

energy expenditure (64.6 ± 14 kJ vs 46.3 ± 7.1 kJ, $p = 0.007$) as compared to women but similar slow O₂ components (men, 23.1 ± 6.2 kJ; women, 16.1 ± 13.9 kJ) ($p = 0.21$). Excess post-exercise oxygen consumption (EPOC) also was higher for men (105.8 ± 22.9 kJ vs 72.8 ± 22.2 kJ, $p = 0.02$). These findings were expected as men exercised at a higher absolute 6-min workload as compared to the women (203.1 ± 23.0 vs 145.0 ± 33.6 Watts; $p = 0.001$). However, from a relative standpoint, anaerobic exercise energy expenditure was similar for men ($17.5\% \pm 3.9$) and women ($18.2\% \pm 4.5$) ($p = 0.77$) as was aerobic exercise energy expenditure for men ($82.5\% \pm 3.9$) and women ($81.9\% \pm 4.5$) ($p = 0.77$). When EPOC was added to exercise energy expenditure, there also were no relative differences with anaerobic contributions to total energy expenditure between men ($11.9\% \pm 2.3$) and women ($12.0\% \pm 2.6$) ($p = 0.95$) and for total aerobic energy expenditure between men ($88.2\% \pm 2.3$) and women ($88.0\% \pm 2.6$) ($p = 0.91$). We conclude that relative differences in aerobic and anaerobic energy expenditure between men and women of comparable aerobic fitness are not apparent for a heavy to severe six-minute bout of steady-state exercise.

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Talbott S, Talbott J, Negrete J, Jones M, Nichols M, and Roza J. **Effect of *Eurycoma longifolia* extract on anabolic balance during endurance exercise.** SupplementWatch, Inc. Draper, UT, 84020 USA and Source One Global Partners, Chicago, IL 60611 USA. smtalbott@supplementwatch.com

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 sexu-

al function, and increase psychological parameters such as mood, energy, and sense of well-being. The purpose of this study was to determine the effects of *Eurycoma longifolia* on testosterone and cortisol levels during intense endurance exercise. 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 four laps (14.91 miles/lap) and provided eight saliva samples over a 24-hour period. Subjects consumed 100mg of E (N = 15) or a look-alike placebo (P, N = 15) approximately 30 minutes prior to endurance exercise. 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, $P < 0.05$). 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.

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Talbott S, Talbott J, Negrete J, Jones M, and Nichols M. **Effect of branched chain amino acids on salivary cortisol levels during endurance exercise.** SupplementWatch, Inc. Draper, UT, 84020 USA. smtalbott@supplementwatch.com

Branched Chain Amino Acids (BCAAs) are often used as dietary aids by endurance athletes for the purposes of delaying fatigue, improving endurance, and promoting post-exercise recovery. Efficacious doses of BCAAs, as reported in the scientific literature, are typically in excess of 10g, yet few com-