



# A Programme for Cognitive Treatment in the Neurodegenerative Illness: Multiple Sclerosis (MS)

Joe Nicolas\*

Department of Physical Medicine and Physiotherapy, Universitair Hospital Brussel, Brussels, Belgium

## Introduction

Multiple sclerosis (MS) is a central nervous system neurodegenerative disease that is commonly accompanied by cognitive impairment, depression, and exhaustion. These elements contribute to a lower standard of living, social isolation, and unemployment [1]. MS patients are more susceptible to psychological illnesses, notably depression, and are less exposed to various activities on a professional and social level. There are many types of cognitive impairment in MS patients. Cognitive impairments don't happen in any way in some of them, but they can be the root of a severe and progressive form of the illness from the start, even before physical infirmity. Forty to sixty percent of MS patients will experience cognitive issues. 40 to 60 percent of MS patients will experience cognitive issues. According to the majority of research, people with primary or secondary progressive MS are more likely to experience cognitive impairment than those with relapsing-release MS, and secondary progressive MS is somewhat more prevalent than primary progressive MS. A variety of complex brain processes are referred to as cognition. The most prevalent symptoms of MS include: episodic memory, sustained attention, difficulties focusing, verbal fluency, processing speed, executive function, and visuospatial abilities. The effects of MS on cognition are now better understood because to neuropsychological and neuroimaging research. Cognitive failure is correlated with brain MRI lesion volumes and (regional) atrophy, and the degree of MRI abnormalities increases predicts subsequent deterioration [2]. However, a neuropsychological evaluation provides the basis for the diagnosis of the cognition deficit. The Symbol Digit Modalities Test, Audio Recorded Cognitive Screen, and Brief Repeatable Neuropsychological Battery are screening instruments. Standard neuropsychological testing is done using the MS Minimal Assessment of Cognitive Function (MCF). The doctor should offer cognitive therapy in accordance with the test results, taking into account both the person's cognitive weaknesses and talents.

Improved mobility and everyday functioning are the major goals of comprehensive rehabilitation programmes. The impairment of cognition has no evidence-based symptomatic medication therapy. The most effective, demonstrating just a little increase in verbal memory, is donepezil hydrochloride [3]. Others exist, such as ginkgo biloba, rivastigmine, and memantine, but none of these drugs improved cognitive performance in clinical studies with MS in a way that was helpful or repeatable. Cognitive deficiencies, particularly moderate cognitive impairment (MCI), might offer an ideal target for cognitive training among non-pharmacological therapies since MCI retains a wide variety of cognitive faculties to learn and apply new memory-enhancing techniques. Computer-mediated memory exercises, computerised and manual cognitive exercises, psychological treatment, and aerobic exercise should also be part of the cognition therapy programme. There is mounting evidence that exercise helps with memory. According to recently published research, aerobic exercise, in particular, helps the cardiovascular system and may even enhance cognition in those with neurological diseases. Increasing evidence suggests that aerobic exercise may enhance cognition and alter brain glucose metabolism in regions associated with cognition in people

with MCI [4]. Other research suggests that in addition to enhancing memory, aerobic exercise may also enhance hippocampus volume and connection.

According to current research, aerobic exercise can promote cognitive performance by upregulating certain neurotrophins, such as brain derived neurotrophic factor, in addition to improving mobility, balance, and motor function (BDNF). The following activities should be included in training sessions: periods of aerobic exercise lasting more than 30 minutes, with an intensity of 70% of one's maximum heart rate, occurring four days a week with both resistance and aerobic exercise combined. Although there is evidence that only 30 minutes of aerobic exercise at 60% of one's maximum heart rate is very effective for patients with chronic disease and causes an increase in BDNF levels, high-intensity interval training and cycling may be remarkably effective when it comes to the immediate benefit of acute aerobic training on cognitive function [5]. Aerobic exercise is a completely natural, widely accessible, cost-free therapy that has no side effects and might be an excellent memory therapy for people with MS as well. Computer programmes for autonomous motor and cognitive activities are another fairly contemporary kind of non-pharmacological therapy. These programmes are often made by professionals in neuropsychology and neurorehabilitation. They are customised for each patient's needs. Additionally, these services are frequently utilised for telemedicine, which is crucial, especially in remote areas. Patients in this therapy may complete their activities on their own computers at home, which gives them motivation to exercise every day and see results. Tasks are intended to be both enjoyable and difficult. Additionally, they may regularly assess the success of their therapy and activities. In MS patients, cognitive rehabilitation is still in its infancy. Education programmes, cardiovascular exercise, and cognitive behavioural therapy are potential psychosocial therapies to enhance coping and minimise cognitive symptoms [6]. Better methods for identifying and treating cognitive issues are required, not just for MS but also for other neurodegenerative diseases and ageing [7]. Because cognitive changes are the main reason for early retirement from the workforce and can have a substantial impact on a patient's quality of life, early identification, assessment, and treatment are crucial. More study is required to determine the best clinical and research practises for long-term exercise therapies for MS patients. A potential solution for MCI

\*Corresponding author: Joe Nicolas, Department of Physical Medicine and Physiotherapy, Universitair Hospital Brussel, Brussels, Belgium, E-mail: joen15@gmail.com

Received: 30-Aug-2022, Manuscript No. jnp-22-76216; Editor assigned: 01-Sep-2022, PreQC No. jnp-22-76216(PQ); Reviewed: 15-Sep-2022, QC No. jnp-22-76216; Revised: 20-Sep-2022, Manuscript No. jnp-22-76216(R); Published: 27-Sep-2022, DOI: 10.4172/2165-7025.1000544

Citation: Nicolas J (2022) A Programme for Cognitive Treatment in the Neurodegenerative Illness: Multiple Sclerosis (MS). J Nov Physiother 12: 544.

Copyright: © 2022 Nicolas J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

in MS patients is aerobic training and computerised cognitive activities [8-10].

### Acknowledgement

Not applicable.

### Conflict of Interest

Author declares no conflict of interest.

### References

1. Pottgen J, Lau S, Penner I, Heesen C, Moritz S (2015) Managing Neuropsychological Impairment in Multiple Sclerosis. *Int J MS Care* 17: 130-137.
2. Maghzi AH, Revirajan N, Julian LJ, Spain R, Mowry EM, et al. (2014) Magnetic resonance imaging correlates of clinical outcomes in early multiple sclerosis. *Mult Scler Relat Disord* 3: 720-727.
3. Krupp LB, Christodoulou C, Melville P, Scherl WF, Mac Allister WS, et al. (2004) Donepezil improved memory in multiple sclerosis in a randomized clinical trial. *Neurology* 63: 1579-1585.
4. Kantarcia ML, Senjema VJ, Lowea HJ, Wistec SD, Weigandc BJ, et al. (2010) Effects of Age on the Glucose Metabolic Changes in Mild Cognitive Impairment. *AJNR Am J Neuroradiol* 31: 1247-1253.
5. Miller E, Niwald M (2014) Novel Physiotherapy Approach for Multiple Sclerosis. *J Nov Physiother* 4: 228.
6. Jongen PJ, Ter Host AT, Brands AM (2012) Cognitive impairment in multiple sclerosis. *Minerva Med* 103: 73-96.
7. Grech LB, Kiropoulos LA, Kirby KM, Butler E, Paine M, et al. (2015) The effect of executive function on stress, depression, anxiety, and quality of life in multiple sclerosis. *J Clin Exp Neuropsychol* 26: 1-14.
8. Schulz KH, Gold SM, Witte J, Bartsch K, Lang UE, et al. (2004) Impact of aerobic training on immune-endocrine parameters, neurotrophic factors, quality of life and coordinative function in multiple sclerosis. *J Neurol Sci* 225: 11-18.
9. Michener LA, McClure PW, Karduna AR (2003) Anatomical and Biomechanical Mechanisms of Subacromial Impingement Syndrome. *Clin Biomech* 18: 369-379.
10. Pope DP, Croft PR, Pritchard CM, Silman AJ (1997) Prevalence of shoulder pain in the community: the influence of case definition. *Ann Rheum Dis* 56: 308-312.