Correlation of Strength and Change in the Thickness of Back Extensor Muscles during Maximal Isometric Contraction in Healthy and Osteoporotic Postmenopausal Women

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Abstract : According to the importance of the back extensor muscle strength in postmenopausal women, this study aimed to determine the relationship between strength and changes in the thickness of back extensor muscles during isometric contraction in healthy and osteoporotic postmenopausal women. Strength and thickness of the muscles of 42 postmenopausal women were measured respectively, using a handheld dynamometer and ultrasonography. Also, the Pearson correlation coefficient was used to analyze the relationship between the strength and thickness. The results indicated a high reproducibility dynamometer test and ultrasonography. The decrease of strength in people with osteoporosis, occurred more through changes in muscle structure such as reducing the number and size of muscle fibers than changes in the nervous system part.

Keywords : back extensor muscles, strength, thickness, osteoporosis

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