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DHEA-S AND CORTISOL RESPONSES TO STRESS AND CAFFEINE IN HEALTHY YOUNG MEN: IS DHEA-S A RELIABLE MARKER FOR STRESS?

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Dehydroepiandrosterone (DHEA) and its non active sulfate form (DHEA-S) are the most widely circulating steroids in the human body. DHEA-S appears to have many positive effects on health and cognition, though this area of investigation is relatively new. The majority of reports regarding DHEA-S have focused on diseased (e.g., chronic fatigue syndrome, Alzheimer's) and specific age populations (e.g., the very young or the very old). DHEA-S shares many characteristics with the more common stress hormone, cortisol, yet the effects of stress on DHEA-S are relatively unknown. Therefore, the present study examined DHEA-S and cortisol responses to stress and caffeine (a known sympathomimetic) in 45 healthy men aged 18-30 yrs. Participants completed a 2.5 hr lab session that began at 1 PM and consisted of a baseline (pre-stress, pre-caffeine) saliva sample, a 20-min math serial subtraction stressor, and a post-stress saliva sample. Participants received one of 3 caffeine doses (0 mg, 200 mg, or 400 mg) 20-min before the stressor. Saliva was collected via Salivette and samples were frozen for later DHEA-S and cortisol assessment by enzyme immunoassay (DSL, Webster TX). Stress resulted in a 40% decrease in DHEA-S levels regardless of caffeine group ($P < 0.05$). Cortisol levels increased in response to stress ($P < 0.05$), but the effects were less consistent across individuals than that observed for DHEA-S. Cortisol also increased in response to caffeine in a dose-dependent manner ($P < 0.05$). Cortisol has been the primary hormone for assessing stress responses in laboratory settings. The present results suggest that DHEA-S could be an important additional measure for evaluating stable stress effects in young healthy adults.

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