Abstract

Background: Previous studies have shown that preloading an antagonist muscle may increase the acute agonist neuromuscular performance. In addition, studies have suggested that very short-term resistance exercise (RE) programs may also be useful to increase strength and muscular performance. Objectives: To evaluate the effects of three days of RE using a reciprocal action method on the muscular performance of healthy men and to compare these effects with those of a traditional RE group. Method: Thirty-three men (21.1 ± 2.3 years) were randomly assigned to one of three groups: 1) reciprocal (REC; knee flexion immediately followed by a knee extension exercise); 2) traditional (TRA; nonpreload; a concentric knee extension exercise); and 3) control (CON; no exercise). The REC and TRA subjects performed four sets of 10 repetitions at 60°/s with one minute of rest. The pre- and post-RE tests included two sets of four maximal concentric repetitions at 60°/s and 180°/s. A 3x2 ANOVA with Tukey post-hoc was used to analyze the differences in peak torque (PT), rating of acceleration development (RAD) and time to peak torque (TIMEtorque). Results: A significant PT increase was found for REC and TRA (p<0.05) at 60°/s and for REC at 180°/s (p<0.05). There was a decrease in the RAD for REC and TRA (p<0.05), and TIMEtorque showed a significant decrease for REC. The inter-group analysis revealed that REC is more effective than TRA for PT gains at both velocities (p<0.05). Conclusion: It is recommended that REC offers benefits for the clinical practice of professionals involved in neuromuscular rehabilitation.

Keywords

Muscle strength, rehabilitation, knee, resistance training.