



The Effectiveness of Energy Conservation Techniques in Reducing Fatigue in Clients with Multiple Sclerosis



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Abstract

Objectives: This study was conducted to review the evidence available regarding the effectiveness of energy conservation (EC) treatment on clients with multiple sclerosis (MS).

Results: our review found four studies suggesting that in clients with multiple sclerosis, energy conservation techniques can reduce fatigue.

Conclusion: energy conservation techniques are effective and beneficial in reducing fatigue for patients with MS.

Keywords: Energy conservation; Fatigue; Multiple sclerosis; Randomized controlled trial; Occupational therapy

Introduction

Multiple sclerosis (MS) is a chronic, inflammatory disease of the central nervous system. MS is most commonly seen in younger adults Mathiowetz [1]. It is one of the most common causes of disability in the United States. Fatigue, spasticity, tremors, weakness, visual problems, cognitive problems are all common symptoms of MS. Fatigue is the most frustrating symptom that can lead to disability. A patient with MS with fatigue is not able to perform daily activities and occupational role efficiently Mathiowetz [2]. There are various types of medications and non-pharmacological treatment that have been used Sauter [3]. Energy Conservation (EC) techniques, is a type of non-pharmacological treatment. EC techniques mainly consist of education on rest, modification in activities and environment, balancing work and self-care, education on ergonomics and body mechanics. EC techniques are designed in such a way that they help MS clients to use their limited energy in a productive way Vanage [4]. The purpose of this study was to review the evidence available regarding the effectiveness of the EC treatment on clients with MS. For the purpose of this study, we created a clinical/research PICO question (Population, Intervention, Comparison, and Outcome), a key to the evidence-based decision Richardson [5].

The PICO formed for our study is as follows:

- (P) In clients with Multiple Sclerosis
- (I) Do energy conservation techniques
- (C) Compared to other treatments
- (O) Reduce fatigue?

Methods

Review of literature and search strategy

A research has been made in the following databases: Ovid, PsycINFO, MEDLINE, CINAHL, and PubMed. Keywords and Search items used to search articles for our study were Energy conservation, fatigue, multiple sclerosis, randomized trial, occupational therapy. The search was narrowed to four evidence-based articles and a PICO question was developed. All studies were then examined, the strongest evidence was selected.

Results

Our review revealed four articles that focus most relevantly on the purpose of this study. Evidence study design and study level were determined based on the hierarchy of levels of evidence in evidence-based practice Hughes [6].

Vanage [4]

This was level III quasi-experimental quasi experimental study with crossover cross over design. Clients with MS experiencing moderate to severe disability were selected. The Intervention consisted of modified Packer, et al. (1995) EC course. Total clients were 37. Fatigue Impact Scale (FIS) was used at baseline, 8 weeks and 16 weeks. All participants who participated in the EC course showed significant improvement in fatigue. There was an immediate reduction in the fatigue impact immediately post-EC course ($p < 0.01$). The effects of the EC course were maintained 8 weeks after the completion of course.

Mathiowetz [2]

This was level III repeated measure study design. All participants received all phases of intervention. Control group received sessions of support group. The Experimental group received EC course developed by Packer, et al. (1995). The FIS was used at 1, 7, 13 and 19 weeks. There was a significant reduction in the impact of fatigue ($p < 0.001$) after the EC-course. The effects of EC course were maintained six weeks after the course.

Sauter [3]

This was level III crossover cross over design. 32 clients with MS experiencing concomitant fatigue for at least six months were selected. The FIS was used at baseline, 6 weeks and 7-9 months. There was a significant reduction in fatigue impact between baseline to 6 weeks ($p < 0.05$) and baseline to 7-9 months ($p < 0.01$). EC course caused a reduction in fatigue and its effect was maintained for 7-9 months.

Table 1: An exemplary exemplar of recommendations, plan, and audit tool.

Recommendation	Implementation Plan	Criteria	Audit Method	Compliance Plan
The newly trained therapists will demonstrate their competency in being able to conduct the EC course for the clients with MS	The therapists have to attend all the sessions, submit an assignment, take a written exam, and lead a discussion on an assigned topic.	The therapists should score 80% in the written exam and discussion leading. Submission of the assignment on time is essential to pass the course.	A copy of the FIS score should be kept in the patient's personal file; one copy will be given to the OT manager.	Any therapist who fails to meet the required scores needs to meet with the OT manager and will have to again take the training sessions.

Conclusion

Our review suggests that energy conservation techniques are effective and beneficial in reducing fatigue for patients with MS. Thus, clinical guidelines, recommendations, a plan, and audit tool have been created in our study to implement energy conservation techniques in clinics. The clinical guidelines for recommended intervention, the plan, and the audit tool recommend therapists to apply energy conservation techniques with clients with MS.

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Reference

1. Mathiowetz VG, Finlayson ML, Matuska KM, Chen HY, Luo P (2005) Randomized controlled trial of an energy conservation course for persons with multiple sclerosis. *Mult Scler* 11(5): 592-601.


Mathiowetz [1]

This was level II randomized controlled trial (RCT) study with cross-over design. The intervention consisted of EC course developed by Packer, et al. (1995). All subjects received treatment. 169 clients with MS participated in the study. the FIS was used at 1, 7 and 13 weeks. There was a significant reduction in fatigue impact after the EC course ($P < 0.0001$).

Discussion

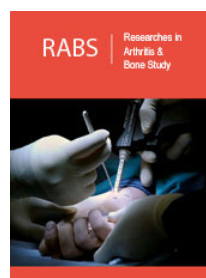
Out of the four studies, level II study by Mathiowetz et al. [1] is considered the strongest evidence. It is a randomized controlled trial study design. All the four studies demonstrated that EC course developed by Packer et al. (1995) significantly reduced fatigue impact in clients with MS. EC course proved beneficial for clients with MS having mild, moderate and severe symptoms. Thus clinical guidelines, recommendations, a plan, and audit tool have been developed in our study to implement EC techniques in the clinical setting (Table 1).

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