Concurrent Session 6

Comparison of 4 ad libitum weight loss diets of varying glycemic load on cardiovascular risk factors

J McMillan-Price¹, P Petocz², F Atkinson¹, K O’Neill¹, S Samman¹, K Steinbeck³, I Caterson¹, J Brand-Miller¹

¹Human Nutrition Unit, University of Sydney, NSW ²Department of Statistics, Macquarie University, NSW ³Metabolism and Obesity Services, Royal Prince Alfred Hospital, Camperdown, NSW

Background - Compared with conventional low fat diets, high-protein and low-glycemic index (GI) diets have been associated with greater rate of weight loss. While both methods reduce dietary glycemic load (GL), the effects on cardiovascular risk may differ.

Objective - To evaluate the effects of 4 diets varying in GL, GI and protein on lipid and glucose metabolism.

Design - A 12-week randomised trial of 4 ad libitum diets: diet 1 was a high carbohydrate, high GI diet (HGI), diet 2 was similarly high in carbohydrate but low GI (LGI), diets 3 and 4 replaced some of the carbohydrate with protein, specifically from lean red meat, and included carbohydrate from either high or low GI foods (HP/HGI and HP/LGI respectively). The diets were similar in fat (30% energy) and type of fat. All key foods and some pre-prepared meals were provided on a weekly basis to assist compliance. Fasting blood samples were taken 0, 6 and 13 weeks.

Outcomes - In total, 129 subjects were recruited and 116 completed the intervention. Changes in weight and body composition were reported previously. In the primary intention-to-treat analysis, total cholesterol and LDL-cholesterol changes showed significant differences among the 4 diets (P = 0.04 and 0.019 respectively). Despite similar weight loss, total and LDL-cholesterol rose by +5% and +8% respectively on the HP/HGI diet and fell by -4% and -6% respectively on the LGI diet (p = 0.033 and 0.013 for total and LDL-cholesterol respectively). Overall, there was a significant effect of GI, but not protein content, on change in total cholesterol (P = 0.019) and LDL cholesterol (P = 0.009). HDL-cholesterol rose and triglyceride concentrations fell in all groups with no differences among the four diets.

Conclusions - Reduced GL diets have varying effects on cardiovascular risk factors. Low GI carbohydrate foods may be more important in high protein diets because of their capacity to attenuate undesirable changes in lipid metabolism.

References

Relationships between clinical data and baseline eating behaviours in a sample of overweight volunteers for a dietary intervention trial

L Mackey de Paiva¹, LJ Gillen¹, LC Tapsell¹, M Batterham¹, XF Huang¹, R Cavanagh¹, M Kennedy²

¹Smart Foods Centre, University of Wollongong, NSW, 2522 ²Illawarra Diabetes Service, Wollongong, NSW, 2522

Background - Dietary risk factors for heart disease may be associated with specific eating behaviours. The Dutch Eating Behavior Questionnaire (DEBQ) divides eating behaviour into three categories – emotional, external and restrained.¹ The DEBQ has been previously validated in obese and healthy weight subjects.²

Objective - To identify relationships between clinical indicators of the Metabolic Syndrome and eating behaviour scores.

Design - Volunteers were 17 adults determined as overweight or obese (BMI=25-35) but otherwise healthy (no disease diagnosis or on medication). Individuals were instructed on completing the DEBQ at the first clinic visit. Fasting blood samples were collected by trained professionals. Bloods were analysed for blood glucose, insulin, and blood lipid levels. Spearman’s correlation coefficients were used to determine relationships using preliminary data.

Outcomes and conclusion - Strong correlations were found between emotional eating and values (mean ± SD) for key clinical indicators of the Metabolic Syndrome: BMI 31.84 ± 3.39 kg/m² (0.48), glucose 5.62 ± 0.48mmol/L (0.51, P ≤ 0.05), total cholesterol 5.75 ± 1.75mmol/L (0.56, P ≤ 0.05), and insulin 9.42 ± 2.88mU/L (0.57, P ≤ 0.05). These results suggest emotional eating may be a pattern of eating that increases risk and should be targeted in intervention strategies.

References