Posters

Relationship between glycemic index and insulinemic index in healthy volunteers after intake of low glycemic index products

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Background – The glycemic index (GI) has particular relevance to the metabolic syndromes associated with the obesity and the insulin resistance. The insulin resistance is considered be induced by the hyperinsulinemia. Although the insulin responses are closely related to the glycemic responses, the insulinemic index (II) may be affected by not only the quantity and quality of the carbohydrate uptake inhibitor, such as the non-digestible dextrin, but also by the effect of fat and protein on the secretion of the primary incretin hormones.

Objective - The GI and II values were determined for low GI jellies, with palatinose, and low GI cookies containing non-digestible dextrin, in healthy volunteers to examine whether hyperinsulinemia is caused by the intake of these low GI products.

Design - Eighteen healthy volunteers, 4 men and 14 women aged 41.2 ± 8.3 y, with normal body mass indexes (21.8 ± 1.6 kg/m²) participated. The blood samples were collected before and 15, 30, 60, 90, 120 min after the intake of the low GI products and the reference starch solution (Toleran-G) containing 50 g carbohydrate.

Outcomes - The II values (62 ± 31) of the low GI jellies were similar to their GI values (61 ± 16) but the II values (67 ± 23) of the low GI cookies were higher than the GI values (31 ± 25). This discrepancy might be explained by the insulinotropic effects of protein or fat which are involved in the low GI cookies.

Conclusions - Both low GI jellies and cookies have a depressive effect on hyperglycemia and hyperinsulinemia. These low GI products might be useful for the prevention of the metabolic syndromes.

Correcting postprandial dyslipidaemia in viscerally obese men: effects of fish oil and exercise

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Background - Lifestyle interventions including regular exercise and dietary fish oils have been shown to improve plasma lipid profiles in viscerally obese subjects but specific evidence of their effect on chylomicrons is scarce. Furthermore it is unknown whether a combination of these interventions have synergistic effects on the fasting and postprandial chylomicron levels.

Objectives - To determine the effects of a 12-week moderate intensity walking programme with and without fish oil supplementation on fasting and postprandial response of apo B-48 as a marker of chylomicrons.

Design - We conducted a randomised single blind parallel trial in obese men with the metabolic syndrome (BMI 32.2 ± 0.8 kg/m²) and compared the effect of chronic fish oil ingestion (1 g EPA, 0.7 g DHA/day) plus a moderate-intensity walking programme (3 x 1 h sessions/week) versus a placebo and the same walking programme. Fasting and a nine hour postprandial profile of apo B-48 and lipids were measured pre-and post-intervention following a high fat breakfast.

Outcomes - Fasting apo B-48 and triglyceride decreased significantly in the exercise + fish oil group by (14.3%) and (22.5%) respectively (P<0.05) while there were no changes to the exercise only group. These changes were paralleled by reductions in the postprandial metabolism of apo B-48 (19.0%) and triglycerides (27.7%) with the combined intervention but not the exercise only group (P<0.01).

Conclusion - Changes were seen in the chylomicron and triglyceride profiles of subjects undertaking the combined exercise and fish oil treatments and no changes occurred with exercise alone. Our results imply synergistic effects may occur between exercise and fish oil to promote a lower basal chylomicron secretion rate and possibly accelerated particle clearance. No changes were seen with exercise alone, which could suggest that an exercise intervention of higher intensity or longer duration may have been necessary.