The Effect of Circulating ACTH and Insulin Hormones on Equine Temperament

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This study analyzed the effects of circulating adrenocorticotropic (ACTH) and insulin hormones on equine temperament as measured by a specially-developed temperament questionnaire. Given the established role of endocrine hormones on growth, metabolism, and response to stressful stimuli, it was hypothesized that ACTH and insulin levels in the blood correlate with cognitive adaptability, reactivity, and sociability “temperament indicators” as created from questionnaire responses. These indicators were composed from 30 scaled, situational survey questions asked of 12 horse owners and 1 unbiased horse handler. Equine temperament was classified as high, medium, or low for each indicator based on composite results from the study cohort (n = 12 horses). Each temperament indicator correlation with ACTH and insulin blood levels (measured twice over 2 weeks) was analyzed with ANOVA tests. There was one notable finding - a statistically significant positive correlation between ACTH and the ‘high reactivity’ temperament indicator ($p = 0.0025$). Knowing the effects of ACTH on reactivity can inform equestrians on the causes for temperament extremes in their horses and potentially aid in diagnosing early-stage Cushing’s Disease, a common equine endocrine dysfunction involving elevated ACTH.

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