THE EFFECT OF ROPE JUMP EXERCISE TRAINING ON LOWER AND UPPER BODY EXPLOSIVE POWER IN OBESE ADOLESCENT BOYS

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Introduction: Rope-jump exercise can be used to develop the coordination of neuромuscular skills, muscular strength, and cardiovascular endurance. Rope jumping burns calories and builds strength in the upper and lower body (1). The effects of rope jump exercise on upper and lower extremity explosive power have not been researched very well. Therefore, the aim of this study was to assess the effects of rope jump exercise training on explosive power in obese participants.

Methodology: Twenty obese untrained adolescent boys (age 13.40±1.09 years, body max index 27.12±2.19 kg/m²) were divided equally into control and exercise groups. Subjects in exercise group performed rope jump exercise training for 8 weeks, 3 days per week. Upper and lower body explosive powers were determined using medicine ball chest throw (MBCT) and countermovement jump (CMJ), respectively. Significant level was set at P<0.05.

Results: Post-exercise CMJ height (22±3.88 cm) was significantly higher in the rope jump exercise group than pre-exercise (19.67±3.58 cm) (P=0.005). However, there were no significant differences in CMJ power (1994±468.76 and 2036±469 watts for pre and post exercise, respectively) (P=0.386) and distance of MBCT (3.39±0.35 and 3.48±0.47m for pre and post exercise, respectively) (P = 0.278) in the rope jump exercise group. In addition, there were no significant differences in CMJ height (21.80±3.96 and 21.15±3 cm for pre and post stage, respectively) (p=0.169), CMJ power (2328±557.57 and 2300±533.95 watts for pre and post exercise, respectively) (P=0.175) and distance of MBCT (3.58±0.44 and 3.60±0.42 m for pre and post exercise, respectively) (P = 0.581) in the control group. Furthermore, no significant differences were observed in CMJ height (P=0.591), CMJ power (P=0.257) and distance of MBCT (P=0.573) between groups after intervention.

Discussion and conclusion: It has been reported that leg strength increased following 10 weeks of rope jump exercise training in 10-12 year old boys (2). Moreover, rope jump exercise training resulted in maximal speed during eccentric contraction in volleyball players than weighted rope jump training (1). Hence, part of the observed increase in lower body explosive power of the present study can be due to the cumulative effects of this type exercise training on speed and strength of muscle contraction. Collectively, rope jump exercise training increases lower body explosive power in obese adolescent boys.

Keywords: Rope jump exercise training, Explosive power, Countermovement jump, Medicine ball chest throw, Adolescent, Obese, Boy.

References