

## Concurrent Session 9

**A prospective study of the effect of a 12-week very low calorie diet on changes in health status, liver size and abdominal adipose tissue in the severely obese**

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**Background** - In morbidly obese individuals, very-low-calorie diets (VLCD) can achieve substantial, rapid weight loss, and are increasingly prescribed prior to obesity surgery to minimise surgical risk and complexity, by reducing liver size and abdominal adiposity. Despite their growing popularity, the safety, efficacy and optimal time frame of VLCD in this setting has received little attention.

**Objective** - To investigate a range of health outcomes of a 12-week VLCD in a severely obese population

**Design** - A prospective observational study of 32 subjects (19M, 13F, mean age  $47.5 \pm 8.3y$ , mean BMI  $47.3 \text{ kg/m}^2$ ) undertook a 12 week VLCD. Outcome measures included change in: liver volume (LV), visceral adipose tissue (VAT), subcutaneous adipose tissue (SAT), weight, the pattern of VL and VAT change, anthropometry, biochemical parameters, QoL, compliance, acceptability and side-effects. CT and MRI measured changes in LV, and VAT and SAT area at baseline, week 2, 4, 8, and 12. Paired samples t-tests, Pearson correlations, ANOVA and linear regression were performed using SPSS version 12.

**Outcomes** - All results listed below are significant at  $P < 0.001$ .

Characteristic	Baseline <sup>1</sup>	After 12 weeks <sup>1</sup>	Mean % change <sup>2</sup>
weight (kg)	$139.8 \pm 11.0$	$125.0 \pm 11.7$ (32)	-10.6 (-0.7 to -19.1)
Waist circumference (cm)	$140.8 \pm 9.8$	$128.1 \pm 10.0$ (32)	-9.0 (0 to -19.2)
Liver volume (L)	$2.8 \pm 0.5$	$2.3 \pm 4.5$ (32)	-18.7 (+20 to -51.6)
VAT area (cm <sup>2</sup> )	$346.3 \pm 103.3$	$285.1 \pm 89.3$ (32)	-16.9 (-12 to -52.6)
SAT area (cm <sup>2</sup> ) (n=18)	$454.5 \pm 114.8$	$375.7 \pm 109.7$ (18)	-17.7 (+2.9 to -40)

<sup>1</sup>mean  $\pm$  standard deviation; <sup>2</sup>mean percentage change (range of percentage change); n=32

A linear relationship exists between initial liver size and the percentage change in liver volume ( $r = .43$ ;  $P = 0.015$ ). Eighty percent of lost LV occurred between week 0 and 2 ( $P < 0.001$ ). VAT loss was more uniform. Three factors contributed 51% of the variability in predicting a baseline LV  $\geq 3.0L$ ; TAG ( $\beta = 0.528$ ,  $P \leq 0.001$ ), DBP ( $\beta = 0.310$ ,  $P = 0.021$ ), and CRP ( $\beta = 0.297$ ,  $P = 0.025$ ) ( $P = 0.006$ ). Significant decreases occurred in glucose control, LFT, and lipids, whilst QoL increased. Attrition was 14% due mainly to taste intolerance. Acceptability was adequate, but waned over time. Mild transitory side-effects occurred.

**Conclusion** - Pre-operative weight loss by VLCD is effective and acceptable. Given the early reduction in LV, we suggest the duration for VLCD be at least 2 weeks, extending to 4 to 6 weeks to achieve useful reductions in VAT and body weight, without compromising compliance and acceptability.

**Using cognitive behaviour therapy to promote behaviour change in overweight and obese adolescents**L Brennan<sup>1</sup>, R Wilks<sup>1</sup>, J Walkley<sup>2</sup>, S Fraser<sup>2</sup>Division of Psychology<sup>1</sup> & Exercise Sciences<sup>2</sup>, RMIT University, Bundoora VIC 3053

**Background** - Understandings of the mechanisms of weight regulation, and the dietary and physical activity changes required for weight loss have advanced considerably in recent times. However the effectiveness of this knowledge in the promotion of weight loss is compromised by a lack of compliance to recommendations. Despite demonstrated effectiveness in the management of difficult to treat disorders, psychological behaviour change strategies have been under-utilised in the treatment of overweight and obesity. Cognitive behaviour therapy (CBT), an approach to changing behaviour and the thoughts and emotions maintaining behaviour, has been shown to be at least as effective as drug therapy in the treatment of a range of disorders requiring long term behaviour change. CBT holds promise as an effective approach to promoting the behaviour changes required for weight loss and weight maintenance.

**Objectives** - To examine the effectiveness of CBT in the treatment of overweight and obese adolescents (12 to 18 years).

**Design** - A randomised controlled trial with 63 overweight or obese adolescents aged 11.7 to 18.9 years ( $M = 14.39$ ,  $SD = 1.85$ ). The 12-session CBT program included strategies targeting eating habits and food choices, sedentary behaviour and physical activity, and the management of physical, social, cognitive and emotional factors interfering with long-term behaviour change. Dietary intake was measured using a 7-day weighed food diary completed at pre and post intervention.

**Outcomes** - Preliminary results reveal improvements in self-reported dietary habits. Those participants completing the program reported a statistically significant reduction in daily total energy intake (pre  $M = 7633 \text{ kJ}$ , post  $M = 6234 \text{ kJ}$ ,  $P < 0.001$ ) and daily total fat intake (pre  $M = 67.02 \text{ g}$ , post  $M = 50.86 \text{ g}$ ,  $P < 0.001$ ). The daily total weight of food intake was not significantly different at pre and post intervention (pre  $M = 1776.21 \text{ g}$ , post  $M = 1587.82 \text{ g}$ ,  $P > 0.05$ ).

**Conclusion** - A CBT based program is effective in changing the food choices required for weight loss in overweight and obese adolescents. The use of CBT in the treatment of obesity warrants further in adolescents and in children and adults.