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JOURNAL ARTICLE

Pituitary-testicular axis in cardiomyopathic Syrian hamsters

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Testicular function and other endocrine parameters were studied in cardiomyopathic hamsters. In these animals, the major defect is an intracellular calcium overload, which is due to defective voltage-sensitive calcium channels. Basal circulating gonadotropin, prolactin, and triiodothyronine levels were lower in cardiomyopathic hamsters than in normal hamsters, but thyroxine, progesterone, and testosterone levels were not. In cardiomyopathic hamsters, the luteinizing hormone receptor (LHR) positive autoregulation by human chorionic gonadotropin (hCG) reached a maximum faster and at a lower dose than in normal hamsters. Similar results were observed for the response of circulating testosterone to hCG administration. The data indicate that, in spite of deficient pituitary function, cardiomyopathic hamsters have a normal or more efficient testicular function. This is probably the result of the cellular calcium overload, which would stimulate Leydig cell gene transcription, specifically that for LHR.