

Journal of Andrology, Vol 13, Issue 3 199-207, Copyright © 1992 by The American Society of Andrology

JOURNAL ARTICLE

An investigation of the requirement for increased LH secretion during the compensatory response in androgen secretion after unilateral castration of the adult rat

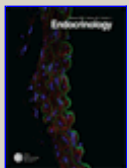
W. J. Debertin and D. K. Pomerantz

Department of Physiology, University Western Ontario, London, Canada.

The endocrine mechanisms underlying the response to unilateral castration were examined by determining systemic androgen and luteinizing hormone (LH) concentrations, as well as testicular vein androgen at 3, 6, 12, and 24 hours after sham surgery and castration.

Systemic androgen was significantly depressed 3 hours after unilateral castration, but had recovered to concentrations observed in sham operated rats at 6, 12, and 24 hours. The recovery of serum androgen after castration was apparently due to increased testicular secretion of androgen, seen as a significant increase in testicular vein androgen. Systemic concentrations of bioactive and immunoactive LH were significantly increased only at 6 hours after castration. The authors next examined whether the increase in LH was necessary for the compensatory secretion of androgen seen after castration. This was accomplished by examining the response to castration when circulating LH was prevented from changing by suppressing endogenous LH secretion with subcutaneous steroid implants and maintaining circulating LH with subcutaneous osmotic pumps containing ovine LH. The compensatory increase in testicular vein androgen was observed 1 and 7 days after castration in rats bearing sham implants. When circulating LH was prevented from changing by using the combination of steroids and LH, however, compensatory secretion of androgen did not occur 1 and 7 days after castration. (ABSTRACT TRUNCATED AT 250 WORDS)

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