Dietary fat oxidation as a function of body fat

KR Westerterp, A Smeets, MP Lejeune, MPE Wouters-Adriaens, MS Westerterp-Plantenga
Department of Human Biology, Maastricht University, Maastricht, The Netherlands

**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/m². 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±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**