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Biological Sciences

Thesis Defence

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Testosterone's regulation of the HPA axis differs for adolescent and adult male rats

**Welcome To This Video
Conference Thesis Defence**

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Time of Defence: 11:00

Room for Defence: MC H313

Testosterone (T) typically dampens, and estradiol enhances, hypothalamic-pituitary-adrenal (HPA) responses to stressors, yet post-pubertal adolescents hypersecrete corticosterone (CORT) relative to adults after a stressor despite equivalent T concentrations (Green et al., 2016). In Experiment 1, adolescent (postnatal day [P] 45) gonadectomised (GDX) rats had heightened corticosterone (CORT) release when given T, whereas adult GDX rats had dampened. In Experiment 2 GDX rats were given T, dihydrotestosterone (DHT), or control (CTL) implants; plasma was obtained after 30min restraint. Although no significant differences were obtained for CORT, means were consistent with previous findings. T and DHT-treated rats had lower plasma progesterone after stress than did CTL, and P75 had lower progesterone than did P35 and P45. DHT and T-treated rats had lower vasopressin-, CRH-, and aromatase- immunoreactive cell counts in the parvo-paraventricular nucleus than did CTL, irrespective of age. Experiment 3: unoperated P45 and P75 rats were given fadrozole (FA; aromatase inhibitor), finasteride (FI, 5 α -reductase inhibitor), flutamide (FL, androgen receptor antagonist), or vehicle (VEH). Higher CORT after restraint was found in P45 than in P75 only among VEH. Among P45, CORT was less in FA than in VEH, FI, and FL. Among P75, VEH had lower CORT than did FI, and FA had lower CORT than FI and FL. The higher stress release of CORT in P45 may involve greater conversion of testosterone to estradiol at the level of the adrenal.

Examination Committee

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- **Dr. Cheryl McCormick, Supervisor**
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