

## Concurrent Session 3

### The effect of a low glycemic load, high protein diet on hormonal markers of acne

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**Background** - *Acne vulgaris* is a common endocrine condition affecting adolescents in Western civilizations. Acne typically manifests during puberty when there is a transient decrease in insulin sensitivity. It has been suggested that high glycemic nutrition during puberty induces hyperinsulinemia which increases the bioavailability of androgens and certain growth factors. These changes may induce follicular epithelial growth and increased sebum production – two factors responsible for acne proliferation

**Objective** - To determine the effect of a low glycemic load diet, comprised of high levels of protein and low glycemic index (GI) foods, on hormonal makers of *acne vulgaris*

**Design** - Male acne sufferers [n=43, age=18.3±0.4 (mean ± SEM)] were randomly assigned to either the dietary intervention (n=23) or control groups (n=20). The intervention diet consisted of 25% energy from protein and 45% energy from low glycemic index carbohydrates. The control group received no information about diet nor were they given dietary instruction. Venous blood was collected at baseline and 12-weeks for an assessment of testosterone, sex hormone binding globulin (SHBG), free androgen index (FAI), dehydroepiandrosterone – sulfate (DHEA-S), insulin-like growth factor (IGF)-I and IGF-binding proteins –I and -3.

**Outcomes** - Dietary intervention resulted in a significant reduction in FAI ( $-9.1 \pm 4.5$ ,  $P < 0.05$ ) and DHEA-S ( $-0.72 \pm 0.33$  umol/L,  $P < 0.05$ ) and an increase in IGFBP-1 ( $5.3 \pm 1.6$  ng/mL,  $P < 0.01$ ). No significant changes were observed in levels of IGF-I, IGFBP-3, testosterone or SHBG following dietary intervention. The control group showed no change in any of the blood parameters measured.

**Conclusion** - These data suggest that a low glycemic load diet may reduce androgenic activity (as indicated by a reduction in FAI and DHEA-S) and may oppose the growth promoting effects of IGF-I by increasing levels of its binding protein, IGFBP-I. This implies that a low glycemic load diet may reduce hormonal influences involved in acne pathogenesis.

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### The Greek migrant morbidity mortality paradox: low levels of hypertriglyceridaemia and insulin resistance despite central obesity

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**Background** - Greek migrants to Australia continue to have one of the lowest all-cause mortality rates of any birthplace group in Australia despite having an adverse coronary heart disease (CHD) risk factor profile, including higher rates of diabetes, and the high self-reported CHD morbidity.

**Objective** - To examine a broad range of CHD risk factors and dietary and lifestyle factors that may help explain the relative protection of Greek migrants from premature CHD mortality.

**Design** - Cross-sectional study of 432 Greek and Australian-born people with and without diabetes, recruited from the Melbourne Collaborative Cohort Study. Body composition was measured by standard anthropometric techniques and DEXA. Analysis of lipids and glycaemic variables was performed on fasting blood samples using standard laboratory techniques. Food intake was measured by food frequency questionnaire.

**Outcomes** - Greek men and women were significantly more obese ( $P = 0.008$  men and women) but had lower levels of hypertriglyceridaemia ( $P = 0.036$  men;  $P = 0.001$  women), and lower IR ( $P = 0.027$  men;  $P < 0.001$  women) compared with Australian-born men and women. Diabetes was associated with a greater adverse effect on fasting insulin, IR and plasma homocysteine in the Australian-born people compared with the Greeks.

**Conclusions** – Dietary factors such as consumption of a Mediterranean-style diet with a high intake of plant derived antioxidants, olive oil and red wine could be protecting Greek migrants from premature CHD mortality even in the presence of diabetes.