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JOURNAL ARTICLE

Evidence that estrogen regulation of testosterone secretion in adult rams is mediated by both indirect (gonadotropin dependent) and direct (gonadotropin independent) means

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Involvement of endogenous estrogen in the regulation of gonadotropin and testosterone secretion was investigated in adult rams. Groups of four rams were either passively immunized against estradiol or treated with the antiestrogen tamoxifen for 2 weeks during the breeding season (October). Circulating testosterone levels in immunized rams increased eight-fold to supraphysiologic values as episodic elevations and baseline levels increased in magnitude; only moderate increases in LH peak frequency and magnitude occurred, and prolactin fell to undetectable levels. Tamoxifen treatment was not associated with changes in mean hormone levels, although there was a tendency toward reductions in the magnitude of episodic LH and testosterone secretion. When rams were challenged with exogenous GnRH and LH, a greater testicular endocrine response was observed in the immunized rams and the pituitary endocrine response was delayed in the tamoxifen-treated rams. Results indicate that in the ram 1) circulating levels of estradiol provide negative feedback signals of different intensities to the testis and the hypothalamic-pituitary axis and 2) tamoxifen exerts a mild estrogenic effect when administered at the dose of 25 mg/day.

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