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exon 1 might affect leptin levels in obese populations.

**Response of leptin levels to short term feeding and fasting in man, influence of circadian cycle.** M. Romon, P. Lobel, C. Le Fur, J.L. Edmé, B. Hecquet, J.C. Fruchart, J. Auwerx, J. Dallongeville (Inserm U 325, Institut Pasteur Lille, Service de nutrition CHU, 59045 Lille cedex, France).

**Introduction:** It has been suggested that leptin levels vary according to a nycthemeral cycle. We hypothesize that this variation could be due to a feeding/fasting cycle. We investigated whether fasting and acute feeding induced changes in circulating leptin levels in humans and whether these changes varied according to a nycthemeral cycle. meal.

**Methods:** Thirteen healthy subjects (BMI  $22.3 \pm 1.7$  kg/m<sup>2</sup>) were given either a mixed meal ( $4.6 \pm 0.2$  MJ) or remained fasting at night or during the day. Six hours before the beginning of each session, either fed or fasted, they were given the same light meal ( $2.3 \pm 0.8$  MJ). Blood samples were drawn at baseline and hourly for 8 h. Leptin response was calculated as the sum of the differences between baseline levels and hourly responses. Comparisons were made by a two-way analyses of variance with repeated measures, followed by the Dunnett test.

**Results:** Serum leptin levels increased after the test-meal ( $+41.8 \pm 38\%$ ;  $P < 0.03$ ) and decreased in the fasting state ( $-29 \pm 15\%$ ;  $P < 0.05$ ). There were no statistically significant differences in the leptin responses to the test meal between the night and day sessions ( $40 \pm 22$  versus  $41.8 \pm 38\%$ ) or to fast ( $-22 \pm 11$  versus  $-29 \pm 15\%$ ).

**In conclusion,** in non-obese subjects, serum leptin levels increased following food intake. This effect was not influenced by nycthemeral cycle.

**Photoperiod and nutritional status modulate the expression of the gene encoding leptin in ovine perirenal adipose tissue.** M. Bonnet<sup>a</sup>, Y. Faulconnier<sup>a</sup>, F. Bocquier<sup>a</sup>, P. Martin<sup>b</sup>, Y. Chilliard<sup>a</sup> (<sup>a</sup>Laboratoire sous-nutrition des ruminants, Inra, 63122 Saint-Genès-Champanelle; <sup>b</sup>Laboratoire génétique biochimique et cytogénétique, Inra, 78350 Jouy-en-Josas, France).

Leptin, a protein secreted by adipocytes, plays a major role in the regulation of food intake as well as adiposity in rodents and, in addition, modulates their reproductive cycle. Among livestock animals, sheep are one of the more sensitive to photoperiod, which effects both their reproductive cycles as well as their food intake. It was therefore decided to study the respective effects of photoperiod and nutritional status on the expression of the gene encoding leptin in ovine adipose tissue. The experiment was conducted on four groups of five adult, dry, ovariectomized ewes, that were subjected either to a short (S; 8 h/d light) or to a long (L; 16 h/d light) photoperiod, for 3 weeks. Then, all the ewes were underfed (U) to 25 % of their maintenance energy requirements (MER) for 7 days, and half of them were slaughtered (groups S-U and L-U), while the remaining were refed (R) for 14 days at 200 % of MER (groups S-R and L-R). Leptin mRNA level was estimated semi-quantitatively by RT-PCR, and simultaneously the level of cyclophilin transcript was determined as an internal control, because the relevant gene appeared to be invariably expressed. After 28 or 40 cycles of amplification with primers specific to cyclophilin or leptin, respectively, the PCR products were fractionated and visualized on an agarose gel (3 %) stained by ethidium bromide. The leptin signal was increased both by photoperiod ( $+65\%$ ;  $P < 0.03$ ) and refeeding ( $+44\%$ ;  $P < 0.10$ ) and the effects of these two factors were additive (0.89, 1.86, 1.64 and 2.33 in