight regain. A high protein and carbohydrate breakfast may overcome these compensatory changes and prevent obesity relapse.

Methods: In this study 193 obese (BMI 32.2 ± 1.0 kg/m²), sedentary non diabetic adult men and women (47 ± 7 years) were randomized to a low carbohydrate breakfast (LCb) or an isocaloric diet with high carbohydrate and protein breakfast (HCPb). Anthropometric measures were assessed every 4 weeks. Fasting glucose, insulin, ghrelin, lipids, craving scores and breakfast meal challenge assessing hunger, satiety, insulin and ghrelin responses, were performed at baseline, after a Diet Intervention Period (Week 16) and after a Follow-up Period (Week 32).

Results: At Week 16, groups exhibited similar weight loss: 15.1 ± 1.9 kg in LCb group vs. 13.5 ± 2.3 kg in HCPb group, $p = 0.11$. From Week 16 to Week 32, LCb group regained 11.6 ± 2.6 kg, while the HCPb group lost additional 6.9 ± 1.7 kg. Ghrelin levels were reduced after breakfast by 45.2% and 29.5% following the HCPb and LCb, respectively. Satiety was significantly improved and hunger and craving scores significantly reduced in the HCPb group vs. the LCb group.

Conclusion: A high carbohydrate and protein breakfast may prevent weight regain by reducing diet-induced compensatory changes in hunger, cravings and ghrelin suppression. To achieve long-term weight loss, meal timing and macronutrient composition must counteract these compensatory mechanisms which encourage weight regain after weight loss.

Biography

Daniela Jakubowicz, Clinical Professor of Medicine Medical College of Virginia Commonwealth University. She is a Professor of Medical Faculty Universidad Central de Venezuela. She had more than 35 years of Clinical experience and he did more than 155 original Scientific Publications and 3 in The New England Journal of Medicine Studies. She has awarded for Most Outstanding and Newsworthy Study of San Francisco Endo Meeting 2008. She is presently working as MD and Specialist in Internal Medicine and in Endocrinology in the Diabetes Unit E. Wolfson Medical Center.

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