

### Concurrent Session 3

#### **The effect of a low glycaemic index (GI) ingredient substituted for a high GI ingredient in two complete meals on blood glucose and insulin levels, satiety and energy intake in healthy lean women**

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**Background** - While there is great interest in the effects of low GI food on the development of diabetes, heart disease and obesity, the impact on food intake is unclear.

**Objective** - To examine the effect of a low GI ingredient, BarleyMax™, (barley cultivar, *Hordeum Vulgare* var. Himalaya 292; GI 49) incorporated into breakfast and lunch compared with otherwise identical meals containing a high GI ingredient (wheat starch GI 75).

**Design** - Randomized single blinded cross-over study in 14 healthy women. The test breakfast was consumed at 7.00AM. Insulin and glucose levels, appetite ratings using a visual analogue scale (VAS) and energy expenditure (EE) were measured before and after lunch which was eaten at 1.30PM. VAS and food intake were recorded for the next 10hr.

**Outcomes** - Area under the curve for insulin and glucose were lower after the low GI lunch compared with the high GI lunch (-35.5%,  $P < 0.001$  and -6.9%,  $P < 0.05$ , respectively). There was a significant increase in post-prandial RQ above baseline (0.80) independent of treatment (0.88 and 0.90 for low and high GI respectively,  $P < 0.001$ ). Both test meals increased EE by 5%. Meal type did not affect any variable measured by the VAS. *Ad libitum* intake over the next 10hr was reduced by 23% (9.6 vs. 11.0MJ) after the high GI meals compared to the low GI meals.

**Conclusions** - Low GI foods containing BarleyMax™ have a role in improving glucose and insulin homeostasis. However this study does not support the role of low GI foods in regulating food intake.

#### **Dietary and clinical risk profiles of a sample of healthy overweight adults provide targets for dietary advice in an intervention trial**

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**Background** - Lifestyle intervention trials demonstrate the benefits of dietary intervention for reducing metabolic risk in overweight adults.<sup>1</sup> For effective advice strategies dietary and clinical risk profiles need to be established.

**Objective** - To examine clinical and dietary profiles of healthy subjects in an intervention trial for the management of overweight.

**Design** - Volunteers were 35 adults (24 female, 11 male) overweight or obese (BMI=25-35) but otherwise healthy. Preliminary data from fasting blood samples and diet history interviews (using FoodWorks software, Xyris, Bris) were analysed and compared to reference levels (in brackets).<sup>2,3</sup>

**Outcomes** - Mean  $\pm$  SD: blood glucose  $5.48 \pm 1.02$ mmol/L (3.0-5.4)<sup>2</sup>, cholesterol  $5.61 \pm 1.67$ mmol/L (2.30-5.50)<sup>2</sup>, LDL-C  $3.38 \pm 1.17$ mmol/L (0.0-3.50)<sup>2</sup>, HDL-C  $1.34 \pm 0.40$  (1.00-3.00)<sup>2</sup> and triglycerides  $1.96 \pm 1.73$ mmol/L (0.00-2.00). Total dietary fat  $31.59 \pm 9.98\%$ E (<35%E<sup>2</sup>), saturated fat  $11.24 \pm 3.60$  (<10%E<sup>2</sup>), monounsaturated fat  $12.07 \pm 4.30$ , polyunsaturated fat  $5.28 \pm 2.22$  (~10%E<sup>3</sup>). Fasting glucose and total cholesterol levels were above the normal ranges. Total fat intake was within the recommended range, but intakes of SFA and PUFA were above and below recommended levels, respectively.

**Conclusion** - These results expose the nature of risk factors in a healthy overweight sample and demonstrate the need to target the type of fat in an intervention trial to test the efficacy of current guidelines.

#### **References**

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2. National Heart Foundation. Position Statement on Dietary Fat and Overweight/Obesity. 2003  
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3. American Diabetes Association. Nutrition Principles and Recommendations in Diabetes. Position Statement. *Diabetes Care.* 2004;27(Suppl 1):S36-S46.