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Abstract

Title: VO_2peak and Watt exercise testing: arm crank vs cycle ergometry

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ABSTRACT

INTRODUCTION: Multiple sclerosis is a disease of the central nervous system that primarily affects the strength and functional capacity of the lower extremities. **PURPOSE**: The objectives of the present study were evaluate VO_2peak and the power output (W) during a leg and an arm test performance in relapsing-remitting multiple sclerosis (MS) versus healthy people (HP). **METHODS**: Twelve women (age 45.8 ± 11.8 yr) with MS (EDSS 3.3 ± 1.8) and twelve women (age 45.6 ± 10.7 yr) HP were included in this study. They underwent two incremental exercise tests on an electromechanical braked arm crank ergometer and on an electromagnetic braked leg cycling ergometer separately. A computerized gas analysis system collected and analyzed gas exchange during the two kinds of testing. The statistical analysis was determined with the Wilcoxon test. **RESULTS**: First, VO_2peak (21.5 ± 5.9 vs. 30.5 ± 4.8 ml·kg·min^{-1}, p = 0.001) y W (84.5 ± 30.1 vs. 141.0 ± 13.7, Watt, p =0.0001) during cycle ergometer test were significantly lower in MS compared with HP. Similarly, the VO_2peak in MS during arm crank was significantly lower (16.7 ± 5.4 vs. 23.4 ± 5.1 ml·kg·min-1, p = 0.023) compared with HP. However, the power generated by the arm was not different between the groups. **CONCLUSION**: The patients with MS during leg ergometer test showed a lower VO_2peak. In the same sense, the patients with MS showed lower VO_2peak in the test performed with the arms. Interestingly, the power generated with arms was similar in the two groups. These results indicate, that the patients with MS reflect a greater affectation to produce high loads of physical work with legs but not with arms. Further research is suggested where both the lower and upper extremities are involved to improve the processes of rehabilitation in MS.