

Expert Opinion Paper

National Medical Advisory Board of the National Multiple Sclerosis Society

Treatment Recommendations for Clinicians

Rehabilitation: Recommendations for Persons with Multiple Sclerosis

RECOMMENDATIONS

The Medical Advisory Board (MAB) of the National Multiple Sclerosis Society has adopted the following recommendations to provide guidance to physicians, nurses, therapists, insurers, and policy makers, regarding the appropriate use of rehabilitative therapies in MS. This document addresses physical rehabilitation. Cognitive and vocational rehabilitation will be addressed in future documents.

Definition: Rehabilitation in MS is a process that helps a person *achieve and maintain* maximal physical, psychological, social and vocational potential, and quality of life consistent with physiologic impairment, environment, and life goals. *Achievement and maintenance* of optimal function are essential in a progressive disease such as MS.

While the disease course cannot be altered by rehabilitation, a growing body of evidence indicates that improvement in mobility, activities of daily living (ADL), quality of life, prevention of complications, reduction in health care utilization, and gains in safety and independence, may be realized by a carefully planned program of exercise, functional training, and activities that address the specific needs of the individual. Thus, rehabilitation is considered a necessary component of comprehensive, quality health care for people with MS, at all stages of the disease.

◆ The physician* should consider referral of individuals with MS for assessment by rehabilitation professionals** when there is an abrupt or gradual worsening of function or increase in impairment that has a significant impact on the individual's mobility, safety, independence, and/or quality of life.

^{*} or nurse practitioner or physician's assistant

^{**} includes rehabilitation physician, occupational, physical, speech and language therapists and others

- ◆ Patients who present with any functional limitation should have an initial evaluation and appropriate management.
- ◆ Assessment for rehabilitation services should be considered early in the disease when behavioral and lifestyle changes may be easier to implement.
- ◆ The complex interaction of motor, sensory, cognitive, functional, and affective impairments in an unpredictable, progressive, and fluctuating disease such as MS, requires periodic reassessment, monitoring, and rehabilitative interventions.
- ◆ The frequency, intensity and setting of the rehabilitative intervention must be based on individual needs. Some complex needs are best met in an interdisciplinary, inpatient setting, while other needs are best met at home or in outpatient settings. The health care team should determine the most appropriate setting. Whenever possible, patients should be seen by rehabilitation therapists who are familiar with neurological degenerative disorders.
- ◆ Research and professional experience support the use of rehabilitative interventions*** in concert with other medical interventions, for the following impairments in MS:
 - Mobility impairments (i.e. impaired strength, gait, balance, range of motion, coordination, tone and endurance)
 - Fatigue
 - Pain
 - Dysphagia
 - Bladder/bowel dysfunction
 - Decreased independence in activities of daily living
 - Impaired communication
 - Diminished quality of life (often caused by inability to work, engage in leisure activities and/or to pursue usual life roles)
 - Depression and other affective disorders
 - Cognitive dysfunction
- ◆ Appropriate assessments and outcome measures must be applied periodically to establish and revise goals, identify the need for treatment modification, and measure the results of the intervention.
- ◆ Known complications of MS, such as contractures, disuse atrophy, decubiti, risk of falls, and increased dependence may be reduced or prevented by specific rehabilitative interventions.
- ◆ In a fluctuating and progressive disease, maintenance of function, optimal participation, and quality of life are essential outcomes.

^{***} Includes: exercise, functional training, equipment prescription, provision of assistive technology, orthotics prescription, teaching of compensatory strategies, caregiver/family support and education, counseling, and referral to community resources.

- ◆ Maintenance therapy includes rehabilitation interventions designed to preserve current status of ADLs, safety, mobility, and quality of life, and to reduce the rate of deterioration and development of complications.
- ◆ A thorough assessment for wheelchairs, positioning devices, other durable medical equipment (DME) and environmental modification by rehabilitation professionals is recommended and will result in the use of the most appropriate equipment.
- ◆ Regular and systematic communication between the referring health care provider and rehabilitation professionals will facilitate comprehensive, quality care.
- ◆ Third party payers should cover appropriate and individualized restorative and maintenance rehabilitation services for people with MS.

Background

While multiple sclerosis is highly variable, most patients experience functional losses and increasing impairment over time. Many people with MS face obstacles accessing rehabilitative services because of inadequate referrals and/or inadequate third party coverage. The National MS Society determined that a statement by its expert medical advisors was therefore necessary to support the use of rehabilitative interventions and thus promote physician referral to these services and third party coverage of them.

A number of studies have demonstrated positive outcomes of rehabilitation on people with MS, and data support the use of rehabilitative interventions for a number of specific MS impairments. Patients with MS who received multidisciplinary rehabilitation in addition to IV steroids demonstrated increased improvement in functional status, mobility, quality of life, and disability over those who received steroids alone (Craig et al., 2003). A study of the effect of inpatient rehabilitation on individuals with relapsing/remitting (RR) MS suggested that inpatient rehabilitation is useful for patients with incomplete recovery from relapses who have accumulated moderate to severe disability (Liu et al., 2003). Another study showed a significant decrease in length of stay in a rehabilitation inpatient unit for patients who were given more intensive rehabilitation therapies (Slade et al., 2002). Patients with progressive MS who received out-patient rehabilitation, experienced reductions in fatigue and MS related symptoms (DiFabio et al., 1997, 2003). Furthermore, a physiotherapy program conducted at home or in a hospital outpatient clinic resulted in significant improvements in mobility, subjective well-being, and mood in patients with chronic MS (Wiles et al., 2001). This study suggests that ongoing physiotherapy might be necessary for sustaining improvement in mobility or prevention of deterioration. Other studies demonstrated positive impact of multidisciplinary rehabilitative care on the daily life of patients with multiple sclerosis (Freeman et al., 1999; Solari et al., 1999).

In studies regarding access to rehabilitation services by people with disabilities, respondents report difficulty in accessing services, largely due to insurance coverage limitations (Beatty et al., 2003). Many insurance policies and state/federal regulations require that rehabilitation services be 'restorative' rather than oriented to maintenance of function and prevention of avoidable disability and complications. However, for individuals with chronic, progressive or disabling conditions such as MS, maintenance therapy is critical for preserving overall health and functioning, maintaining

independence, avoiding institutionalization, and preventing secondary medical conditions and the associated need for costly hospitalizations that may include surgeries.

While additional research is needed, recent findings along with expert opinion and clinical experience demonstrate the value of rehabilitation in MS. Physicians should prescribe appropriate rehabilitation therapies for their patients with MS and insurers should cover these therapies.

Process

The clinical care committee of the National MS Society's Medical Advisory Board (MAB) identified the need to develop and periodically update a formal position about rehabilitation as a necessary component of quality health care for people with MS, at all stages of the disease. The MAB convened a multidisciplinary task force of MS experts to develop recommendations. The task force conducted a comprehensive review of the literature and compiled professional opinion based on the literature and clinical practice. The Medical Advisory Board's Executive Committee provided final review and approval of the document.

Use of the Recommendations

The National MS Society rehabilitation and MS statement is an educational and advocacy tool. It will be a component of the Society's professional education programs and will be used to promote increased access to rehabilitative therapies through legislative and regulatory determinations. It will serve as a communication device for interactions with insurers both nationally and locally. It supports self-advocacy for persons with MS and will encourage them to talk with their health care providers and insurers about whether rehabilitation is indicated.

Role of the National Multiple Sclerosis Society

The mission of the National MS Society is to end the devastating effects of multiple sclerosis. Various strategies are employed to do so, including professional education and advocacy. As a representative body and advocate for people with MS and medical/health professionals who provide their care, the Society is positioned to provide structure and support for the development of an expert opinion document to facilitate access to rehabilitative therapies for disease management. The National MS Society has a nationwide network of chapters and regular contact with persons with MS and their families as well as with health care professionals. This extensive network and process for dissemination of information will ensure that the recommendations regarding rehabilitation and MS will be communicated to providers, insurers, and people with MS.

REFERENCES AND RELATED PUBLICATIONS

- Aisen ML, Sevilla D, Fox N, Blau A. Inpatient rehabilitation for multiple sclerosis. *J Neuro Rehab* 1996; 10:43–44.
- Aisen ML. Justifying neurorehabilitation. *Neurology* 1999; 52:8–10.
- Armutlu K, Karabudak R, Nurlu G. Physiotherapy approaches in the treatments of ataxic multiple sclerosis: A pilot study. *Neurorehabilitation and Neural Repair* 2001; 15:203–211.
- Baker NA, Tickle-Degnen L. The effectiveness of physical, psychological, and functional interventions in treating clients with multiple sclerosis: A meta-analysis. *Am J Occup Ther* 2001; 55(3):324–531.
- Beatty PW, Hagglund KJ, Neri MT, et al. Access to health care services among people with chronic or disabling conditions: Patterns and predictors. *Arch Phys Med Rehabil* 2003; 84:1417–1425.
- Bello-Hass VD. A framework for rehabilitation of neurodegenerative diseases: Planning care and maximizing quality of life. *Neurology Report* 2002; 26(3):115–129.
- Benedict RHB, Shapiro A, Priore R, et al. Neuropsychological counseling improves social behavior in cognitively-impaired multiple sclerosis patients. *Mult Scler* 2000; 6:391–396.
- Berg V, Bergmann S, Hovdal H, et al. The value of dorsal column stimulation in multiple sclerosis. Scand J Rehabil Med 1982; 14(4):183–191.
- Boggild M, Ford H. Multiple sclerosis. *Clinical Evidence* 2002; 7:1195–1207.
- Brar SP, Smith MB, Nelson LM, et al. Evaluation of treatment protocols on minimal to moderate spasticity in multiple sclerosis. *Arch Phys Med Rehabil* 1991; 72(3):186–189.
- Chiara T, Carlos J Jr, Martin D, Miller R, Nadeau S. Cold effect on oxygen uptake, perceived exertion, and spasticity in patients with multiple sclerosis. *Arch Phys Med Rehabil* 1998; May; 79(5):523–528.
- Craig J, Young CA, Ennis M, Baker G, Boggild M. A randomised controlled trial comparing rehabilitation against standard therapy in multiple sclerosis patients receiving steroid treatment. *J Neurol Neuropsy and Psych* 2003; 74:1225–1230.
- Di Fabio RP, Choi T, Soderberg J, Hansen CR. Health-related quality of life for persons with progressive multiple sclerosis: influence of rehabilitation. *Phys Ther* 1997; 77(12):1704–1716.
- Di Fabio RP, Soderberg J, Choi T, Hansen CR, Schapiro RT. Extended outpatient rehabilitation: its influence on symptom frequency, fatigue, and functional status for persons with progressive multiple sclerosis. *Arch Phys Med Rehabil* 1998; 79(2):141–146.
- Erickson RP, Lie MR, Wineinger MA. Rehabilitation in multiple sclerosis. *Mayo Clin Proc* 1989; 64(7):818–828. Review.
- Freeman JA, Langdon DW, Hobart JC, Thompson AJ. The impact of inpatient rehabilitation on progressive multiple sclerosis. *Ann Neurol* 1997; 42(2):236–244.
- Freeman JA, Langdon DW, Hobart JC, Thompson AJ. Inpatient rehabilitation in multiple sclerosis: Do the benefits carry over into the community? *Neurology* 1999; 52(1):50–56.

- Freeman J, Morris M, Davidson M, Dodd K. Outcome measures to quantify the effects of physical therapy for people with multiple sclerosis. *Neurology Report* 2002; 26(3):139–144.
- Fuller KJ, Dawson K, Wiles CM. Physiotherapy in chronic multiple sclerosis: A controlled trial. *Clin Rehabil* 1996; 10:195–204.
- Hartelius L, Wising C, Nord L. Speech modification in dysarthria associated with multiple sclerosis: An intervention based on vocal efficiency, contrastive stress, and verbal repair strategies. *J Med Speech-Lang Path* 1997; 5(2):113–140.
- Johnson SK, Frederick J, Kaufman M, Mountjoy B. A controlled investigation of bodywork in multiple sclerosis. *Journal of Alternative and Complementary Medicine* 1999; 5(3):237–243.
- Ko Ko C. Effectiveness of rehabilitation for multiple sclerosis. Clin Rehabil 1999; 13(1):33–41.
- Kraft GH. Rehabilitation still the only way to improve function in multiple sclerosis. *Lancet* 1999; 354:2016–2017.
- Kraft GH. Rehabilitation principles for patients with multiple sclerosis. *J Spinal Cord Med* 1998; 21(2):117–120. Review.
- Langdon DW, Thompson AJ. Multiple sclerosis: A preliminary study of selected variables affecting rehabilitation outcome. *Mult Scler* 1999; 5:94–100.
- LaRocca N, Kalb R. Efficacy of rehabilitation in multiple sclerosis. *J Neuro Rehab* 1992; 6:147–155.
- Lincoln NB, Dent A, Harding J, et al. Evaluation of cognitive assessment and cognitive intervention for people with multiple sclerosis. *J Neurol Neurosurg Psychiatry* 2002; 72(1):93–98.
- Liu C, Playford ED, Thompson AJ. Does neurorehabilitation have a role in relapsing remitting multiple sclerosis? *J Neurol* 2003; 250(10):1214–1218.
- Lord SE, Wade DT, Halligan PW. A comparison of two physiotherapy treatment approaches to improve walking in multiple sclerosis: A pilot randomized study. *Clin Rehabil* 1998; 12(6); 477–486.
- Mathiowetz V, Matuska KM, Murphy ME. Efficacy of an energy conservation course for persons with multiple sclerosis. *Arch Phys Med Rehabil* 2001; 82(4):449–456.
- Mostert A, Kesselring J. Effects of short-term exercise training program on aerobic fitness, fatigue, health perception and activity level on subjects with multiple sclerosis. *Mult Scler* 2002; 8:161–168.
- Nielsen JF, Sinkjaer T, Jakobsen J. Treatment of spasticity with repetitive magnetic stimulation; a double-blind placebo-controlled study. *Mult Scler* 1996; 2(5):227–232.
- O'Hara L, Cadbury H, De SL, Ide L. Evaluation of the effectiveness of professionally guided self-care for people with multiple sclerosis living in the community: A randomized controlled trial. *Clin Rehabil* 2002; 16(2):119–128.
- Olgiati R, Prampero PE. Effect of physical exercise on adaptation to energy expenditure in multiple sclerosis. *Schweiz Med Wochenschr* 1986; 116(12):374–377. French.

- Patti F, Ciancio MR, Cacopardo M, et al. Effects of a short outpatient rehabilitation treatment on disability of multiple sclerosis patients—A randomized controlled trial. *J Neurol* 2003; 250(7):861–866.
- Petajan JH, Gappmaier E, White AT, et al. Impact of aerobic training on fitness and quality of life in multiple sclerosis. *Ann Neurol* 1996; 39(4):432–441.
- Petajan JH, White AT. Recommendations for physical activity in patients with multiple sclerosis. Sports Med 1999; 27(3):179–191.
- Sapir S, Pawlas A, Ramig L, et al. Effects of intensive phonatory-respiratory treatment (LSVT®) on voice in two individuals with multiple sclerosis. *J Med Speech-Lang Path* 2001; 9(2):141–151.
- Slade A, Tennant A, Chamberlain MA. A randomised controlled trial to determine the effect of intensity of therapy upon length of stay in a neurological rehabilitation setting. *J Rehabil Med* 2002; 34(6):260–266.
- Solari A, Filippini G, Gasco P, et al. Physical rehabilitation has a positive effect on disability in multiple sclerosis patients. *Neurology* 1999; 52:57–62.
- Steultjens EM, Dekker J, Bouter LM et al. Occupational therapy for multiple sclerosis. *Cochrane Database Syst Rev* 2003(3): CD003608.
- Stuifbergen AK, Becker H, Blozis S, Timmerman G, Kullberg V. A randomized clinical trial of a wellness intervention for women with multiple sclerosis. *Arch Phys Med Rehabil* 2003; 84(4):467–476.
- Svensson B, Gerdle B, Elert J. Endurance training in patients with MS: Five case studies. *Phys Ther* 1994; 74:1017–1026.
- Thompson AJ. Progress in neurorehabilitation in multiple sclerosis. "Demyelinating diseases." *Current Opinion in Neurology* 2002; 15:267–270.
- Thompson AJ. The effectiveness of neurological rehabilitation in multiple sclerosis. *J Rehab Res and Dev* 2000; 37(4):455–461.
- Vahtera T. Pelvic floor rehabilitation is effective in patients with multiple sclerosis. *Clin Rehabil* 1997; 11(3):211–219.
- Vanage SM, Gilbertson KK, Mathiowetz V. Effects of an energy conservation course on fatigue impact for persons with progressive MS. *Am J Occup Ther* 2003; 57(3):315–323.
- Wiles CM, Newcombe RG, Fuller KJ, et al. Controlled randomized crossover trial of the effects of physiotherapy on mobility in chronic multiple sclerosis. *J Neurol Neurosurg Psychiatry* 2001; 70:174–179.
- Wiles CM, Newcombe RG, Fuller KJ, Jones A, Price M. Use of videotape to assess mobility in a controlled randomized crossover trial of physiotherapy in chronic multiple sclerosis. *Clin Rehabil* 2003; 17(3):256–263.

Rehabilitation Consensus Statement Task Force

George H. Kraft, MD, Co-Chair Professor, Rehabilitation Medicine Adjunct Professor, Neurology University of Washington Seattle, WA

Randall T. Schapiro, MD, Co-Chair Director, The Schapiro Center for Multiple Sclerosis at The Minneapolis Clinic of Neurology & Clinical Professor of Neurology University of Minnesota Golden Valley, MN

Aliza Ben-Zacharia, RN, CRRN, MSN, ANP-C The Corinne Goldsmith Dickinson Center for Multiple Sclerosis The Mount Sinai Medical Center New York, NY

Francois Bethoux, MD
Director, Rehabilitation Services
The Mellen Center at
The Cleveland Clinic Foundation
Cleveland, OH

Debra Frankel, MS, OTR Senior Consultant National Multiple Sclerosis Society Cambridge, MA

Deborah Hertz, MPH
National Director, Medical Programs
National Multiple Sclerosis Society
New York, NY

Nancy Holland, EdD, RN, MSCN Vice President, Clinical Programs National Multiple Sclerosis Society New York, NY

Nicholas LaRocca, PhD Director, Healthcare Delivery and Policy Research National Multiple Sclerosis Society New York, NY

Nancy Mazonson MS, OTR/L Braintree Rehabilitation Hospital Metrowest Medical Center Natick, MA

Patricia Provance, PT

Maryland Center for Multiple Sclerosis/
Kernan Rehabilitation Hospital
Baltimore, MD

Ken Seaman, MA, PT, ACCE Physical Therapy Department University of Delaware Newark, DE

Kathryn M. Yorkston, PhD Rehabilitation Medicine University of Washington Seattle, WA

This advisory statement was reviewed and adopted by the Executive Committee of the Medical Advisory Board of the National Multiple Sclerosis Society.

Aaron Miller, MD Chair

Corinne Goldsmith Dickinson Center

Center for Multiple Sclerosis
The Mount Sinai Medical Center

New York, NY

Jeffrey Cohen, MD
The Mellen Center—U10
Cleveland Clinic Foundation

Cleveland, OH

George Garmany, MD Associated Neurologists

Boulder, CO

Andrew Goodman, MD Department of Neurology

University of Rochester Medical Center

Rochester, NY

Barbara Green, MD

St. John's Mercy Medical Center

St. Louis, MO

Kenneth Johnson, MD

Maryland Center for Multiple Sclerosis University of Maryland School of Medicine

Baltimore, MD

Fred Lublin, MD

Corinne Goldsmith Dickinson Center

for Multiple Sclerosis

The Mount Sinai Medical Center

New York, NY

Henry McFarland, MD Neuroimmunology Branch

NINDS—National Institutes of Health

Bethesda, MD

John Noseworthy, MD
Department of Neurology
Mayo Clinic and Foundation

Rochester, MN

Kottil Rammohan, MD Department of Neurology Ohio State University Columbus, OH

Richard Rudick, MD
The Mellen Center—U10
Cleveland Clinic Foundation

Cleveland, OH

Randall Schapiro, MD

The Schapiro Center for Multiple Sclerosis at

The Minneapolis Clinic of Neurology

Golden Valley, MN

Randolph B. Schiffer, MD

Texas Tech Health Sciences Center

Lubbock, TX

Donald Silberberg, MD Department of Neurology

University of Pennsylvania Medical Center

Philadelphia, PA

Stanley van den Noort, MD Department of Neurology University of California at Irvine

Irvine, CA

Jerry Wolinsky, MD

Department of Neurology

University of Texas Health Science Center

Houston, TX