

Plenary 4: Gut Physiology: Gut Function and Nutrition

Dietary fat oxidation as a function of body fat

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Background – It is hypothesized that lowered dietary fat oxidation makes subjects prone to weight gain.

Objective – The aim of the study was to determine dietary fat oxidation in normal-, overweight and obese subjects.

Design – Subjects were 38 women and 18 men, age 30 ± 12 y, BMI 25 ± 4 (range 18-39) kg/m^2 . Dietary fat oxidation was measured with deuterated palmitic acid, dosed in a breakfast, while subjects were fed under controlled conditions in a respiration chamber. Body composition was measured with hydrodensitometry and deuterium dilution.

Outcomes – Dietary fat oxidation, as measured over 12 hours after breakfast, ranged from 4 to 28% with a mean value of $16 \pm 6\%$. Dietary fat oxidation was negatively related to % body fat, where lean subjects showed the highest and obese subjects the lowest values ($r = -0.65$, $p < 0.001$).

Conclusion – The observed reduction of dietary fat oxidation in subjects with a higher % body fat may play a role in human obesity.

Reference

Westerterp KR, Smeets A, Lejeune MP, Wouters-Adriaens MPE, Westerterp-Plantenga MS. Dietary fat oxidation as a function of body fat. *Am J Clin Nutr* 2008;87:132-135