



LATERALITY REFLEXION ON FORCE PRODUCTION OF ANTAGONISTIC MUSCLES AT THE LEVEL OF VERTEBRAL COLUMN

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Laterality reflexion on force production of antagonistic muscles at the level of vertebral column Background: Identification of maximal isometric force manner production, at the level of vertebral column, in relation with consequent preferential utilization of right and left superior and inferior limbs, can be useful for correct optimization of rehabilitation training. Aims: The aims of this study is to determine, the manner of maximal isometric force production, at the level of vertebral column, in relation with consequent preferential utilization of right and left superior and inferior limbs, in Romanian female subjects. Methods: This study used 16 Romanian sedentary females (8 subjects with right superior and inferior dominant limbs and 8 subjects with left superior and inferior dominant limbs), white caucasian, with age between 30 and 40 years old. Body height was estimated with an error of 0,5cm. and body weight was evaluated with a calibrated digital scale, with an error of 0.05 kilograms. The body fat percentage was estimated using a bioelectric impedance method (Omron BF-306). Maximal isometric force of the lumbar/thoracic column was measured with special machines in all three planes – flexion with David F130 Lumbar/Thoracic Flexion at 30° angle and extension with David F110 Lumbar/Thoracic Extension at 30° angle, in sagittal plane – right lateral flexion and left lateral flexion with David F150 Lumbar/Thoracic Lateral Flexion at 0° angle, in frontal plane – right lateral rotation and left lateral rotation with David F120 Lumbar/Thoracic Rotation at -30° angle, in transversal plane. Results: Subjects with right superior and inferior dominant limbs, generate maximal isometric force significantly higher for left lateral flexion, then right lateral flexion ($t=4,59$) and for right lateral rotation, then left lateral rotation ($t=4,408$). In opposition, subjects with left superior and inferior dominant limbs, generate maximal isometric force significantly higher for right lateral flexion, then left lateral flexion ($t=9,744$) and for left lateral rotation, then right lateral rotation ($t=5,732$). Conclusions: Consequent preferential utilization of right and left superior and inferior limbs, implies a maximal isometric force production, in opposition, between groups, for lateral flexion and lateral rotation movements, at the level of thoracic-lumbar spine, which can be seen like a factor for muscular imbalances production.

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