

Aerobic exercise training promising for restoring function in individuals with MS-related thalamic atrophy

September 19 2022



Dr. Sandroff is a senior research scientist in the Center for Neuropsychology and Neuroscience Research and director of the Exercise Neurorehabilitation Research Laboratory at Kessler Foundation. Here, he monitors a participant in an MS treadmill training study. Credit: Kessler Foundation/ Jody Banks

Thalamic atrophy needs to be considered in clinical studies of the functional abilities of individuals with multiple sclerosis, according to findings reported by a team of experts. The article, "Thalamic atrophy moderates associations among aerobic fitness, cognitive processing speed, and walking endurance," was published in the *Journal of Neurology* on June 19, 2022.

MS-related thalamic atrophy is a major biomarker for neurodegeneration and associated physical and cognitive decline, highlighting the importance of exploring ways to restore and maintain function in individuals who present with this consequence of the disease. Aerobic exercise training is one promising approach, but little is known about its potential effects in individuals who present with thalamic atrophy.

The team conducted a cross-sectional study to examine the associations among [aerobic fitness](#), cognitive processing speed, and walking [endurance](#) in individuals with and without thalamic atrophy. Subjects comprised 44 fully ambulatory individuals with MS from three randomized controlled trials. Outcomes included aerobic fitness (peak oxygen consumption during graded [treadmill exercise](#)), processing speed (Symbol Digit Modalities Test), walking endurance (6-min walk test), and thalamic neuroimaging.

Results provided initial evidence for strong and selective associations among aerobic fitness, cognitive processing speed, and walking endurance in individuals with thalamic atrophy, according to lead author Dr. Brian Sandroff. "This study suggests that aerobic exercise training has the potential to restore function in individuals with thalamic atrophy, who are clearly at risk for progressive physical and [cognitive decline](#)," he stated. "To explore the impact on outcomes, we need to develop

randomized controlled trials of aerobic exercise training in the subgroup presenting with thalamic atrophy."

More information: Brian M. Sandroff et al, Thalamic atrophy moderates associations among aerobic fitness, cognitive processing speed, and walking endurance in persons with multiple sclerosis, *Journal of Neurology* (2022). DOI: [10.1007/s00415-022-11205-9](https://doi.org/10.1007/s00415-022-11205-9)

Provided by Kessler Foundation

Citation: Aerobic exercise training promising for restoring function in individuals with MS-related thalamic atrophy (2022, September 19) retrieved 24 April 2024 from <https://medicalxpress.com/news/2022-09-aerobic-function-individuals-ms-related-thalamic.html>

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