Electromyographic activity of elderly vastus lateralis oblique muscle submitted to periodized resistance training #48

Cláudio de Oliveira Assumpção[1,5,7], João Bartholomeu Neto[1,6], Christiano Bertoldo Urtado[1,5], Sérgio H. Borin[2], Sandra Regina Bunho[3], Jonato Prestes[4], Guilherme Borges Pereira[4], Ídico L. Pellegrinotti[1].

[1]Methodist University of Piracicaba-Masters Course in Physical Education; [2]Masters course in Physiotherapy; [3]Physioterapist of the Rehabilitation Center of the Municipal Prefecture of Rio das Pedras-SP, Brazil; [4]Physiological Sciences Department, Exercise Physiology Laboratory, Federal University of São Carlos, São Paulo, Brazil; [5]Integration Faculty of Tietê-SP, Brazil; [6]University Center of UNIRG, Tocantis-TO, Brazil; [7]Anhanguera University Center– UNIFIAN – Leme-SP, Brazil.
E-mail: coassumpcao@yahoo.com.br

Resistance training (RT) is recommended for elderly with the objective to increase muscle strength and power trough neuromuscular adaptations, inducing increased motor and functional capacities. The electromyography (EMG) is an important instrument to analyze muscle function after diverse exercise training protocols. The objective of the present study was to analyze electromyographic activity of vastus lateralis oblique muscle (VLO) during maximal voluntary isometric contraction of elderly women submitted to 12 weeks of periodized RT. 16 women aged 65.5±3.6 years with a minimum of one year of previous experience in strength training were selected, they performed 24 sessions of RT divided in 3 mesocycles (MA, MB and MC), of 8 sessions each, with a session frequency of twice a week. The MA with light intensity, the MB moderate and the MC with high intensity. Training intensity was measured by the Borg perception scale. For statistical analysis a $p<0.05$ was assumed. There was a significant increase in root mean square (RMS) at 90º of knee flexion after 12 weeks (T2) compared with T1 (baseline), measured by VLO muscle EMG.

Table 1. Root mean square (RMS) in micro volts (μV) for vastus lateralis oblique muscle

RMS at 90º of knee flexion	Right lower limb		Left lower limb	
	T1	**T2**	**T1**	**T2**
	58± 15.5 μV	72±16.4 μV *	56±15.5 μV	73±13.2 μV *

(*) intra-group significant difference compared with T1, $p<0.05$.

Periodized RT in elderly women is efficient in increasing muscle force, induced by an increase in muscle fiber depolarization.

Key words: electromyography; elderly women; periodization and resistance training.