

Effect of *Eurycoma longifolia* Extract on Anabolic Balance During Endurance Exercise

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Background

Eurycoma longifolia, commonly known as “Tongkat Ali” or “Longjack,” is often touted as a testosterone “booster” and marketed to athletes as a training aid and performance enhancer. Rodent studies have shown oral delivery of *Eurycoma* extract to improve sexual performance and increase serum testosterone levels. Open-label human trials have suggested that *Eurycoma* extract may help prevent age-associated androgen deficiency, improve sexual function, and increase psychological parameters such as mood, energy, and sense of well-being.

Purpose

The purpose of this study was to determine the effects of *Eurycoma longifolia* on testosterone and cortisol levels during intense endurance exercise.

Methods

We used a water-soluble extract of *Eurycoma longifolia* (E) standardized to 22% eurypeptides and 40% glycosaponins. Male subjects (N=30) were recruited from a 24-hour mountain biking event and asked to provide a saliva sample before and after each lap for measurement of cortisol and testosterone by enzyme immunoassay (Salimetrics, State College, PA). Subjects completed 4 laps (14.91 miles/lap) and provided 8 saliva samples over a 24h period. Subjects consumed 100mg of E (N = 15) or a look-alike placebo (P, N = 15) approximately 30 minutes prior to endurance exercise.

Results

Cortisol levels were 32.3% lower in E compared to P (0.552 ± 0.665 versus 0.816 ± 0.775 ug/dL, $P < 0.05$). Testosterone levels were 16.4% higher in E compared to P (86.72 ± 40.90 versus 72.47 ± 33.77 pg/mL, $P < 0.05$).

Conclusions

These results suggest that *Eurycoma longifolia* extract may help to maintain normal levels of cortisol (low) and testosterone (high) and thus promote an overall “anabolic” hormonal state (versus a “catabolic” state characterized by elevated cortisol and suppressed testosterone) during intense endurance exercise.