

Cross transfer effect of unilateral quadriceps muscle exercises on contralateral limb

Abstract :

Introduction: Muscle weakness and atrophy due to immobilization and disuse are most common problems that clinicians specially physiotherapists encounter with them. There are many approaches for overcoming these problems, the more interesting of them is cross transfer effect of uninvolved limb exercises.

The aim of this study was to investigate the bilateral effect or cross transfer effect of unilateral quadriceps exercises in terms of strength, endurance and electromyographic activities on contralateral homologue muscle.

Materials & Methods: 46 healthy male student (22.5 yrs, SE =4.5) participated in this study, 23 of them were in experimental group who undergone 3 weeks of strengthening exercises, and 23 control group continued their usual life. Variables including MVC, (Maximal Voluntary Contraction), END (Endurance), IEMG (Integrated Electromyography) were measured before and after 3 wks in all subject

Findings: Data analysis (Paired T Test) revealed that in experimental group all variables of both trained and nontrained quadriceps muscles had been significantly changed ($P < 0.001$)

conclusion: Having no change in control group, these findings approve cross transfer effect of unilateral exercise on homologue muscle. Since changes were same in both trained and contralateral nontrained limbs, so the most probable mechanism of this phenomena in neural adaptation and magic CNS interaction to establish symmetry and equilibrium in the body.

Shakeri H. (M.Sc.)

Abdollahi I. (M.Sc.)

Majdoleslami B. (M.Sc.)

Key Words : Cross transfer / Exercise therapy / Strength / Endurance

VF