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CORTISOL AND EXHAUSTIVE RUNNING TIMES OF DOGS AND RATS. L.A. Santoro*, M.A. Kilmore*, K. Cheever* and L.M. Breslouf* (spon: H.F. Chase). Nutr. Br., Food Div., U.S. Army Natick Labs., Natick, Mass.

Others have shown that adrenal corticoids can prolong the exhaustion point of an electrically stimulated rat muscle. However, the effect of these steroids on the duration of muscular work during voluntary stimulation have not been investigated. To further study the action of corticoids on muscular exhaustion, treadmill experiments were performed on male beagle dogs. A group of three dogs was given orally 10 mg of cortisol/kg body weight, while another group of three dogs served as controls. All dogs receiving cortisol had increased exhaustive running times compared to previous runs, while the controls were virtually unchanged. The only significant change observed to account for the prolonged running of the cortisol group was a lowering of the exhaustive rectal temperature. Additional treadmill experiments were performed on adrenalectomized rats given 0.1, 1.0, and 5.0 mg of cortisol or cortisone daily. Only the rats receiving the largest dosage of cortisol and cortisone produced exhaustive running times comparable to, or better than, a sham-operated group. In the animals given 0.1 mg daily, weight gain was comparable to the sham-operated group, but running ability was no greater than that of adrenalectomized animals receiving only saline.

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