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## JOURNAL ARTICLE

# Normal gonadal functions and fertility after 23 months of treatment of prepubertal male and female dogs with the GnRh agonist [D-Trp6, des-Gly-NH2(10)]GnRH ethyl amide

D. Lacoste, D. Dube, C. Trudel, A. Belanger and F. Labrie  
MRC Group in Molecular Endocrinology, Laval University Medical Centre, Quebec, Canada.

The GnRH agonist [D-Trp6, des-Gly-NH2(10)]GnRH ethyl amide was administered to prepubertal male and female dogs daily for 23 months by subcutaneous injection. During GnRH agonist treatment, plasma steroid levels, namely dehydroepiandrosterone, androst-5-ene-3 beta-17 beta-diol, androstenedione, testosterone, dihydrotestosterone, 5 alpha-androstane-3 alpha, 17 beta-diol, 5 alpha-androstane, 3 beta, 17 beta-diol were markedly inhibited in male animals, whereas in female animals, the plasma concentration of DHEA and delta 5-diol were decreased. Within 2 months following cessation of therapy, all steroids increased to normal adult levels. Morphological studies reveal that treatment of male animals with the GnRH agonist is accompanied by a small volume of seminiferous tubules, Leydig cells, and prostate gland, whereas in the ovaries of female animals, there is a large number of primordial follicles, a few primary follicles, but no secondary follicles. In the pituitary gland of animals of both sexes, LH-secreting cells have high levels of glycogen particles in their cytoplasm and tend to be either of normal appearance with dilated rough endoplasmic reticulum (RER) or strongly atrophied with a dark-stained cytoplasm, a contraction of RER, and a decrease in the number of secretory granules. Reticular cells of the connective tissue also show high levels of glycogen particles. After the 14 month recovery period, spermatogenesis has a normal adult appearance, the prostate gland shows a normal secretory epithelium, and secondary follicles are easily observed in the ovary. Gonadotrophs are free of glycogen accumulation, but reticular cells continue to show an accumulation of glycogen particles in their cytoplasm. Two male and two female animals were mated after the recovery period and produced normal offspring with normal fertility. The present results indicate that GnRH agonist treatment achieves a blockade of sexual maturation and that following cessation of treatment, normal pituitary-gonadal functions resume, with apparently normal fertility and normal offspring.

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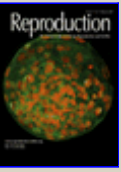
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