SESSION 25

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Nutritional and neuroendocrinological involvement in the control of luteinizing hormone secretion of Mediterranean goat females during the seasonal anoestrus

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INTRODUCTION

- Mediterranean female goats show a clear seasonality of their reproductive activity. This seasonality is controlled by photoperiod, but is strongly affected by certain factors, such as level of nutrition and neuroendocrinological systems.
- There are very few studies on the role of the different neuroendocrinological mechanisms in the seasonal variations of the reproductive activity of female goats.

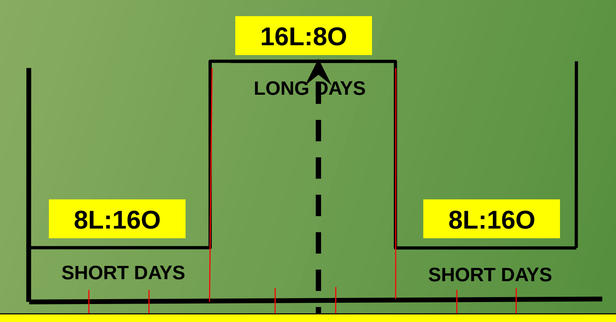
AIMS

- Determine the role of different neuroendocrinological systems (opioidergic, dopaminergic, and serotonergic systems) in the control of LH secretion and whether such role could be modified by nutrition in Mediterranean goat females during the deep seasonal anoestrus.

MATERIAL AND METHODS

18 females goats ovariectomized bearing a subcutaneous estradiol implant (OVX+E). Balanced according live weight and body condition score

- n=9 → Control nutrition group (C group): 1 time maintenance requirements
- n=9 → Low nutrition group (L group): 0.7 maintenance requirements



Three-month alternations of short days (8L:16O) and long days (16L:8O), to stimulate or inhibit LH secretion.

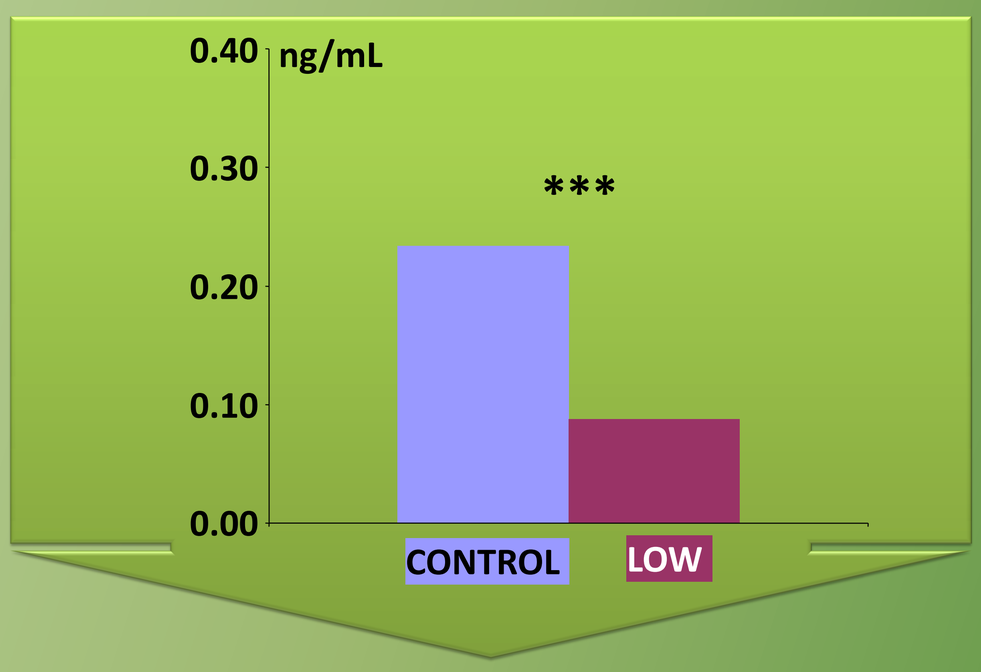
TREATMENTS DURING THE DEEP SEASONAL ANOESTRUS

- **NALOXONE** — Opiate receptor antagonist
- **CYPROHEPTADINE** — Serotonergic ($5\text{-}HT_2/5\text{-}HT_{1C}$ receptor antagonist
- **PIMOZIDE** — Dopaminergic D_2 receptor antagonist

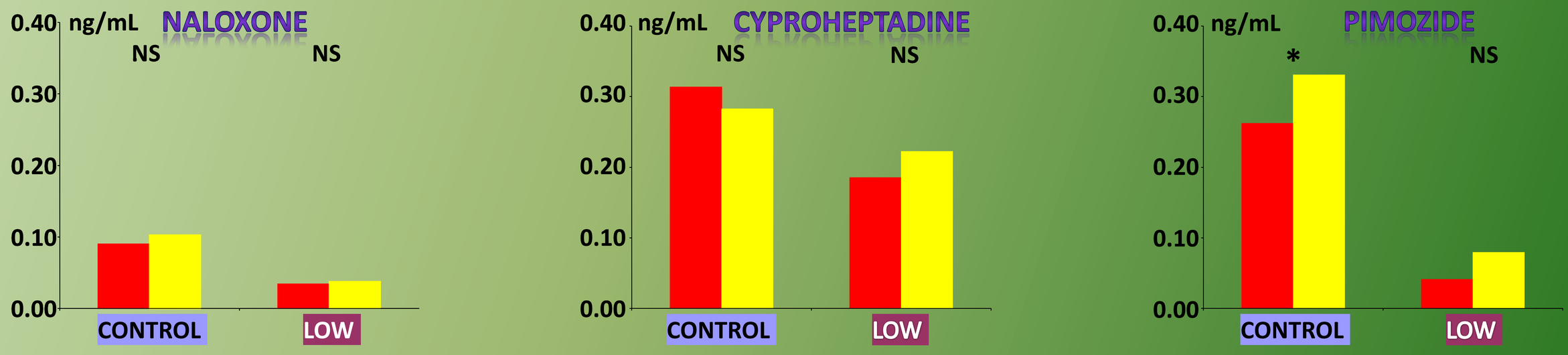
6 hours of yugular blood sampling at 10 mins intervals → LH concentrations before and after treatment.

3 h (vehicle) + 3 h (treatment)

RESULTS



A clear effect of level of nutrition was observed on mean LH concentrations before injection of the different antagonist used (0.23 ng/mL vs 0.09 ng/mL, respectively, P<0.001).



NS, no significant.; * P<0.05; ** P<0.01; *** P<0.001

In comparison with the pre-injection period, PIMOZIDE significantly increased the mean LH concentrations in the C group.

CONCLUSIONS

Results provide evidence that opioidergic or serotonergic systems seems to be not involved in the inhibition of LH secretion during the deep seasonal anoestrous, however the ability of pimozide to increase LH concentrations during the deep anoestrus in the control group indicates that the inhibitory effect on LH secretion of the dopaminergic system could be reduced by a higher plane of nutrition in Mediterranean goat females.

ACKNOWLEDGEMENTS

This work was supported by Grant AGL2006-01426 from C.I.C.Y.T. (Spain).