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The effects of Eleutherococcus senticosus and Panax ginseng on steroidal hormone indices of stress and lymphocyte subset numbers in endurance athletes

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Abstract

A clinical trial was undertaken to investigate the effects of Eleutherococcus senticosus (ES) and Panax ginseng (PG) on competitive club-level endurance athletes engaged in their normal in-season training. Participants were matched for training stress and received a 33% ethanolic extract (8 mL/day) containing either ES, PG (equivalent to 4 g and 2 g/day of dried root, respectively), or a placebo. A pre-test and post-test were used to evaluate the effects of six weeks of supplementation on cortisol, testosterone, and testosterone to cortisol ratio (TCR) as well as circulating numbers of total T-cells, T-helper cells (CD4), T-suppressor cells (CD8), CD4 to CD8 ratio, natural killer cells, and B lymphocytes. None of the immune system variables changed significantly nor showed any clear trend from pre to post test in any of the treatment groups. No significant change in testosterone, cortisol or TCR was observed in the PG group. In the ES group, however, TCR decreased by 28.7% from 0.0464 to 0.0331 (P=0.03). The main contribution to this decrease appeared to be a non-significant (P= 0.07) 31% trend towards increased cortisol rather than a very small non-significant (P = 0.36) 7% decrease in the calculated mean for testosterone. This result suggested that contrary to initial expectation, ES increased rather than decreased hormonal indices of stress, which may be consistent with animal research suggesting a threshold of stress below which ES increases the stress response and above which ES decreases the stress response.

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