

## The Effect of Aquatic Exercise on Gait Spatiotemporal Parameters of Subjects with Multiple Sclerosis

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**Introduction:** Multiple Sclerosis (MS) is associated with abnormalities in balance and movements, including in gait. The objectives of this study were to evaluate the effect of aquatic exercise on spatiotemporal variables during gait in two different clinical forms of MS.

**Methods:** 21 women patients with MS (n=11 with ataxia syndrome and n=10 with spasticity syndrome) (EDSS>4) and 10 normal subjects of between 25-50 years of age participated in this study. A Qualisys motion analysis system with seven cameras and a Kistler force plate were used to measure the temporal variables during the gait. All patients participated in the aquatic exercise program. All tests repeated after exercise. For statistical analysis, paired t-test and ANOVAs was used (P-value0.4).

**Conclusion:** Reduced walking speed, increased double support time in MS patients could be due to a neuromuscular adaptation to compensate balance deficit. However, this pattern may result a muscle weakness in long term. In the early stages of rehabilitation for MS patients, 20 to 30 training sessions in water can prepare them for practice in land. It is recommended that the patient with MS perform aquatic exercise in addition to drug therapy to maintain and improved their performance.

**Keywords:** Multiple sclerosis, gait, aquatic exercise