

## Concurrent Session 17: Polyunsaturated Fatty Acids

### Very low kilojoule diet (VLCD) assisted weight loss with or without dietary supplementation with n-3 polyunsaturated fatty acids

IA Munro, ML Garg

Nutraceuticals Research Group, School of Biomedical Sciences, University of Newcastle, NSW 2308

**Background** – Obesity is characterised by increased levels of pro-inflammatory biomarkers which are linked to CVD risk, insulin resistance and type 2 diabetes. Dietary supplementation with fish oil rich in n-3 polyunsaturated fatty acids (n-3PUFA) has been shown to result in suppressed production of pro-inflammatory cytokines. Since reduced inflammation is linked to weight loss, n-3PUFA may play a role in determining weight status.

**Objective** – To determine whether dietary supplementation with n-3PUFA combined with a VLCD assists in weight loss.

**Design** – A double blind randomised placebo controlled trial with thirty-two obese male and female adults. All participants followed a VLCD (3000 kJ/day) for four weeks, while consuming either 6x1 g capsules/day of sunola oil (Placebo Group, n=14), or 6x1 g capsules/day of n-3PUFA (Fish Oil Group, n=18). Fasting blood samples, anthropometric measures, three-day food diaries, and health surveys were collected at baseline and post intervention.

**Outcomes** – VLCD for four weeks, resulted in significant weight loss in the Placebo ( $6.54 \pm 0.56$  kg,  $P < 0.001$ ) and Fish Oil Group ( $6.87 \pm 0.43$  kg,  $P < 0.001$ ), however there was no significant difference between the two groups. Plasma concentrations of EPA and DHA increased by 87% ( $P < 0.001$ ) and 132% ( $P < 0.001$ ), respectively, in the Fish Oil Group, indicating compliance with capsule consumption. Plasma fatty acid composition was not affected in the Placebo Group.

**Conclusion** – Short term consumption of a VLCD results in considerable weight loss, however concurrent dietary supplementation with n-3PUFA may not provide further enhancement in weight loss.

---

### Working to reduce saturated and trans fats in the food supply - the Heart Foundation perspective

B Eden<sup>1</sup>, T Udell<sup>2</sup>

<sup>1</sup> National Heart Foundation of Australia, East Sydney NSW 2011

<sup>2</sup> National Heart Foundation of Australia, Adelaide SA 5000

**Background** – There is good evidence of an association between a high consumption of saturated fatty acids and trans fatty acids and an increased risk of coronary heart disease. Saturated and trans fatty acids both increase the risk of coronary heart disease by increasing total and low-density lipoprotein cholesterol. In addition, trans fats also lower the high-density lipoprotein component of our blood cholesterol. The 1995 National Nutrition Survey identified dairy foods, pastries, fried and mashed potatoes, and muscle meat as the highest contributors of saturated fat in the Australian diet. The Heart Foundation is working with the agri-food industry, the ingredients industry, Governments, retailers, food service, researchers and consumers to influence the food supply and reduce the level of saturated and trans fats in the food supply.

**Objective** – To develop evidence-based position statements that reflect current scientific literature. This ensures that Heart Foundation strategies such as our advocacy work, health programs, consumer messages and the Heart Foundation Tick, are underpinned by a sound evidence base.

**Design** – The Heart Foundation regularly updates its position statements to ensure they reflect the latest scientific evidence. During 2008, in the area of dietary fats and cardiovascular health/cardiovascular disease, the Heart Foundation built on the work of the Heart Foundation's *Dietary fats and cardiovascular disease review (1999)* and the Health Canada review (2000). Searches were conducted to identify systematic reviews and meta-analyses, major reports, critical reviews and existing international dietary guidelines and position statements published since 2000.

**Conclusions** – This presentation will outline the key findings from our *Dietary fats and dietary cholesterol for cardiovascular health (2008)* evidence review and present the Heart Foundation's position on dietary fats and dietary cholesterol.