

007 THE ERGOGENIC EFFECTS OF EURYCOMA LONGIFOLIA JACK: A PILOT STUDY

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Eurycoma longifolia Jack (ELJ), which contains quassinoids such as eurycomalacton, eurycomanon, and eurycomanol, has been reported to have aphrodisiac properties and to increase testosterone levels in men.¹ Previous studies have established that the testosterone supplementation increases fat free mass, muscle strength, and muscle mass, which are important for physical function and athletic performance.^{2,3} Thus, the objective of this study was to investigate the effect of the increase in testosterone levels, obtained by administration of ELJ, on body composition and muscle strength and size in men.

Fourteen healthy men performed an intense strength training program with initial load of 60% RM (2 sets of 10 repetitions with 1 minute rest between, for 10 stations) on alternate days for five weeks. Simultaneously, seven men were randomly selected to consume 100 mg/day ELJ water soluble extract, and seven men received a placebo. The intensity of the exercise was increased by 10% RM/week. Body composition, arm circumference, one repetition maximum (1 RM), and surface electromyography (sEMG) activity were measured and recorded one day before and after the five weeks of supplementation and intervention.

The lean body mass of the treatment group showed a significant increment, from 52.26 (7.18) kg to 54.39 (7.43) kg ($p = 0.012$), but no significant changes in fat free mass were observed in the placebo group. Percentage body fat was significantly decreased in the treatment and placebo group, from 31.30 (5.48)% to 28.44 (6.43)% ($p = 0.01$) and from 22.83 (2.43)% to 21.33 (2.35)% ($p = 0.001$) respectively. The 1RM test showed a significant increase from 73.71 (16.63) to 78.71 (17.0) kg ($p = 0.006$) in the treatment group and from 77.29 (8.9) to 79.43 (8.8) kg ($p = 0.011$) in the placebo group. The increase in strength in the treatment group was larger than in the placebo group (6.78% and 2.77% respectively).

The mean frequency of sEMG on the biceps in the treatment and placebo groups decreased significantly, from 121.77 (40.0) to 90.47 (64.6) μV ($p = 0.012$) and from 127.95 (30.9) to 98.8 (50.1) μV ($p = 0.036$) respectively. The treatment produced 2.92% greater reduction in electrical activity of the muscle measured at the end of the experiment compared with placebo. The mean arm circumference of the treatment group increased significantly by 1.8 cm after the supplementation, from 30.87 (1.88) to 32.67 (1.96) cm ($p = 0.011$), but there was no significant increase in the placebo group. The results suggest that water soluble extract of Eurycoma longifolia Jack increased fat free mass, reduced body fat, and increased muscle strength and size.