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The Effects of a Circuit Training Program on Muscle Strength, Agility, Anaerobic Performance and Cardiovascular Endurance

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Abstract : This study aimed to examine the effects of a circuit training program on muscle strength, agility, anaerobic performance and cardiovascular endurance. The study involved 24 freshmen (age 18.87<u>+</u>0.68 yr.) male students of the Faculty of Sport Science, Burapha University. They sample study were randomly divided into two groups: Circuit Training group (CT; n=12) and a Control group (C; n=12). Baseline data on height, weight, muscle strength (hand grip dynamometer and leg strength dynamometer), agility (agility T-Test), and anaerobic performance (Running-based Anaerobic Sprint Test) and cardiovascular endurance (20 m Endurance Shuttle Run Test) were collected. The circuit training program included one circuit of eight stations of 30/60 seconds of work/rest interval with two cycles in Week 1-4, and 60/90 seconds of work/rest interval with three cycles in Week 5-8, performed three times per week. Data were analyzed using paired t-tests and independent sample t-test. Statistically significance level was set at 0.05. The results show that after 8 weeks of a training program, muscle strength, agility, anaerobic capacity and cardiovascular endurance increased significantly in the CT Group ($p < 0.05$), while significant increase was not observed in the C Group ($p < 0.05$). The results of this study suggest that the circuit training program improved muscle strength, agility, anaerobic capacity and cardiovascular endurance of the study subjects. This program may be used as a guideline for selecting a set of exercise to improve physical fitness.

Keywords : circuit training, physical fitness, cardiovascular endurance, anaerobic performance
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