Therapeutic interventions in the treatment of people with multiple sclerosis with mobility problems: a literature review

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CRD summary
This review concluded that a range of interventions were potentially beneficial for people with MS, but which interventions were most suitable for which people was unclear. Given the variation in content and quality of included studies and potential for errors and biases in the review process, the authors' conclusion may be overstated and its reliability is unclear.

Authors' objectives
To evaluate interventions for people with multiple sclerosis (MS) with an expanded disability status scales (EDSS) score ≥6.

Searching
Eight online databases, including EMBASE and MEDLINE, were searched from 1998 to 2008. Only English-language studies were included. Search terms were reported. Bibliographies of relevant retrieved articles were searched.

Study selection
Studies were included if they used an experimental design and incorporated participants with either an expanded disability status scale score ≥6 (moderate to severe mobility problems) or (if this score was not reported) some or all participants used a walking aid. Participants all had a definite diagnosis of multiple sclerosis and had not experienced a relapse or exacerbation recently.

Time from relapse ranged from one to six months. Other participant characteristics were not reported. Studies were grouped into five categories according to type of intervention evaluated: specific physiotherapy interventions; aerobic exercise; physiotherapy and aerobic exercise; resistance training; and other interventions. Outcome measures included modified Ashworth scale, Barthel index, Berg balance scale, fatigue severity scale, Franchay activities index, dynamic gait index, dizziness handicap inventory, Rivermead visual gait analysis using a visual analogue scale, Nottingham extended activities of daily living index, Rivermead mobility index, expanded disability status scale, modified fatigue index scale, and multiple sclerosis impact scale.

One reviewer selected studies for inclusion.

Assessment of study quality
One reviewer assessed trial quality according to Cochrane recommendations in terms of selection bias, performance bias, attrition bias and detection bias. Each study was assessed as either fully meeting, partially meeting, or not meeting each criterion. Studies that did not meet at least one criterion were considered to have a high risk of bias.

Data extraction
A mixture of proportions, direction of effect summaries and p values were extracted from the papers for narrative synthesis.

The authors did not state how data were extracted for the review.

Methods of synthesis
A narrative synthesis was used.

Results of the review
Twelve studies met the inclusion criteria (n=410 participants, range 2 to 112).
Trial quality was variable. Nine of the 12 trials were judged not to have met at least one of the four trial quality criteria. No trial fully met all criteria.

Specific physiotherapy interventions (four trials, n=111 participants): Three of the four studies used Berg Balance Scale and showed significant improvement in this measure.

Physiotherapy and aerobic exercise (one trial, n=112): Three treatment groups in which some form of physiotherapy or aerobics-based intervention was conducted twice weekly for two months were compared to a control group where there was no intervention. Two of the three groups reported statistically significant improvement in impairment scores using the expanded disability status scale.

No statistically significant improvements were reported for aerobic exercise (three trials, n=60), resistance training (two trials, n=54) and other interventions (two trials, n=73).

Authors' conclusions
All of the interventions included in the review were potentially beneficial for people with MS, but it was unknown which interventions were most suitable according to the level of patient mobility.

CRD commentary
The research question was clear (although broad) and supported by relevant inclusion criteria for all aspects except outcomes. Several relevant databases were searched. Bibliographies of pertinent articles were searched for further sources. Only English-language papers were included, which increased the risk of language bias. Only one person performed study selection and quality assessment, which increased risk of error and bias substantially. The data extraction process was unclear. There was considerable clinical heterogeneity between studies and so the choice of a narrative synthesis categorised by intervention type seemed appropriate. Given the variable quality of many of the studies, clinical heterogeneity and lack of independent duplication of most stages of the review process, the authors' conclusion may be overstated and its reliability is unclear.

Implications of the review for practice and research
Practice: The authors stated that some type of physical activity should be incorporated into the treatment of people with MS.

Research: The authors stated that future research that looked at interventions for people with MS should be stratified according to participants' levels of mobility. Further research was needed to determine the relationship between strength increases and function for resistance exercise. There should be better quality research with more consistently applied outcome measures.

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