Steroidhormone in der peripheren und zentralen Kontrolle des Essverhaltens bei Frauen

Projekt: 526

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In order to better understand the interactions between central and peripheral hormonal as well as non-hormonal regulatory mechanisms of female eating behavior, the project "Steroid hormones in the peripheral and central control of eating behavior in women" measured pre-ovulatory and mid-ovula-tory changes of the gastrointestinal satiety hormones CCK and GLP-1 after a test meal. Furthermore, in the same experimental situation, activation patterns of brain centers involved in food intake were determined by functional magnetic resonance imaging (fMRI) during food intake in the fasting as well as in the satiated state. In all measurements, results of a normal-weight group (N=32) were compared with results of an overweight group (N=34).

During a milkshake consumption task accompanied by fMRI conducted before and after an ad libitum meal, women with both high ad libitum consumption levels and high BMI reported greater experienced pleasantness for milkshakes. In contrast, among women with low ad libitum consumption levels, greater BMI was associated with less experienced pleasantness. At the neural level, satiety affected women with obesity to a lesser degree than women with healthy weight. Thus, having obesity was associated with altered relationships between food consumption and the hedonic responses to food rewards as well as reduced satiety effects in women.

The willingness to pay (WTP) test, which measured willingness to buy snacks, is higher in normal-weight women in the luteal phase than in the preovulatory phase, whereas in overweight women there is no difference between both cycle phases. Overall, sweet snacks were preferred compared to salty snacks, especially among overweight women. In both cycle phases, the WTP for sweet snacks was higher in normal-weight women. WTP for salty snacks was higher in the luteal phase in normal-weight women than in the preovulatory phase, whereas this effect was opposite with increasing BMI. Thus, different cycle-dependent food preferences are evident in normal-weight and overweight women.

In a next step, we are currently evaluating the results of the changes in satiety hormones. Here, very interesting results for the correlation between the body weight of the examined women, the individually chosen size of the test meal and the secretion patterns for glucagon-like peptide 1 (GLP-1) and cholecystokinin (CCK) are revealed. Statistical analysis has been performed and completion of this publication is expected in May 2021.

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