

# November 2019 Newsletter



## How are you functioning with MS?

The goal of rehabilitation therapy for MS is to reduce disability and help those living with the disease continue to live as independently as possible with the abilities they have.



Rehabilitation begins with a baseline evaluation of how a person is functioning, both physically and mentally. A treatment plan can then be determined based on an individual's needs.

Rehabilitation professionals use a wide variety of standardized tests to determine how a client is doing. These assessments measure changes in health status (also known as health outcomes).

Throughout treatment, these evaluations must be performed periodically to measure treatment effectiveness, allowing for the treatment regimen to be adjusted, if needed. As discussed in our [March 2018 newsletter](#), health outcomes are classified according to the source from which they are collected.

A physician reported outcome is one collected by a physician in the course of clinical care (for example, the physical exam or lab tests). A patient reported outcome (PRO) is one directly reported by the patient who experienced it. Both points of view are very important because they measure different components of a person's wellbeing. MS rehabilitation therapy uses both types of health outcomes to determine a patient's functional status and to provide the individualized treatment someone living with the disease requires.



Many people with MS experience difficulty with walking. A number of tools are specifically intended to evaluate an individual's gait. Physical and occupational therapists rely on the information obtained from these instruments in their work. They may also gather information about an individual's home and working environment, as well as their usual activities. These details give them insight for any recommendations they may have.

### **Gait assessments**

A [functional gait assessment](#) (also known as dynamic gait index) evaluates not only an individual's usual gait, but also walking during more challenging tasks. After walking at their normal speed for 20 feet, individuals are presented with different challenges while walking, such as walking at different speeds, turning and nodding their head, pivoting and stopping, walking over and around obstacles, as well as up and down stairs.

The [6-minute walk test](#) measures the distance an individual is able to walk over a period of 6 minutes on a hard, flat surface. The goal is to walk as far as possible. The person is allowed to walk at their own pace and rest as needed during the test.

The [Timed 25 Foot Walk](#) (T25-FW) measures the amount of time it takes a person to walk a clearly marked 25-foot course as quickly and safely as possible. Upon completing the task, they must walk back the same distance in the same manner. Individuals may use assistive devices while walking. The evaluator records the amount of time it takes to complete both passes.

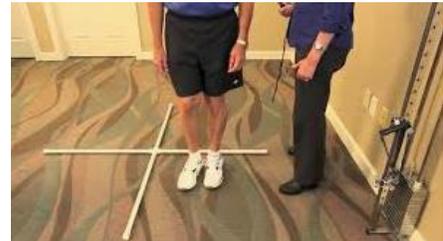
The [Hauser Ambulation Index](#) is similar to the T25-FW. The patient is asked to walk a distance of 25 feet as quickly and safely as possible and is allowed to use mobility aids. The examiner records the time and type of assistance needed, if any. Scores range from 0 (asymptomatic and fully active) to 10 (bedridden).

The [Rivermead Mobility Index](#) (RMI) is a tool that combines the patient and clinician perspective to assess gait, balance and transfers. It is a survey with 15 questions related to mobility in bed, transfers, walking, stair use and running. The examiner is required to make one observation, which is whether or not the patient can stand unsupported for more than 10

seconds. All items are answered in a yes/no format with positive responses scoring a 1 for a maximum score of 15.

The [12-Item MS Walking Scale](#) is a PRO that captures the patient perspective on the impact of MS on the individual's walking ability.

MS can affect an individual's balance in a number of ways both directly, as a result of nerve damage, and indirectly from the impact of other MS symptoms (such as vision or sensory issues). Instability can affect many aspects of daily life, including walking ability. The following assessments are the first step to building a rehab treatment plan to improve this troubling MS symptom.



Four Square Step Test

### **Balance Assessments**

The [Activities-Specific Balance Confidence Scale](#) is a self-reported assessment of a person's degree of confidence in performing various activities without losing balance or experiencing a sense of unsteadiness.

The [Dizziness Handicap Inventory](#) is a 25-item PRO instrument measuring the functional, emotional, and physical effects of dizziness and unsteadiness. The patient is asked to answer each question as it pertains to any issues they may have experienced over the past month.

The [Berg Balance scale](#) is a widely used clinical test comprised of a set of 14 simple balance-related tasks, ranging from standing up from a sitting position, to standing on one foot. It does not include an assessment of gait.

The [Four Square Step Test](#) is a clinical assessment of a person's ability to step over objects forward, sideways, and backward. Two canes are placed in a cross configuration on the ground, creating four quadrants. An evaluator measures the amount of time it takes a patient to step sequentially from quadrant to quadrant, facing forward, both clockwise and counterclockwise. Those unable to face forward during the entire sequence may turn before stepping into the next square.

The [Timed Up & Go](#) test measures the time taken by an individual to stand up from a standard arm chair, walk a distance of three meters (approximately 10 feet), turn, walk back to the chair, and sit down. Subjects can wear their regular footwear and use their customary walking aid. No physical assistance is given.

The [Tinetti Assessment Tool](#) measures a person's gait and balance. The test is scored on their ability to perform specific tasks, including rising from and sitting down in an armless chair, standing, turning and walking. During this test, individuals can use any assistive devices they would normally use.

The [Trunk Impairment Scale](#) assesses balance and trunk coordination in a sitting position. This includes the ability of an individual to maintain a sitting position while crossing their legs, rotating and bending their trunk from side to side, and lifting each hip.

The [Functional Reach test](#) assesses a person's stability by measuring the maximum distance an individual can reach forward while standing in a fixed position (without taking a step). A modified version allows the individual to sit during the test.

Weakness, which is common in MS, can occur in any part of the body. Weakness in the legs, ankles and feet can interfere with walking. In the upper body and arms, it can interfere with everyday activities and self-care. Rehabilitation professionals can evaluate weakness and implement therapy accordingly to help.



### **Weakness assessments**

The [Manual Muscle Test](#) is a widely used test to determine muscle strength and weakness. It assesses the maximum force a muscle is capable of generating.

In cases of hand weakness, physical and occupational therapists often use a hand-held device, such as a [dynamometer](#) or a [pinch gauge](#), to evaluate grip strength.

The [Five Times Sit to Stand](#) measures functional lower extremity strength. In this timed evaluation, subjects sit in a chair with their arms folded across their chest and are asked to stand up and sit down as quickly as possible five times, keeping their arms folded.



Spasticity (feelings of stiffness or involuntary muscle spasm) is a common symptom of MS. It may be as mild as a feeling of tight muscles, or severe enough to cause painful, uncontrollable spasms of extremities. Although spasticity can occur in any limb, it is most common in the legs. The [Modified Ashworth Scale](#) is a measurement standard many rehabilitation specialists refer to for a determination of how much muscle spasm a client may have and how best to treat it. Subjects are asked to lay flat on their back for this assessment. If testing a muscle that primarily flexes a joint, the joint is placed in a maximally flexed position and moved to a position of maximal extension over one second. If testing a muscle that primarily extends a joint, it is placed in a maximally extended position and moved to a position of maximal flexion over one second. The assessment is scored based on the amount of muscle tone and how easily the joint moves.

Many people with MS struggle with a loss of dexterity in their hands. Activities such as picking things up, holding on to items, writing, buttoning clothing, or controlling eating utensils may be very difficult. Listed below are two common ways clinicians may measure hand function.



Box and Blocks Test

### **Upper extremity assessments**

[9-Hole Peg Test](#) – The patient is seated at a table with a small, shallow container holding nine pegs and a block with nine empty holes. He or she must pick up the nine pegs one at a time as quickly as possible, put them in the holes, and then remove them as quickly as possible one at a time, replacing them back into the shallow container. The total time to complete the task is recorded. Both the dominant and non-dominant hands are tested twice.

[Box and Blocks Test](#) (BBT) – Individuals are seated at a table, facing a wooden box divided into two compartments by a partition, one compartment containing 150 blocks. Individuals are asked to move as many blocks as they can, one at a time, from one compartment to the other,

within 60 seconds. Typically, both hands are tested, beginning with the unaffected hand. The BBT is scored by counting the number of blocks moved during the one-minute period.

Sensory problems occur in 20 to 50 percent of people with MS and are often one of their earliest symptoms. These abnormal sensations include numbness, tingling, burning and increased sensitivity. The [Semmes-Weinstein Sensory Test](#) is a device used to map out sensory loss. This tool consists of a set of



monofilaments that vary in thickness and diameter. Each one is color coded according to the degree of stimulation it gives. The evaluator gently presses the filament on the individual's skin, systematically starting with the smallest monofilament (with the least stimulus) and working up to the largest filament. He or she notes the smallest filament the person feels.



According to the National MS Society, 80% of people with MS experience fatigue, and over half rank it as one of their most troubling symptoms.

Fatigue can be either physical or cognitive, or both at the same time.

Physical fatigue may affect an individual's energy and motivation. Cognitive fatigue, on the other hand, could affect one's concentration and memory. In either case, fatigue negatively impacts the functioning and quality of life of the majority of people living with MS. A number of PRO measures are used to assess the level of fatigue an individual may have.

### **Fatigue PRO assessments**

The [Fatigue Scale for Motor and Cognitive Functions](#) is a 20-item questionnaire about problems that are directly associated with MS-related physical and cognitive fatigue. Individuals are asked to complete the instrument based on how they feel in normal day-to-day life.

The [Modified Fatigue Impact Scale](#) contains 21 questions about the effects of fatigue over the last month. The total score is the sum of the scores for each question. Individual subscale scores for physical, cognitive and psychosocial functioning can also be generated by calculating the sum of specific sets of questions.

The [Fatigue Visual Analog Scale](#) consists of 18 items relating to the subjective experience of fatigue. Each question is presented as a 10 cm horizontal line that extends between two

extremes (“not at all tired” to “extremely tired”). Respondents place an “x”, representing how they currently feel, on the line. The distance along the line is measured and recorded.



[Studies](#) suggest up to 65% of people with MS have problems with aspects of thinking, such as memory, concentration or problem solving, at some point in the course of their disease. These difficulties usually develop gradually over time. As we discussed in our [March 2019 newsletter](#), cognitive difficulties can have a big impact on daily life. Clinicians specializing in rehabilitation use a number of tools to determine the degree of cognitive impairment their clients may have.

### **Cognitive Dysfunction Assessments**

The [Paced Auditory Serial Addition Test](#) (PASAT) assesses auditory information processing speed and flexibility, as well as calculation ability. Single digit numbers are presented every 2 or 3 seconds and the patient must add each new digit to the one immediately prior to it.

The [Perceived Deficits Questionnaire](#) (PDQ) is a 20-question PRO to assess cognitive dysfunction in people with depression. It focuses on everyday situations in which cognitive difficulty may play a role. The PDQ generates a total score and four individual scores for different cognitive skills – attention/concentration, memory and planning/organization.

MS reduces quality of life (QOL) by interfering with the ability to work, socialize and participate in daily activities. The goal of MS rehabilitation therapy is to maximize QOL for all living with the disease. A myriad of assessments evaluate this important issue, both from the patient and clinician perspective.



### **Quality of Life Assessments**

The [MS Quality of Life](#) is one of the best-known PRO instruments for the evaluation of health-related QOL in people with MS. This 54-item survey contains both generic and MS-specific questions relating to physical function, role limitations, pain, emotional well-being, energy,

health perceptions, social function, cognitive function, health distress, overall QOL, and sexual function.

The [Short Form Health Survey](#) (SF-36) is a 36-item PRO intended to survey recent health status and quality of life (over the past 4 weeks). It assesses eight health concepts: limitations in physical activities because of health problems, limitations in social and everyday activities because of physical or emotional problems, pain, general mental health, energy and fatigue, and general health perceptions.

The [Canadian Occupational Performance Measure](#) is a PRO designed to capture an individual's perception of their performance in everyday living, over time. Originally published in 1991, it is used in over 40 countries and has been translated into more than 35 languages.

The [Functional Assessment of MS](#) is a PRO consisting of 58 items. It investigates 6 primary aspects of QOL in people with MS: mobility, symptoms, emotional well-being, general contentment, thinking/fatigue, and family/social well-being.

The [Goal Attainment Scale](#) is a PRO focused on goal setting and achievement. Questions are customized to suit each person and scored individually based on their current and expected levels of performance. Each individual goal is rated on a 5-point scale and they are weighted with regards to relative importance to the individual. Individual scores for three to four goals are incorporated into a total score.

The [MS Impact Scale](#) is a 29-question PRO about the recent impact of MS on day-to-day life (over past two weeks). Twenty of the questions relate to the disease's physical impact and nine relate to its psychological effects.

The [MS International Quality of Life Questionnaire](#) is an MS-specific PRO that is available in 14 languages. This questionnaire was developed from patient interviews and designed specifically to reflect patients' perspectives of how MS affects their daily lives.

The [MS Quality of Life Inventory](#) (MSQLI) is a clinician-reported assessment that consists of 10 individual scales. It provides a QOL measure that is both generic and MS-specific and addresses many concerns that are relevant to the MS population. Scales cover topics such as health status,

fatigue, pain, sexual satisfaction, bowel/bladder control, visual impairment, perceived deficits, mental health and social support.

MS disease severity is a helpful data point for clinicians in order to select and manage a course of treatment for someone living with the disease. They use a number of tools to gather this information.



### **Disease Severity Assessments**

The [Guy's Neurological Disability Scale](#) is a PRO used to capture many aspects of disabilities that can be experienced by people with MS including cognition, mood, vision, speech, swallowing, fatigue, as well as limb, bladder, bowel and sexual function.

The [Patient Determined Disease Steps](#) is a patient-reported measure of disability in MS. Responses range from 0 (normal) to 6 (confined in a wheelchair).

The [Functional Independence Measure](#) is an 18-item clinician-reported scale that is used to assess and grade the functional status of a person based on the level of assistance he or she requires. Tasks that are evaluated include bowel and bladder control, transfers, locomotion, communication, social cognition as well as six self-care activities: feeding, grooming, bathing, upper/lower body dressing and toileting.

The [MS Functional Composite](#) (MSFC) is a standardized method of measuring the severity of MS that is primarily used in research. This 3-part assessment is based on scores from the T25-FW, 9-hole peg test and PASAT (described earlier).

MS rehabilitation therapy is often multi-faceted. It may include changing behavior patterns or making modifications to one's environment. Physical or occupational therapists may recommend exercise or stretching, relaxation, strategies for keeping cool or conserving energy, or even something as simple as supportive foot ware. In some cases, assistive equipment or gait training may be advised. In order to implement or manage any of these interventions, rehabilitation experts must determine an individual's health status. A wide variety of tests are used to do this. These instruments combine both the patient and clinician perspective, painting the most accurate picture of how a patient is doing. Armed with these tools, rehabilitation

professionals can most effectively work with their clients' toward living the best life possible with MS.

