

# The Effect of Therapeutic Exercise on Depressive Symptoms in People with Multiple Sclerosis

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## Introduction

Multiple sclerosis (MS) is a neurodegenerative disease of the Central Nervous System including a wide range of symptoms with depression taking part as one of the main sources of disability for patients living with MS [1]. The purpose of this study was to perform a review of the literature on the effects of exercise on depressive symptoms in patients with MS with a great focus on the benefits of physiotherapy, therapeutic exercise, and telerehabilitation.

## Methodology

The review was performed using the databases of PubMed, and other sources such as Google Scholar and Elsevier. The keywords used for the conduction were therapeutic exercise, physiotherapy, physical therapy, rehabilitation, telerehabilitation, depression, and multiple sclerosis. The inclusion criteria consisted of studies: a) published between 2010-2021, b) looking into the effects of depression and/or therapeutic exercise in patients living with MS, and c) written in English. The exclusion criteria used regarded a) patients who were not diagnosed with MS, b) pilot studies, c) case studies, and d) studies published prior to 2010.

## Results & Discussion

The literature search yielded 211 results, but only 33 studies were included in this review. The total number of participants in the research articles was 1.585. We found that various forms of intervention such as aerobic exercise, resistance exercise and even tele-rehabilitation show improvement in depression (Table 1.). It should also be noted that of the 33 studies, 9 are reviews, systematic reviews and meta-analyses. However, further study of the parameters of the different forms of intervention is necessary, and why not the establishment of clinical guidelines that will help physiotherapists with the rehabilitation program for their patients.

**Table 1.** Example of a research article that has been analyzed in this review.

ARTICLE	SAMPLE	MEASURING TOOL OF DEPRESSION	METHOD	RESULTS
Combined exercise training improves cognitive functions in multiple sclerosis patients with cognitive impairment: A single-blinded randomized controlled trial [2]	34: Exercise Group (EG, n:17), Control Group (CG, n:17)	Beck's Depression Inventory	EG: Aerobic exercise and Pilates, 3 sessions/week, 8 weeks.  CG: relaxation exercises at home.	↓ depression



## **Conclusion**

Finally, physiotherapy through therapeutic exercise or even with the help of telerehabilitation can improve depression of MS patients. More specifically we observe an enhancement of physical activity, improvement of walking ability and balance while decreasing depression, fatigue, anxiety, and improving sleep.

## **References**

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- [2] C. Ozkul, A. et al. "Combined exercise training improves cognitive functions in multiple sclerosis patients with cognitive impairment: A single-blinded randomized controlled trial" *Multiple Sclerosis and Related Disorders*, vol. 45, p. 102419. Oct 2020. doi:10.1016/j.msard.2020.102419.