

Clinical Research

Clinical Services - Physiotherapy

TITLE	Physiotherapy and Exercise for People with Mild and Moderate Multiple Sclerosis - A Pilot Study
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INTRODUCTION

Multiple Sclerosis (MS) is a chronic demyelinating and degenerative disease of the Central Nervous System. Because of the widespread patterns of the lesions, the clinical manifestations of the disease are varied. A cause of Multiple Sclerosis has yet to be identified so treatments remain relatively ineffective. Thus, people with MS have a lifelong need for rehabilitation and interventions from allied health professionals. Recent evidence recommends that people with mild MS participate in exercise programmes consisting of both progressive resistance exercise and aerobic exercise. Literature also suggests that balance rehabilitation can be effective in people with moderate MS.

OBJECTIVES

The objectives of this study were:

1. To evaluate the feasibility and suitability of outcome measures for use in a larger scale study
2. To obtain preliminary data on the effects of one physiotherapy intervention on fitness and strength in people with mild MS (Group A) and another physiotherapy intervention on balance and mobility in people with moderate MS (Group B).

METHODOLOGY

Interventions took place for an hour a week for six weeks. A pre-post test single group research design was used.

Participants in Group A mobilised independently or with one stick. Seven females took part in the class which consisted of PRE for major muscle groups. Two to three sets of twelve repetitions of each exercise were completed. Advice was given about aerobic exercise to be completed independently at 65-75% Heart Rate Maximum twice a week. Measures of Handheld Dynamometry, the Modified Fatigue Impact Scale (MFIS), the Multiple Sclerosis Impact Scale (MSIS-29) and a Six Minute Walk including the Physiological Cost Index (PCI) were taken at baseline and six week follow-up.

Participants in Group B mobilised with at least bilateral aid outdoors, such as a rollator or two crutches. The intervention consisted of a circuit class of balance and strength exercises. Each exercise was modified and progressed according to the participants' ability. Five females and one male with a mean age of 52.33 years took part in the class. The following outcome measures were assessed at baseline and at six weeks; Multiple Sclerosis Impact Scale-29 (MSIS-29), Berg Balance Scale (BBS), Modified Fatigue Impact Scale (MFIS), Distance and Speed of Walking over 2 minutes and the Dynamic Gait Index (DGI).

All data was analysed using SPSS 15.0 for Windows.

RESULTS

Participants in Group A completed 71% of the prescribed intervention. The change in Elbow Flexion strength was significant (mean change= 21.36 N, $P = .017$). The physical component of the MSIS - 29 questionnaire (mean change= 8.85, $P= .19$), the MFIS (mean change = 6.28, $P= .268$) and PCI (mean change = .251, $P=.15$) were clinically significant and approached statistical significance using Paired - Samples T Test. The other measures demonstrated a trend for improvement.

For Group B, the physical component of the MSIS-29 (mean change=15.67, $P=0.006$) and the BBS (mean change=7.17, $P=0.002$) showed statistically different change. The psychological component of the MSIS-29 (mean change 4.17, $P=0.054$) the MFIS (mean change=4.84, $P=0.289$) and distance walked (mean change=2.17, $P=0.289$) all approached statistical significance. Scores on the BBS improved by between 4 and 10 points, also showing clinical significance. All other measures showed a trend for improvement except the DGI.

CONCLUSION

This study provides preliminary data for group physiotherapy for people with mild and moderate MS. The outcome measures used were shown to be suitable, feasible and sensitive enough to detect change in just six weeks with the exception of the DGI which was not sensitive and did not show change for any participant. The results also show a positive treatment effect.

Apart from the DGI these outcome measures will now be used in a larger national study evaluating physiotherapy and exercise interventions for people with MS and the data obtained from this pilot will be used to calculate sample sizes.

FUNDING

The Irish Research Council for Science, Engineering and Technology has funded Maria Garrett to do this project. The Multiple Sclerosis Society of Ireland has funded Neasa Hogan.