

Artículo científico

Título: Dosage and Effectiveness of Aerobic Training on Cardiorespiratory Fitness, Functional Capacity, Balance, and Fatigue in People With Multiple Sclerosis: A Systematic Review and Meta-Analysis.

DOI: 10.1016/j.apmr.2021.01.078.

Revista: Archives of Physical Medicine and Rehabilitation

Año de publicación: 2021.

Volumen y número de páginas: 102(9):1826-1839.

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Abstract

Objectives: To evaluate the benefits of aerobic training (AT) programs on cardiorespiratory fitness, functional capacity, balance, and fatigue in individuals with multiple sclerosis (MS) and to identify the optimal dosage of AT programs for individuals with MS via a systematic review with meta-analysis.

Data sources: Two electronic databases were searched until March 2020 (PubMed-Medline and Web of Science).

Study Selection: Studies examining the effect of AT program on cardiorespiratory fitness, functional capacity, balance, and fatigue were included.

Data Extraction: After applying the inclusion and exclusion criteria, we included 43 studies. A total sample of 1070 individuals with MS (AT group, n=680; control group, n=390) were analyzed.

Data Synthesis: The AT group demonstrated a significant increase in cardiorespiratory fitness (standardized mean difference [SMD], 0.29;

P=.002), functional capacity (timed Up and Go Test: SMD, -1.14; P<.001; gait speed: SMD, -1.19; P<.001; walking endurance: SMD, 0.46; P<.001), and balance (SMD, 3.49; P<.001) after training. Fatigue perception also decreased (SMD, -0.45; P<.001). However, no significant differences were observed when compared with the control group in either cardiorespiratory fitness (SMD, 0.14; P=.19) or fatigue perception.

Nevertheless, we observed significant differences between the AT and control groups in balance (P=.02), gait speed (P=.02), and walking endurance (P=.03), favoring the participants who performed AT. Regarding the subgroup analysis, no significant differences were observed between subgroups in any of the variables studied except for gait speed, for which a greater increase in posttraining was observed when the AT program applied the continuous method ($\chi^2=7.75$; P=.005) and the exercises were performed by walking ($\chi^2=9.36$; P=.002).

Conclusions: Aerobic training improves gait speed, walking endurance, and balance. Cardiorespiratory fitness and fatigue perception also improved after AT, but we found no differences with the control group. In addition, subgroup analysis suggested that training using continuous and walking methods could optimize gait speed.

Keywords: Endurance training; Exercise; Neurological disorders; Physical fitness; Rehabilitation