SKELETAL MUSCLE ACTIVATION IN LOWER LIMB DISTAL DISTRICT DURING SINGLE STANCE POSTUROGRAPHY IN EYES OPEN AND EYES CLOSED SENSORY CONDITIONS

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Introduction: We analyzed in healthy subjects selected skeletal muscle activation in 2 different sensory conditions, eyes open and eyes closed, during one-foot static posturography. **Methods:** Fourteen healthy females (mean age 27 years, range: 25–34 years) were evaluated in different sensory conditions (eyes open, EO; eyes closed, EC) during a stability test for postural control (Delos Postural System) performed in single stance on the ground, without arms counterbalance. Each leg performed a first trial with EO and a second trial with EC, in an alternate sequence for the left and the right limb. The subject stood with the weight-bearing knee bent to 170° and the non weight-bearing knee flexed to 45°. To detect muscle activation, surface electromyography (sEMG) was obtained from the following muscles: tibialis anterior, peroneus longus, gastrocnemius medialis, gastrocnemius lateralis. Average rectified value (ARV) was recorded. For simplicity, the measurements were obtained only on the dominant limb. **Results:** EO: a reduction of the sagittal plane oscillations (y_EO) correlated with increased activation of the long peroneus ($r = -0.63$) whereas a reduction of the frontal plane oscillations (x_EO) correlated with increased activation of the medial gastrocnemius muscle ($r = -0.54$); EC: an increase of the oscillations on the frontal plane correlated with the activation of the long peroneus ($r = 0.55$). **Conclusions:** Results show that in EO the activation of long peroneus and the medial gastrocnemius muscle is associated with better postural control, while in EC, despite the activation of long peroneus, oscillations increase indicating a worsening of postural control. **Reference:** [1] Riva, D, Mamo, C, Fani, M, Saccavino, P, Rocca, F. Momente', M, and Fratta, M. Single Stance Stability and Proprioceptive Control in Older Adults Living at Home: Gender and Ages differences. *J Aging Res* 2013, 2013. **Mail to:** cristianovillani01@gmail.com.

BLOCK PRACTICE ENCOURAGES MOTOR LEARNING OF DYNAMIC BALANCE SKILL IN HEALTHY YOUNG ADULTS

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Introduction: The scheme of learning complex skills during practice affects motor performance [1, 3], however, not much is known about the most efficient way to learn fundamental untrained motor skills. Locomotor skills such as walking, running, sitting and getting up, involve temporarily optimal and precise dynamic movements of body weight displacement in frontal and sagittal planes [2, 4]. Purpose of this study was to determine if practice scheme modifies motor learning of a dynamic balance skill in healthy young subjects. **Methods:** After sample power analysis, 63 university students (20.63 ± 2.58 years) without balance disorders and previous training, participated in the study. They were randomly assigned to 1 of 3 practice schedules (block "B," random "R" or increasing "I"). Learning task was to move body weight laterally on a platform of force according to visual feedback provided on a computer. Eighteen trials were carried out during acquisition, and again 24 hours later, during evaluation of retention of the skill. Force-load was manipulated between trials ranging from 35 to 15% of body weight, in order to get contextual interference effect [6]. Outcome measures were execution errors and time of execution (s) during acquisition and retention of the skill. Experimental study, in accordance with Declaration of Helsinki, was approved by Institutional Review Board (Universidad de las Américas, Ecuador), and participants gave informed consent. **Results:** Wilcoxon test found that all 3 practice schemes retained the learning, and that motor performance with B practice even improved in retention (time of execution: median differences = -24 seconds, Z -3.555, $p = 0.000$; execution errors: median differences = -36, Z -2.728; $p = 0.006$). Kruskal-Wallis H of execution errors between practice schedules was significant ($p < 0.05$). Mann-Whitney U post hoc procedure found that I schedule increased execution errors during acquisition and retention comparing with B ($p < 0.017$), while between B and R there were no differences in motor performance. **Discussion:** Results did not support better effect of I scheme during retention [5], and partially according with results of Jiménez-Díaz et al. (2016) meta-analysis, that found differences between practice schemes only in acquisition. During learning process with B practice, motor system linked the