

**T3:PO.58**

Influence of waist circumference on glucose metabolism evaluated with oral glucose tolerance test in a group of obese patients

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Aim of this study was to evaluate the relation between waist circumference (WC) and glucose metabolism in obese subjects. We evaluated 132 consecutive obese subjects (20 men and 112 women, median age 46 yr) for metabolic syndrome. The subjects underwent body mass index (BMI), WC and oral glucose tolerance test (OGTT) with determination of fasting insulin and plasma glucose (FPG) and plasma glucose at 120'. The cut off for impaired glucose tolerance (IGT) and diabetes was glucose at 120' > 140 mg/dL and > 200 mg/dL respectively. Homeostasis model assessment-insulin resistance (HOMA-IR) was assessed. Correlation analyses were determined by calculating the Spearman's coefficient. A Stepwise multiple regression analysis was performed to determine which variables predicted FPG. The values recorded were BMI 37,1 kg/m<sup>2</sup> ± 5,38, WC 109,8 cm ± 11,14, FPG 93,6 mg/dL ± 15,05, 120' plasma glucose 115,6 mg/dL ± 44,02, basal insulin 13,2 mU/L ± 5,10, HOMA-IR 3,12 ± 1,58. The prevalence of impaired fasting glucose (IFG) (FPG > 100 mg/dL) was of 25,7% (34 pts), of IGT was 18% (24 patients) and of DM was of 6% (8 patients). Linear correlation was significant between WC and FPG ( $r = 0,24$   $P=0,04$ ), but not among WC and other variables. In multiple regression FPG was linked to fasting insulinemia ( $P$  0,013) and WC ( $P$  0,05). The present data supported that visceral obesity evaluates with WC is a risk factor for IFG. In contrast with previous reports, these data do not suggest a role for WC in IGT.

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The beta-adrenergic antagonist propranolol partly abolishes thermogenic response of bioactive food ingredients

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**Background:** A combination of tyrosine, capsaicin, catechines, and caffeine has been shown to possess a pronounced thermogenic effect in humans.

**Objective:** To investigate whether the thermogenic response to the bioactive combination (BC) could be diminished or abolished by propranolol.

**Design:** Twenty-two men (BMI: 26.0±3.6 kg/m<sup>2</sup>, mean±SD) participated in a 4-way randomized, double-blind, placebo-controlled crossover study. The following 4 treatments were tested: 1. placebo; 2. BC; 3. BC + 5 mg propranolol; 4. BC + 10 mg propranolol. Resting metabolic rate (RMR), respiratory quotient, and the thermogenic response were measured for 5 hours post-intake, whilst systolic and diastolic blood pressure (SBP and DBP, respectively), heart rate (HR) and appetite ratings were assessed.

**Results:** BC increased RMR by 5% (73 (36;110) kJ/5-h (mean (95%CI),  $P<0.0001$ ) compared to placebo. Both propranolol doses blunted the thermogenic response by 50% compared to placebo ( $P<0.01$ ). Propranolol (5 or 10 mg) reduced fat oxidation by 5% ( $P=0.001$ ) and by 7% ( $P=0.0002$ ) compared to placebo, respectively. BC increased SBP by 3% (4±1.0 mmHg,  $P=0.003$ ) compared to placebo. The effect of BC on SBP was reduced by 25% by propranolol ( $P=0.07$ ). BC (with or without propranolol) increased DBP by 6% (4±1 mmHg,  $P=0.0002$ ). Propranolol decreased HR by 5% (3±1 bpm ( $P<0.0001$ )) compared to placebo and BC. No effects were observed on appetite ratings.

**Conclusion:** The study confirms the thermogenic properties of BC. The 50% reduction of the thermogenic response by propranolol indicates that beta-adrenergic pathways are partly responsible for the thermogenic response.

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Morphologic and systemic alterations in obese and overweight subjects after a physical activity intervention program

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There are some evidences that exercise training reduces total and abdominal fat and some systemic variables with improve health benefits. The aim of this study was to analyse the variation of some morphologic and systemic variables in 16 (age=64.5±7.2) obese and overweight (BMI=31.4±5.7) type 2 diabetic patients, of both gender, during a regular physical exercise program, which consists of 3 5 minutes of fast walking every days of the week, during 8 months, and no diet intervention. The change was analysed with MANOVA. In total cholesterol, LDL, HDL, TG and Insulin the changes were analysed in a 4 months period and in weight, BMI, waist and blood pressure were analysed in an 8 months period. There was significant decreases on weight [F(1, 15) = 6.688;  $P = 0.021$ ], BMI [F(1, 15) = 7.396;  $P = 0.016$ ], waist [F(1, 15) = 43.032;  $P = 0.000$ ] and LDL [F(1, 7) = 14.264;  $P = 0.007$ ]. It could be concluded that the participation in this physical activity program enables the subjects to improve their morphologic and systemic parameters without alterations in their diet.

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Adipocyte fatty acid-binding protein - a biomarker associated with the metabolic syndrome and/or an indicator of weight change?

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**Background:** Adipocyte fatty-acid binding protein (A-FABP) is a plasma biomarker recently associated with the metabolic syndrome. Aim of these studies was to investigate changes of A-FABP during profound weight loss induced by laparoscopic adjustable gastric banding.

**Subjects and methods:** In study one 29 severely obese female subjects were examined before and one year after surgical treatment. In study two patients were investigated in three months intervals. Metabolic parameters were determined using standard methods and A-FABP was detected with a commercially available ELISA.

**Results:** Mean weight loss after one year was 24.9 kg ( $P<0.001$ ), mainly due to a decrease in fat mass. Metabolic parameters improved substantially. However, serum AFABP remained stable. In study two ten patients we examined quarterly to determine the time course of A-FABP changes. Quarterly measurement of serum A-FABP were significantly higher than baseline levels with the highest A-FABP value after the first three month, where patients had highest weight loss.

**Conclusions:** In summary, our results in study one confirm that A-FABP serum levels are elevated in obese subjects and closely associated with obesity and the metabolic syndrome. However, one year after pronounced weight loss A-FABP levels remained unchanged. In study two time course analyses revealed maximum increase of serum AFABP in parallel to highest weight loss. We conclude that A-FABP serum levels are a biomarker of metabolic syndrome and additionally an indicator of weight loss, demonstrating the current lipolytic activity in adipose tissue.

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