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The role of basal hormone levels in the physiological response to stress

Abstract:

Stress reactivity can be classified as the set of patterns of cognitive, emotional, and behavioral responses to a threat. Individuals vary in the way that they respond to a particular stressor and some of these differences may be due to variance in basal levels of hormones. In order to gain a greater understanding of such individual differences, my research investigated the interactions of androgens with the stress response. My main hypothesis is that baseline levels of testosterone will have an inhibitory effect on cortisol production in response to an acute stressor. Specifically, individuals with high levels of basal testosterone are expected to produce lower levels of cortisol as a sign of greater control of emotional responses provided by testosterone.

I utilized the Trier Social Stress Task (TSST) to shed light on the moderating role of testosterone on the cortisol stress response. My research team and I recruited 12 young adults with at least moderate levels of anxiety. Participants completed a 2-hour session, during which their stress reactivity to the TSST was assessed using physiological measures including heart rate and blood pressure. Salivary samples were timed to observe hormones (testosterone and cortisol) before, during, and after the TSST (3 samples per participant). This design allowed us to assess the course of the cortisol and testosterone in response to an acute stressor. Evidence that testosterone affects the stress response could be of great clinical utility, especially for women that need to make decisions on whether to utilize an androgen supplement in their hormone replacement therapy.

Statistical analyses will be preformed to see if there is any significant relationship between pre-stress testosterone levels and cortisol levels during the stress tasks.