

DEPARTMENTS

Letter to the Editor

Options in Improving Respiratory Function in Multiple Sclerosis



I enjoyed reading the excellent study by Ray et al¹ assessing the impact of a respiratory training program in multiple sclerosis in the October issue of the *Archives*. The value of respiratory training has received considerable attention over recent years in acute and chronic disease as well as in high-level athletic training.²⁻⁴ There is a sufficient amount of research to demonstrate that these techniques can improve respiratory endurance and produce functional benefits for daily life activities, whether these are sports-specific demands or normal life requirements.

A major respiratory training technique relies on progressive occlusion of the mouthpiece airway with simultaneous nasal occlusion via a nose clip. This is subjectively unpleasant, and most research participants find considerable relief at the conclusion of their study period. Other techniques such as isocapnic hyperpnea are slightly less uncomfortable but are dependent on complex technology that is impractical for prolonged training periods without laboratory access.

During neck depth aquatic immersion, hydrostatic pressure compresses the chest wall and also increases central blood volume within the thoracic cavity to produce a 60% increase in the work of breathing at rest.⁵ Because both of these physical effects are dependent on fluid mechanics, a workload increase beyond 60% must exist at higher respiratory frequencies because of the viscosity of the surrounding water and blood movement out of the thoracic cavity.⁶ Aquatic immersion may be an alternative method of increasing respiratory muscle workload. There are no published studies validating aquatic immersion on respiratory muscle strength and endurance, but unpublished research efforts have supported this method in athletic training.

Aquatic exercise in multiple sclerosis is generally well tolerated and therapeutically beneficial in symptom management, with benefits including reduction of fatigue and pain, and improvement in gait speed and general motor function.⁷⁻⁹ Most individuals with multiple sclerosis enjoy aquatic exercise sessions, with studies^{8,9} demonstrating high adherence and low dropout rates. The

potential that there may be additional benefits through respiratory strengthening is worthy of study, since aquatic exercise is both safe and symptomatically helpful in multiple sclerosis.

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