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Influence of level of immersion on lung function in patients with post-poliomyelitis syndrome compared to controls

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Introduction: Post-Polio Syndrome (PPS) is a neuromuscular disorder that affects polio survivors' decades after the acute functional recovery. It is characterized by the appearance of new muscle weakness and respiratory muscle weakness, fatigue, muscle and joint pain and cold intolerance. One of the most effective treatment options is the aquatic therapy.

Objectives: To evaluate the influence of level of immersion on lung function in patients with SPP compared to controls.

Patients and methods: 5 PPS patients (3 female, mean age 55±7.2 years) and 10 healthy subjects (mean age 24.2±4.8 years) who underwent 3 year treatment in aquatic therapy, were evaluated. All participants were assessed for forced vital capacity (FVC), heart rate, blood pressure and oxyhemoglobin saturation (SpO2) in four moments: Sitting at rest out of the water (M0), immersion in water at the height of the ridges iliac (M1), immersion in water to the xiphoid process (M2) and soaking with water at the wishbone (M3). Data were statistically analyzed by comparing the two groups and the four moments of immersion.

Results: In the control group of healthy subjects, lower FVC was found compared the M0-M3 ($p=0.007$) and decreased diastolic blood pressure (DBP) ($p=0.005$). The same was not observed in the group of patients with SPP, where all parameters remained unchanged for four moments.

Conclusion: The practice of aquatic therapy is safe for patients with SPP without respiratory complaints, since there is no loss of FVC from the hydrostatic pressure.

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