

# 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 ( $0.552 \pm 0.665$  versus  $0.816 \pm 0.775$  ug/dL,  $P < 0.05$ ). Testosterone levels were 16.4% higher in E compared to P ( $86.72 \pm 40.90$  versus  $72.47 \pm 33.77$  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.