The appetite control in humans is regulated by a complex neural network, modulated by nutritional status and peripheral signals, using neurotransmitters and neuropeptides. Dopamine (DA) is both one of the main neurotransmitters involved in the sense of hunger and the main regulator of prolactin (PRL) secretion. Dopaminergic tone can be studied using DA-antagonist drugs. In order to explore the effects of different macronutrients on dopaminergic tone, we have tested a group of normal women (n= 15, 18-25 ys, body mass index (BMI) 20,6-24,96) and obese women (n=6, 20-30 ys, 25,BMI 22-47,22) with normal cycles, performing a test with metoclopramide (MCP, 10 mg p.o.) evaluating PRL and TSH response and correlating the results with anthropometric, metabolic and hormonal data in such patients together with parameters of dietary habits. The test was performed in early follicular phase. A basal sample for fT3, fT4, TSH, IGF-1, Androstenedione, Testosterone, DHEAS, SHBG, ACTH, Cortisol determination was also collected.

No significant difference was found in PRL or TSH response in patients divided by BMI or total caloric intake. It was significant instead considering different percentage of dietary lipids intake: the mean (±DS) peak PRL (ng/ml) was 273,2±90,8 in subjects assuming <25% lipids; 226,1±77,1 in 25-30% lipids; 167,9±71,2 in >30 % lipids (p<0,05). No other significant differences were observed dividing the patients by percentage of carbohydrate and proteins in their usual diet.

These preliminary data suggest that an increasing % of lipids in diet is accompanied by a significant decrease of PRL response to MCP and therefore a reduced dopaminergic tone, which could be responsible of less hunger sense. Further data could allow to understand the physiological implication of this observation, for both the regulation of appetite and the control of pituitary function.