

Physical Therapy in Multiple Sclerosis Rehabilitation

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Rehabilitation is an essential part of health care delivery for persons with multiple sclerosis (MS). It is important that rehabilitation team members possess knowledge, experience, and sensitivity relating to the unique variation of symptoms between individuals, and to the unpredictable and fluctuating nature of this challenging, progressive disease. A shared understanding of the progressive nature of MS will enable therapists and patients to establish realistic short- and long-term treatment goals over the course of the disease. In addition, rehabilitation therapists need to be aware of the broad range of social, emotional, vocational, and financial issues confronting their patients with MS.

In all care delivery models—inpatient (acute, transitional, rehabilitation, or long term care), home care, or outpatient—physical therapists (PTs) must understand and respect the physiological fatigue associated with MS. The goal is to establish corrective exercises and activity programs that are appropriate, realistic, and meaningful, with a strong focus on *improving and maintaining* function. PTs must be prepared to:

- ◆ Educate
- ◆ Develop effective home programs for managing symptoms
- ◆ Promote safe independence
- ◆ Provide resources for equipment and community programs
- ◆ Train family and caregivers

A UNIQUE APPROACH TO MANAGING MS

Physical therapy of persons with MS in the outpatient setting typically varies from the “traditional” (orthopedic or fixed deficit neurological condition) model. Instead of scheduling PT appointments two or three times a week, effective outpatient therapy can be provided as needed, with dedicated one-on-one sessions. This prevents or minimizes depletion of the patient’s energy and insurance

benefits, since the need for rehabilitation follow-up is life long and likely to increase with age. Weekly follow-up is appropriate when regular professional assistance is needed following an exacerbation, progression of disability, or other illness or injury, or when skilled passive stretching, gait training, corrective exercise, and/or family teaching are required.

When symptoms are well controlled and an effective home/community exercise program has been established, follow-up sessions every 1–3 months, or as needed, can work very well. Community programs such as MS aquatic exercise (pool temperature < 85 degrees), hippotherapy (therapeutic horseback riding), gentle yoga, low-level or water-based Tai Chi, adaptive bowling, and day programs can provide needed therapeutic recreational and social outlets.

PHYSICAL THERAPY EVALUATION

Ambulation/Mobility

For the ambulatory individual, the desire to continue walking or “to walk better” is usually a primary goal. Vision, sensation, vestibular or cerebellar deficits, and muscle weakness need to be considered, all within the context of optimizing safety, when assessing balance. Evaluation and training are important to determine the most appropriate ambulation aid(s) to normalize the gait pattern with optimal alignment, and to improve stability with minimal energy expenditure. A person’s needs often vary with level of fatigue, temperature, distance to be walked, or time of day. Ambulatory patients may use a cane, one or two *lightweight* forearm crutches, or a four-wheel rolling walker (preferably with large swivel wheels, a flip-up seat, backrest and handbrakes) at different times of the day, week, or year. An ankle-foot orthosis (AFO), preferably custom-made, can effectively correct foot-drop secondary to weakness and/or fatigue. A motorized mobility aid, such as a scooter or a power wheelchair, is often appropriate for the ambulatory person with fatigue, when long distances must be covered and energy conservation is required. A motorized scooter is also useful for individuals with paraparesis or gait ataxia who retain good sitting balance, transfer skills, and trunk control. A power wheelchair would be more appropriate for individuals who are non-ambulatory and require additional seat and trunk support.

Posture/Trunk Control/Balance/Transfers

It is important to assess seated and standing posture as well as balance in static and dynamic conditions. Unsupported trunk control and good upper extremity strength are essential to maintaining functional transfer abilities. Wheelchair users or primarily sedentary individuals will develop problems with alignment, muscle imbalances, and poor endurance secondary to inactivity. The therapist needs to evaluate transfer control to and from bed, chair, toilet, car, and floor—noting quality, safety, and level of assistance needed for maximally independent function.

Range of Motion (ROM)

Both passive and active functional ROM should be assessed in the extremities and trunk. Sedentary or inactive persons with MS often present with:

- ◆ Significant hip flexor, adductor, hamstring, and heel cord tightness
- ◆ Limited overhead upper extremity reach due to tightness in the pectoralis minor, major, and latissimus dorsi caused by slumped posture
- ◆ Poor head control due to postural and substitution patterns leading to tightness in the upper trapezius and posterolateral cervical musculature

Motor Function

The therapist should assess gross strength, with emphasis on *function*, in the extremities and trunk. Quality and control of movements, as well as substitution patterns, need to be noted. A key goal is to prevent or correct “secondary” or “disuse” weakness, commonly encountered by people with MS who have assumed a sedentary lifestyle or embraced compensatory movement patterns due to fatigue.

Weakness is commonly found in trunk, abdominal, and gluteal muscles. Poor scapular control, due to middle and lower trapezius weakness, and poor head control, due to weak high anterior neck flexors, are also common. These muscle imbalances frequently respond favorably to simple corrective exercises, including standing with good posture, when the individual is conscientious with his or her home program.

Neurological Function

Assessments of the following are necessary for development of treatment interventions (to supplement pharmacologic therapies) to improve safety, control, and function:

- ◆ Abnormal tone—noting nature and extent of hypertonicity (e.g. constant, fluctuating, or intermittent)
- ◆ Clonus
- ◆ Tremors—noting “resting,” “intention,” or both, and interference with function
- ◆ Coordination—gross, fine, rapid alternating
- ◆ Sensation
- ◆ Proprioception
- ◆ Pain

Referral to a physiatrist or neurologist for additional treatment interventions may be warranted.

OTHER CONSIDERATIONS

- ◆ **Speech**—Evaluate the effectiveness and function of voice control, respiration, and swallowing. Arrange a consult with a speech-language pathologist, if needed.
- ◆ **Cognition**—Be alert to problems with memory, attention, concentration, and planning, which are common in MS. These must be considered in training, treatment, and home-program planning. Arrange a consultation with a neuropsychologist, occupational therapist, or speech-language pathologist if needed.
- ◆ **Emotional**—Assess verbal and non-verbal (body-language) signs, including anger, fear, frustration, denial, depression – especially unrealistic, inappropriate, or euphoric behaviors. (Feedback from family/caregivers can be very helpful.) There is often a need to promote acquisition of effective coping skills that facilitate successful adaptation to the challenges MS presents.
- ◆ **Social**—Assess the “support system” (family, friends, co-workers) for involvement and effectiveness, as well as the individual’s ability to maintain a balanced social life (outings, entertainment, etc.).
- ◆ **Vocational/Homemaking**—Explore possible limitations from fatigue, motor or sensory dysfunction, and cognitive issues. Ensure that safety is maintained.

TREATMENT PLANS AND GOALS

The primary goals are to develop a plan that is:

- ◆ Appropriate to meet individual needs
- ◆ Attainable
- ◆ Functionally-oriented
- ◆ Consistent with the priority needs identified by the individual

HOME PROGRAMS

The key components of a successful home program are that it is enjoyable, varied, goal-oriented, and realistic. Considerations include a person’s endurance, support-assistance from family and friends, motivation, level of understanding, and time constraints. Emphasis needs to be placed on corrective exercises to: (1) improve and maintain function (restoring alignment, mobility, and strength/ endurance lost due to inactivity/disuse or compensatory movement patterns); (2) manage spasticity (slow stretching, cold packs, controlled position changes); and (3) control energy management (careful pacing/ flexing work schedules, proactive resting vs. reactive “collapse,” avoiding overexertion/overheating, substitution of less stressful activities).

OPTIMAL FOLLOW-UP

Optimal follow-up will vary according to individual needs. It is always critical to consider physical and emotional needs, as well as family support, finances, insurance constraints, transportation, and weather.

SUMMARY

- ◆ Understanding, assessing, and managing the unique set of symptoms in each person with MS necessitates careful evaluation and appropriate follow-up.
- ◆ Recognizing the individual needs of each person with MS (physical, emotional, social, and vocation) is essential to a positive outcome.
- ◆ Setting individualized, realistic, appropriate, and functionally-oriented short- and long-term goals is essential to the rehabilitation process.
- ◆ Establishing home/community activity programs that are flexible, varied, appropriate, and effective is essential.
- ◆ Developing a current file of community resources for referral (equipment and programs, including helpful websites) is invaluable, including National Multiple Sclerosis Society (NMSS) programs, equipment, *cool* (<85 degrees) pools, and therapeutic recreational options. In most cases, the NMSS chapter will have resource lists that may be useful to both the PT and the clients.
- ◆ Empowering individuals to understand that MS is a challenging lifelong disease that, like arthritis or diabetes, requires lifestyle adaptations aimed at careful symptom management and basic good health. The greatest service health professionals can provide is to educate and assist each individual to optimize *control* and *quality* of his/her life, resulting in increased *safe independence*. Being available for consultations, and follow-ups as needed, reassures each individual with MS that the PT is a very important member of the health care *support* team.

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