**P09**

**The inflammatory response of acute maximal exercise in athletes**  
BA Plunkett, R Callister, ML Garg  
*Nutraceuticals Research Group, School of Biomedical Sciences, University of Newcastle, NSW, Australia*

**Background** – Pro-inflammatory cytokines are released in response to conditions of stress such as trauma, surgery, burns, sepsis and exercise. Exercise has been suggested to affect the immune system in a J curve, where moderate exercise improves immune function and chronic exercise impairs the immune system and increases the risk of upper respiratory tract infection [1, 2].

**Objective** – The objective of the study was to determine the effect of acute maximal exercise on plasma markers of inflammation, carotenoids and fatty acids in healthy endurance athletes and untrained adults.

**Design** – Twenty endurance trained athletes and 15 sedentary adults completed an overnight fasting treadmill VO\(_2\)\text{max} test, a 7-day physical activity record and a 4-day weighed food record. Blood was collected at baseline and post-exercise for the analysis of inflammatory markers, fatty acids and carotenoids in plasma.

**Outcomes** – Plasma monocyte concentration (x 10\(^6\) cells/ml) significantly increased (P < 0.001) in all participants from baseline (1.35 ± 0.33) to post-exercise (2.65 ± 1.10). Athlete monocyte concentration was significantly higher (P < 0.05) at baseline (1.44 ± 0.37) and post-exercise (3.00 ± 0.80) compared to sedentary adults (1.25 ± 0.24, 2.23 ± 1.29). There was no difference in the plasma inflammatory markers IL-6, TNF-alpha and LTB\(_4\) at baseline and post-exercise. Acute maximal exercise significantly increased plasma lutein/zeaxanthin (P < 0.001), beta-cryptoxanthin (P < 0.001) and lycopene (P < 0.01) concentrations. Plasma non-esterified fatty acid (NEFA) significantly increased but total fatty acids remained unchanged in response to exercise.

**Conclusion** – In healthy human adults acute maximal exercise can increase plasma monocyte, carotenoid and NEFA concentration without a change in inflammatory mediators.

**References**

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**P10**

**Effect of age, gender and ethnicity on glycaemic responses**  
A Porzoor¹, N Mann¹, C Robinson², F Kelly²  
¹School of Applied Sciences, RMIT University, Vic, 3001  
²International Diabetes Institute, Caulfield, Vic, 3162

**Background** – The in vivo glycaemic index (GI) testing of foods can give a broad range of results between laboratories and even within laboratories for the same food item. Demographic factors such as gender, ethnicity and age of participants may influence the glycaemic responses in the individuals to a standard Oral Glucose tolerance test (OGTT), hence may affect the determination of the GI value of foods.

**Objective** – To determine effect of age, gender and ethnicity of the subjects attending the GI testing site on their glycaemic response (GR) to a standard OGTT.

**Design** – Glucose response data was collected on 204 subjects of varying age, ethnicity and gender from multiple OGTT (minimum =3, maximum=11). The individuals were grouped based on their ethnicity into: Western European (n = 105), Asian (n = 83) and Indian and Middle Eastern (n = 16), as well as age groups: 18 - 26, 27 – 35 and 36- 45 years, and male and female gender.

**Outcomes** – There was no significant difference in the area under the curve (AUC) for the 50g glucose solution in Asian, Western European and Indian and Middle Eastern F (2, 201) = 10.3, P= 5.2. The blood glucose level in Indian and Middle Eastern subjects tended to return to the fasting level very slowly compared to other ethnicities. The effect of age on glucose responses was not significant. Statistical analysis also showed no significant differences in the AUC based on gender (57.3% female; 42.6% male), F (1, 202) = 0.42, P= 0.5.

**Conclusion** – Ethnicity, gender and age do not have significant influence on the GR and thus may have no impact on GI determination of foods.