

## Posters

### Decrement of adipocyte size and prevention of hyperleptinemia by garlic in high fat diet-induced obese rats

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**Background** - Garlic (*Allium sativum* Linn) is used in conventional allopathic therapies for cancer and diabetic-related vascular diseases. Obesity is often related disturbances of lipid metabolism that lead to an increase in serum triglyceride and cholesterol levels, which are involved in the development of cardiovascular disease. The adipose tissue hormone leptin has been proposed to be involved in the regulation of food intake.

**Objective** - To investigate the addition of garlic powder diet prevent the potential adverse effects on adiposity and dyslipidemia of this diet. We investigated the effects of garlic on the lipid and leptin metabolism in rats fed high fat diet.

**Design** - To determine whether the garlic have the hypolipidemic effects, 4 wk old Sprague Dawley male rats fed high fat diet (40% of calories as fat) for 6 wks to induce obesity, and subsequently fed Hangihyung and Nangihyung garlic supplemented high fat diets (w/w) for further 4 wk. For the comparison, normal CON group (11.7% of calories as fat) fed AIN-76A diet.

**Outcomes** - Supplementation with Hangihyung garlic resulted in a significant reduction of body weight gain, brown and white fat (visceral and peritoneal fat) mass. The adipocyte size of rats fed high fat diets ( $14.31 \pm 3.11 \mu\text{m}$ , mean  $\pm$  SD) was significantly higher ( $P < 0.05$ ) than that of CON group ( $7.67 \pm 2.14 \mu\text{m}$ ) at 14 weeks of age. Adipocyte cell size was significantly reduced ( $P < 0.05$ ) by Hangihung garlic diet ( $11.28 \pm 2.09 \mu\text{m}$ ). Serum triglyceride, free fatty acid and leptin level was significantly reduced by Hangihyung garlic supplementation

**Conclusions** - The present results show that Hangihyung garlic supplementation to the diet is beneficial for the suppression of diet-induced obesity and hyperleptinemia.

### Evaluation of three bioelectrical impedance analysers to assess body composition in overweight and obese males

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**Background** - The use of bioelectrical impedance analysis (BIA) to assess body composition is increasing. Originally BIA instruments determined impedance to conductance of a single frequency current (usually 50 kHz), but newer instruments are increasingly using a spectrum of frequencies in their analysis.

**Objective** - To determine the validity of measurements of fat mass (FM), fat-free mass (FFM) and percent body fat (BF%) in overweight and obese males assessed using single or multiple frequency BIA analysis by comparison with dual-energy x-ray absorptimetry (DEXA).

**Design** - Forty-three healthy overweight or obese males participated (age 18-65; BMI 25-42 kg/m<sup>2</sup>). The BIA examined were the multi-frequency Impedimed SFB7, Version 6 (Imp-MF), the single-frequency Impedimed SFB7, Version 6 (Imp-SF) and the single-frequency Tanita Ultimatescale™ (Tanita). Validity was assessed by comparison against DEXA (GE Lunar Prodigy) using regression and limits of agreement analysis.

**Outcomes** - All three BIA units showed good relative agreement with DEXA, Imp-MF (FM,  $r^2 = 0.81$ ; FFM,  $r^2 = 0.81$ ; BF%,  $r^2 = 0.69$ ,  $P < 0.001$ ), Imp-SF (FM,  $r^2 = 0.65$ ; FFM,  $r^2 = 0.76$ ; BF%,  $r^2 = 0.40$ ,  $P < 0.001$ ), Tanita (BF%,  $r^2 = 0.44$ ,  $P < 0.001$ ). Absolute agreement between Imp-MF and DEXA was poor as indicated by large bias and wide limits of agreement (Bias  $\pm 1.96\text{SD}$ ; FM,  $-6.6 \pm 7.7$  kg; FFM,  $8.0 \pm 7.1$  kg; BF%  $-7.0 \pm 6.6$  %). Imp-SF and Tanita had lesser bias, but wide limits of agreement (Imp-SF, FM  $-1.1 \pm 8.5$  kg, FFM  $2.5 \pm 7.9$  kg, %BF  $-1.7 \pm 7.3$  %; Tanita BF%  $1.2 \pm 9.5$  %).

**Conclusion** - Compared with DEXA, body composition measured by Imp-MF produced large bias and wide limits of agreement. While Imp-SF and Tanita had lower bias the limits of agreement were still large. The use of BIA as an alternative to DEXA for clinical measurements in overweight or obese populations is limited.