

## **Interaction of fat availability and sex on postprandial satiety and cholecystinin after mixed-food meals.**

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### **Abstract:**

Background: Cholecystinin (CCK) is associated with fat-induced satiety. Objective: The primary objective of the present study was to determine, in an acute meal setting, whether the availability of dietary fat for alimentary processing, and hence the stimulation of CCK, affects the postmeal satiety response in men and women. Design: In a within-subjects design, subjects (8 men, 7 women) consumed 1 of 3 isoenergetic mixed-food test meals 1 wk apart in random order. The test meals contained 30% of energy from fat, of which more than two-thirds was derived from whole almonds, almond oil, or a mix of safflower and corn oils. Visual analogue scales were used to assess indexes of satiety at defined time points up to 6 h after meal consumption. Blood was sampled at corresponding time points for measurement of CCK, glucose, insulin, and triacylglycerol. Subsequent food intake was also assessed. Results: All meals suppressed hunger and induced a pattern of satiety that was sex-specific and corresponded with the CCK response. Women had higher plasma CCK concentrations and experienced greater satiety after the almond oil and control meals (fat as oil) than after the whole almond meal (fat in whole food structure). Men showed no differential response among meals for CCK and satiety. Plasma triacylglycerol differed by time among meals but not by sex, and no significant differences in glucose and insulin were found. Conclusions: The satiety response to dietary fat provided in oil or whole food form is influenced by sex and is dependent on the availability of fat to stimulate CCK release in women but not in men. *Am J Clin Nutr* 2004;80:1207-14.