

Living Well With MS:  
**Managing  
Fatigue**

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## Introduction

Multiple sclerosis (MS) is a disease with many signs and symptoms, including tremor, spasticity, weakness, vision problems, and difficulties in walking. However, individuals with MS might be surprised to know that the most common symptom of MS is fatigue. Often described as an overwhelming sense of physical or mental tiredness, fatigue has a major impact on quality of life, interfering with activities of daily living, exercise, and the ability to cope with other MS symptoms. According to some studies, over 90% of individuals with MS suffer from fatigue, and over three quarters consider it to be one of their three most troublesome symptoms.

Fatigue is frustrating for individuals with MS, their families, and health care providers alike because it is unpredictable. It can last for only a short period of time or for years, and it can be mild or completely debilitating. It does not appear to be linked to age or gender, how long the individual has had MS, or the level of disability. It is believed to be caused by many factors, including the damage to the nervous system caused by the disease itself and the body's immune system responses, as well as secondary factors such as pain, sleep disorders, mood disorders, and interferon therapy.

This booklet, *Living Well With MS: Managing Fatigue*, will help you to understand some of the causes of fatigue, how to recognize it, and how to manage fatigue successfully to improve your functioning and quality of life. Above all, I hope that people with MS and their families will learn from this booklet that fatigue is not an inevitable consequence of MS, and that fatigue should never be considered untreatable. Working together, there are many approaches that individuals with MS, their families, and their health care providers can take to minimize, or even eliminate, fatigue.

# Part 1:

## What Is MS-Related Fatigue?

The word *fatigue* conjures up a number of meanings for individuals with multiple sclerosis (MS), their families, and their health care providers. If you ask someone to define fatigue, you will most likely hear a wide variety of descriptions that include tiredness, sleepiness, weakness, and exhaustion.

All of us, whether or not we have MS, feel some level of tiredness or fatigue at some point in our lives. The physical and psychological demands placed on us by families, friends, and work can lead any of us to feel tired. However, the fatigue associated with MS is different from “normal” tiredness. Many MS health care providers report that individuals with MS feel an overwhelming sense of exhaustion and lack of energy that is completely out of proportion to the activities that they are performing. To the healthy person, errands such as going to the grocery store or the bank are usually not a physical challenge. To individuals with MS, however, the fatigue that they experience can make such simple tasks almost impossible.

Unfortunately, far too often fatigue is not recognized by health care providers, and goes untreated. There are several reasons for this. Individuals with MS may accept fatigue as a normal part of their life, and feel it is not important enough to mention. Those who have had fatigue for a long time may not comprehend the toll it has taken on their quality of life, and may not realize that they are severely reducing their level of activity to compensate for fatigue. Health care providers may overlook fatigue, believing that the physical signs and symptoms of MS, such as weakness, spasticity, vision problems, and mobility problems, are more important.

In addition, providers may not bring up the subject because they feel that nothing can be done about it.

Whatever the reasons for the lack of attention to fatigue, it is essential for individuals with MS to understand that fatigue is a real symptom of MS—as real as tremor, spasticity, bladder problems, vision problems, and walking difficulties. In fact, it is the most common of all MS symptoms, with more than 90% of people affected by MS reporting fatigue in some studies. For many individuals with MS, it is the single most disabling symptom. In a study of over 600 people affected by MS, more than half reported that fatigue interfered with their activities of daily living—more so than problems with balance, weakness, numbness, pain, or depression (**see Table 1-1**). In about one third of people affected by MS, fatigue is the first symptom to appear, and is the initial reason why they seek care.



*“To the healthy person, errands such as going to the grocery store or the bank are usually not a physical challenge. To individuals with MS, however, the fatigue that they experience can make such simple tasks almost impossible.”*

### **A. The Impact of MS-Related Fatigue**

The impact of fatigue cannot be overstated. Fatigue takes a major toll on functioning, mood, and quality of life. Fatigue severely limits energy and endurance, and has negative effects on mood and the ability to cope with other MS symptoms. Fatigue plays a significant role in the way that individuals with MS perceive their own health. Fatigue can result in coping problems such as “learned helplessness,” in which people lose their belief in their ability to care for themselves.

Fatigue also has a powerful effect on physical activity and physical fitness. Fatigue makes individuals with MS weaker by sharply reducing activity levels. Without activity, the person's muscles weaken, especially the muscles that are used to breathe. This progressive weakness causes people with MS to further decrease their activity levels, making fatigue even worse, in a vicious cycle.

**Table 1-1** *The Effects of MS Signs/Symptoms on Activities of Daily Living in a Survey of 656 Individuals with MS*

<b>Sign/Symptom</b>	<b>Percentage Reporting Interference with Activities of Daily Living</b>
Fatigue	56
Balance problems	50
Weakness or paralysis	45
Numbness, tingling, or other sensory disturbances	24
Bladder problems	34
Increased muscle tension (spasticity)	26
Bowel problems	20
Difficulty remembering	16
Depression	18
Pain	21
Difficulty solving problems	9

Source: Freal JE, Kraft GH, Coryell JK. Symptomatic fatigue in multiple sclerosis. *Arch Phys Med Rehabil.* 1984;65:135-138.

## B. How Is MS Related Fatigue Defined?

Several years ago, a panel of experts from all fields of MS health care met to examine the issue of MS-related fatigue. The goal of this group was to devise a definition of MS-related fatigue, and to arrive at a comprehensive treatment strategy. This group included participants from the National Multiple Sclerosis Society (NMSS) of the United States and the Consortium of Multiple Sclerosis Centers (CMSC). It defined fatigue as:

***A subjective lack of physical and/or mental energy that is perceived by the individual or caregiver to interfere with usual or desired activities.***

In arriving at this definition, the panel recognized that everyone experiences some degree of fatigue at some point in their lives. Generally, people can overcome normal fatigue simply by resting for a while or sleeping to restore their energy. However, one of the things that sets fatigue in the individual with MS apart from normal fatigue is the sheer *magnitude* of its effect on functioning. For example, people without MS, or people with other medical conditions who experience transient fatigue, generally find that fatigue does not stop them from doing what they need to accomplish. In contrast, the majority of individuals with MS and fatigue state that, at times, they cannot meet their family, work, or social responsibilities because of the fatigue. Further, while resting may help to reduce fatigue in the person with MS, neither rest nor sleep fully “restores” energy levels.

The duration of fatigue in the individual with MS can vary. Often, fatigue is short-lived and can be tied to a specific cause such as the use of a new drug; an increase in activity levels; hot, muggy weather; or the use of the interferon betas that are used to prevent MS exacerbations. In other individuals affected by MS fatigue, the experience is a long-term phenomenon that lasts

for months or years. Therefore, the expert panel developed two definitions of fatigue:

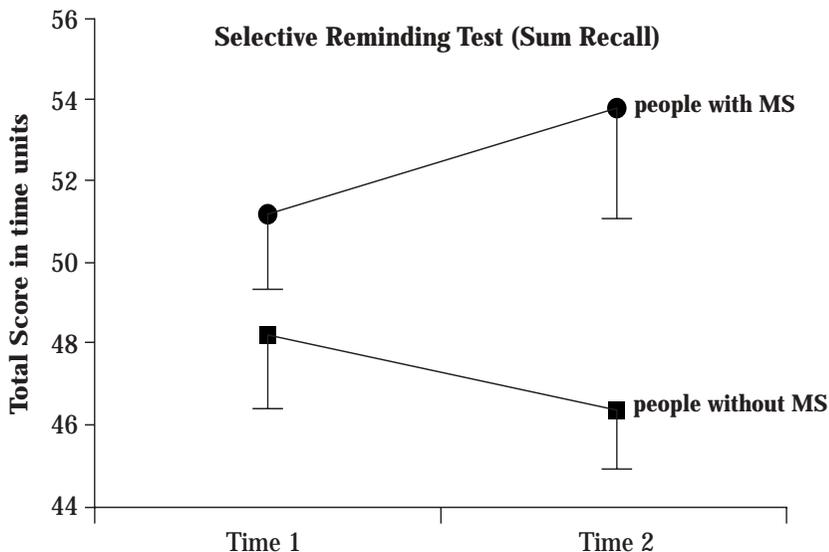
***Chronic persistent fatigue*** is fatigue that is present for any amount of time on 50 percent of days for more than 6 weeks, and that limits functional activities or quality of life.

***Acute fatigue*** is a new or significant increase in feelings of fatigue in the previous 6 weeks. This type of fatigue also limits functional activities or quality of life.

Fatigue in MS may present in a variety of forms. Physically, it may occur as a loss of endurance that affects activities such as walking. It may also take the form of a persistent, overall lack of energy that is referred to by many health care providers as *lassitude*.

In addition, a form of *cognitive fatigue* has also been identified. Individuals with MS who experience cognitive fatigue have difficulties in sustaining mental functions such as verbal learning, memory, and attention span. A research study demonstrated the effect that cognitive fatigue can have on people with MS. In this study, participants with MS were given a 3 to 4 hour series of “neuropsychologic tests” that evaluated learning, memory, and attention before and after a mentally demanding exercise. Many of the participants with MS showed a decline during the latter part of the testing but not in the early part. This difference was attributed to a fatiguing effect on the individuals’ cognitive or mental operations. In contrast, individuals without MS performed either the same or better in the latter part of testing versus the beginning (see Figure 1-1).

**Figure 1-1** Results of verbal learning tests before and after performing tests involving continuous arithmetic calculations. While those participants without MS improved when the tests were repeated, those with MS performed worse on the second try, demonstrating a form of cognitive fatigue.



Source: Krupp LB, Elkins LE. Fatigue and declines in cognitive functioning in multiple sclerosis. *Neurology* 2000;55:934–939.

## Conclusions

Multiple sclerosis-related fatigue is a very real and debilitating symptom of MS that takes a significant toll on functioning and quality of life. In many people, fatigue is the single most disabling symptom of their disease. While fatigue can often be short-lived and related to specific factors, for many individuals it lasts for months or years. In addition to physical fatigue, providers have also shown that people with MS have a form of cognitive fatigue that affects learning, memory, concentration, and attention.

# Part 2:

## What Causes MS-Related Fatigue?

Although the negative impact of fatigue on individuals with MS is clear, the underlying causes of fatigue have not yet been fully defined. Many factors may underlie the occurrence of MS-related fatigue, including factors related to the nervous system damage caused by MS and factors related to the immune or endocrine systems. There are also many conditions that contribute to fatigue but may not be direct causes. These contributing factors include a lack of physical conditioning and the medications used to treat MS symptoms such as stiffness, sleep disorders, and psychological factors.

### Possible Causes of Fatigue in the Person with MS

- Nervous system damage leading to increased energy exertion
- Decreases in brain metabolism
- Dysregulation of the immune system
- Dysregulation of the endocrine system
- Deconditioning
- Drugs used to treat MS symptoms
- Sleep disorders
- Pain
- Psychological factors (depression, anxiety, chronic stress)

Part of what makes MS-related fatigue so difficult to identify and define is that it does not appear to be associated with many of the other symptoms or characteristics of MS. Studies have shown that the presence or severity of MS fatigue is not related to the individual's gender. It is also not closely related to age or level of neurologic impairment: many individuals with MS who have low levels of impairment on the Expanded Disability Status Scale (EDSS, the most common way of measuring neurologic impairment) have similar levels of fatigue to those with high EDSS scores. Fatigue is not related to how long a person has had MS, as newly diagnosed people with MS can have fatigue as severe as those who have had MS for many years.

Further, fatigue does not appear to be closely related to the type of MS that a person has. Some studies suggest that individuals with relapsing-remitting MS may experience less fatigue than those with secondary progressive MS, but fatigue is clearly a problem for individuals with all MS subtypes.

Finally, brain magnetic resonance imaging (MRI) scans, which are increasingly being used in the diagnosis of MS, do not appear to predict the presence of fatigue. Studies have shown that those with high levels of disease activity on brain MRI scans have similar levels of fatigue as those with lower levels of disease activity. Further, MRI studies have not shown that damage to one particular area of the brain is associated with fatigue. This suggests that the causes of fatigue are perhaps more subtle than damage to a particular anatomic location in the brain, and that they may be more related to dysfunction of key chemical pathways in the central nervous system (CNS).

## A. Primary Factors in MS-Related Fatigue

Several factors are believed to be related to *primary* MS fatigue (so-named because these factors are directly related to the underlying disease process of MS itself). One of the most common theories is that fatigue is related to the damage that occurs to the CNS in MS. MS is characterized by damage to the nervous system related to inflammation and demyelination (the destruction of the fatty sheaths that surround nerves). Many of the nerve cells themselves are also destroyed. The damage to the nerves interferes with conduction of the electrical signals that control movement and cognitive functioning. Many researchers believe that this damage causes a state of “increased central motor drive,” in which the CNS has to work much harder than it would in a healthy person to achieve a given level of functioning. These impairments can also affect the peripheral nervous system (the nerves that run throughout the body), creating “conduction blocks” in the nerves and in turn causing the body to use more energy to contract its muscles.

The fact that MS fatigue is so sensitive to heat supports the theory that interference with nerve conduction is at least partially responsible for fatigue. Individuals with MS feel noticeably more tired in hot, humid weather, and are also at risk for “overheating” during exercise. This overheating may be caused by the increased work that the nervous system must perform to generate activity. Finding ways to avoid heat-related fatigue is important, because it can create an aversion to exercise that will lead to even worse fatigue over the long term.

Fatigue may also be related to decreased functioning, or *hypometabolism*, in certain areas of the brain. Recent studies using an imaging technique called positron emission tomography (PET) scanning have shown that people with MS who experience fatigue have reduced levels of activity in the brain compared with healthy

persons. PET scanning is able to measure the brain's metabolism of the sugar glucose, which the brain uses for fuel. Individuals with MS who were experiencing fatigue showed reductions in glucose utilization of about 10 to 20 percent in several areas of the brain, including the cerebral cortex (which controls higher brain functions such as reasoning and memory) and the basal ganglia (which plays several roles, including a part in controlling movement).

The immune system may also be a potential contributor to fatigue. Some studies have shown that factors related to activation of the immune system are associated with the individual's perceived level of fatigue. This theory is supported by the fact that the interferon betas, which are natural proteins used to prevent the exacerbations of MS, produce fatigue as a side effect. This fatigue may be related to activation of the immune system after the interferon betas are injected (glatiramer acetate, which is a non-interferon immunomodulator used to treat MS exacerbations, does not cause this fatigue reaction).

## **B. Secondary Contributors to Fatigue**

In addition to the primary or major causes of fatigue, there are a number of *secondary* contributors, so-named because they are not caused directly by the underlying disease process itself, but rather by some other factor related to the disease. Some of these factors include mood disorders, the medications used to treat other symptoms of MS, deconditioning, pain due to stiffness or damaged nerves, and sleep disturbances.

There is clearly some overlap between depression and fatigue in MS. For example, in individuals with MS who are experiencing depression (either from difficulties related to coping with MS or other reasons), fatigue appears to be related both to the depression and to MS. In some cases, individuals with MS and severe

fatigue may have more feelings of sadness than individuals with MS who do not have fatigue. However, it is clear that many people with MS who have severe fatigue do not experience feelings of depression or sadness. When the person with MS is also depressed, there may be associated tiredness and decreased motivation. Therefore, it is critical that depression is treated appropriately when it is present.

The medications used to treat other symptoms of MS, such as spasticity and pain, may have side effects that include fatigue. As mentioned above, the interferon therapies used in MS can cause severe fatigue as a side effect, although often this occurs only during the initial months of therapy. Medications such as pain relievers and muscle relaxants can cause sedation, which contributes to fatigue (see Part 3 for a list of medications that may contribute to fatigue).

Deconditioning from failure to exercise can contribute to and increase fatigue in MS. People with MS who experience increasing levels of weakness as the disease progresses may experience a decrease in aerobic capacity (the ability of the body to use oxygen for energy). Individuals with fatigue may avoid activities such as exercise, which can make fatigue even worse over the long term. In people who are severely disabled and unable to move, the respiratory muscles can become weakened, causing the body to use increasing amounts of energy simply to breathe.

Pain related to other symptoms of MS, such as spasticity, can also make people less likely to want to engage in physical activity and can contribute to deconditioning. In addition, pain and movement disorders can significantly interfere with sleep, leaving people with less energy to cope with fatigue (sleep disorders are discussed in more detail in Part 3).

Finally, anxiety disorders and the chronic stress caused by battling a long-term disease may play a role in fatigue. Chronic stress depletes *cortisol*, a hormone secreted by the body's adrenal glands. Chronically low cortisol levels can cause a state of fatigue. Although this has been studied more in other disorders, such as chronic fatigue syndrome, it is possible that such hormone "dys-regulation" plays a role in fatigue in the person with MS.

### **C. What Does This Mean for Individuals with MS?**

In any particular person with MS, it is likely that fatigue is caused by one or more of these primary or secondary factors. While more research needs to be performed in the area of MS-related fatigue, the diagnosis and management strategies are the same for any individual with MS. Together, you and your health care provider can identify and manage the causes of fatigue. Although the damage to the CNS is not yet believed to be reversible, fatigue can be managed successfully no matter what the cause.

# Part 3:

## How Is Fatigue Diagnosed?

A physician or nurse will respond to your symptoms of fatigue by asking you additional questions and performing certain evaluations. The types of information they will collect include: your health history and the health history of your family; a physical examination and laboratory tests to rule out diseases other than MS that may be causing or contributing to your fatigue; a medication/ drug use history; and possibly the use of one or more questionnaires (commonly referred to as fatigue assessment scales) to determine the severity of your fatigue and its effect on your ability to function in daily activities.

### Diagnosing Fatigue

A thorough workup for fatigue includes:

- Your personal health history
- Your family health history
- A physical examination
- Laboratory tests
- Fatigue assessment scales

#### A. Individual and Family History

It is important for your physician or nurse to collect as much information as possible on your personal and family history to

understand the causes of your fatigue. For example, certain illnesses run in families, and if these are present in either of your parents, they might provide part of the explanation for your fatigue. It will be helpful during your health care visit if you have already considered or researched your own past medical history and that of your immediate family. This is especially important if you are seeing a new provider.

Because MS is not the only disease that causes fatigue, and you may have more than one illness, during your medical visit you may be asked about a number of diseases other than MS in order to rule out the possibility that these may be causing fatigue. Some of these diseases include:

- cancer;
- Parkinson’s disease;
- chronic fatigue syndrome or fibromyalgia;
- Lyme disease;
- hypothyroidism, a condition in which the thyroid gland produces low levels of thyroid stimulating hormone;
- endocrine disease, such as diabetes mellitus;
- systemic lupus erythematosus, commonly known simply as lupus, or other “autoimmune” diseases such as rheumatoid arthritis;
- recent infections, such as bacterial infections or the flu;
- cardiovascular problems, such as a history of congestive heart failure or low blood pressure;
- a recent history of surgery (surgery can cause a condition of chronic stress, which can contribute to fatigue);
- iron deficiency anemia; or
- a history of HIV infection or AIDS.

A sleep history is an essential part of the history-taking for fatigue, as sleep disorders can contribute significantly to feelings of fatigue. Even though sleepiness and fatigue are not the same condition, nighttime sleep disorders can cause excessive daytime

sleepiness, leaving you feeling fatigued throughout the day. The following are some conditions that contribute to sleep problems and daytime tiredness in people with MS:

***Restless legs syndrome*** is a condition in which the legs move uncontrollably during sleep. Individuals with restless legs syndrome often describe a tingling or twitching sensation that gives them an uncontrollable urge to move their legs during sleep.

***Pain***, resulting from motor symptoms of MS such as uncontrollable tremor, can significantly interfere with sleep.

***Sleep apnea*** is a condition in which the upper airway (the area at the back of the throat) becomes blocked. People with sleep apnea can wake up literally dozens, if not hundreds, of times each night without realizing it, making them exhausted during the day. You are more likely to have sleep apnea if you are a man and are overweight.

***Bladder/bowel*** problems that cause you to wake up several times each night to go to the bathroom can interrupt your sleep cycle.

Because you may not be aware that you have a sleep disorder, it is helpful to bring your bed partner to the health care provider's office with you. Your husband, wife, or partner may be better able to explain your sleep patterns. If your physician suspects that you may have a sleep disorder, screening questionnaires such as the Epworth Sleepiness Scale can be used to determine your level of sleepiness during the day. In some cases, you may be referred to a sleep center, where your sleep patterns can be monitored overnight using a test called *polysomnography*.

Because a history of depression, anxiety, panic attacks, or other related conditions can also contribute to feelings of fatigue, it is important to provide as much information as possible about your mood. Signs and symptoms that suggest depression include a persistent feeling of depressed mood, loss of interest in everyday activities that you used to enjoy, a lack of motivation, persistent feelings of sadness, and recent weight loss or weight gain. If a family member has had depression or an anxiety disorder, it may be more likely that you will have depression or anxiety. As with sleep disorders, your health care provider can give you one of several questionnaires to rule out both depression and anxiety.

## **B. Medication/Drug History**

Medication and drug use can contribute to fatigue in ways that may be subtle. How much alcohol and caffeine you use and your smoking history are all important factors to consider in evaluating fatigue. All of these substances can have various effects on the CNS, which may disrupt sleep or increase arousal and activation, thereby affecting your level of fatigue.

Certain controlled substance drugs such as marijuana, cocaine, and amphetamines can have a profound effect on your brain's ability to regulate neurotransmitters such as dopamine. Although they may give you an initial sense of energy and alertness, they have a "rebound" effect that makes you more fatigued than before. When you are asked about a history of drug use, you should be as accurate as possible with your nurse or doctor. You have the right to expect that your provider will be nonjudgmental about your responses.

Many of the drugs that are used to treat MS, as well as drugs that are used to treat other conditions, can contribute to fatigue in the short term or long term. Some medications that can contribute to

fatigue are listed in **Table 3-1** (a more complete list can be found in the fatigue guidelines that have been published by the Paralyzed Veterans Association; the guidelines can be found on-line at <http://www.pva.org/NEWPVASITE/publications/pubs/mscpg.html>).

Your MS health care provider should have a comprehensive record of the medications he or she has prescribed to prevent MS exacerbations or to control symptoms such as pain and spasticity. However, you should also keep your own list of the medications you take, since your provider may not have your medical record at the time that you are seen or the records may not be up-to-date.

Finally, what has been prescribed and what you are actually taking often differ. You should keep track of any other medications you are taking that have been prescribed by other health care providers. You should also keep track of over-the-counter medications, as well as supplements or “alternative medications,” such as those available in health food stores. Since most individuals with MS use many different medications over the years, keeping a written current list of everything you are taking (whether or not you believe it to be a “medication”) will enhance the quality of your health care.



*“Many of the drugs that are used to treat MS, as well as drugs that are used to treat other conditions, can cause or contribute to fatigue in the short term or long term.”*

**Table 3-1** Drugs That Can Cause or Contribute to Fatigue in the MS Patient

Drug	Used for:	Examples
Analgesics	Pain control	Butalbital (Fiorinal®)
Interferon Therapies	Reducing MS exacerbations	Interferon beta -1a (Avonex®, Rebif®) Interferon beta-1b (Betaseron®)
Muscle Relaxants	Spasticity, Muscle strain	Tizanidine (Zanaflex®) Baclofen (Lioresal®) Carisoprodal (Soma®)
Sedatives/Anti-hypnotics	Sleep aids, Anxiety, Muscle relaxation	Alprazolam (Xanax®) Clonazepam (Rivotril®) Diazepam (Valium®)
Anticonvulsants	Seizure control, Pain control, Depression or Anxiety	Carbamazepine (Tegretol®) Divalproex (Epival®) Gabapentin (Neurontin®)
Antidepressants	Depression and anxiety disorders	Clomipramine (Anafranil®) Nefazodone (Serzone®)
Antihistamines	Allergies, Hay fever	Diphenhydramine (Benadryl® or other over-the-counter allergy medicines) Detirizine (Reactine®)
Antipsychotics	Schizophrenia, Psychoses	Clozapine (Clozaril®) Risperidone (Risperdal®)
Hormone Therapies	Hormone replacement, Contraception	Medroxyprogesterone (Provera®)

Source: Multiple Sclerosis Council for Clinical Practice Guidelines. *Fatigue and Multiple Sclerosis: Evidence-based management strategies for fatigue in Multiple Sclerosis*. Washington, DC: Paralyzed Veterans of America; 1998.

### **C. Physical Examination and Laboratory Tests**

When you are first evaluated by a nurse or doctor, a physical examination is often done to detect causes of fatigue other than MS. This exam includes an inspection of the head, ear, eyes, nose, and throat (a *HEENT* exam) to check for signs of enlarged lymph nodes, the size of the thyroid gland, and signs of infection. A chest examination checks for the presence of potential heart or lung problems. An abdominal examination checks for any potential liver problems. A neurologist will check for abnormalities in your mental status, motor functions, senses, balance and gait, and signs of muscle weakness.

In addition, your health care provider may order a number of laboratory tests to rule out other causes of fatigue that may not be related to MS. For example, white blood cell counts can help rule out infection or some types of cancer, blood glucose levels can help rule out diabetes, thyroid stimulating hormone tests can help rule out hypothyroidism, a Lyme antibody test can rule out Lyme disease, and a serum bilirubin test can help rule out hepatitis. Imaging tests such as PET scanning or MRI, which were discussed in Part 2, are not currently used to diagnose fatigue in individuals with MS (although they may be used for other diagnostic purposes).

### **D. Fatigue Assessment Scales**

Several scales (generally called *self-report* scales) are available to measure fatigue. All of them are similar in that they are *subjective*; in other words, they measure your *perceived level of fatigue*. This is the best available means to determine whether you are suffering from fatigue, and if you are, its level of severity. Self-report scales can easily be filled out in the waiting room of your MS center or health care provider's office before your visit.



*“Self-report scales, which measure your perceived level of fatigue, are the best available means to determine whether you are suffering from fatigue, and if so, its level of severity.”*

Many scales have been developed to rate fatigue. Some were designed specifically for individuals with MS, while others are used across many diseases in which fatigue is a problem, such as cancer, chronic fatigue syndrome, and HIV/AIDS. Generally, there are two types of scales, unidimensional and multidimensional:

**Unidimensional** scales treat fatigue as a single entity, and measure your overall level of fatigue.

**Multidimensional** scales break fatigue into different components, including physical fatigue, mental or cognitive fatigue, and social fatigue.

The simplest example of a unidimensional scale is the Visual Analog Scale for Fatigue, as shown in **Figure 3-1**. This scale asks you to rate your feelings of fatigue on a scale of 1 to 100, where 1 is no fatigue and 100 is fatigue as bad as can be. This scale is useful, but it is also subject to impulsive answering (in other words, it is very dependent on how you feel at that particular moment, and gives no information on how you feel under specific situations or at certain times of the day). A more comprehensive unidimensional scale is the Fatigue Severity Scale shown in **Table 3-2**. This scale has been shown to be less influenced by “impulsive answering.”

**Figure 3-1.** *The Visual Analog Scale for Fatigue. In filling out this scale, you rate your fatigue on a scale of 1 (not fatigued at all) to 100 (fatigue as bad as can be).*



**Table 3-2** The Fatigue Severity Scale

*For each question, choose a number from 1 to 7 that indicates how much you agree with each statement, where 1 indicates strongly disagree and 7 indicates strongly agree.*

Statement	Score
1. My motivation is lower when I am fatigued.	_____
2. Exercise brings on my fatigue.	_____
3. I am easily fatigued.	_____
4. Fatigue interferes with my physical functioning.	_____
5. Fatigue causes frequent problems for me.	_____
6. My fatigue prevents sustained physical functioning.	_____
7. Fatigue interferes with my carrying out certain duties and responsibilities.	_____
8. Fatigue is among my three most disabling symptoms.	_____
9. Fatigue interferes with my work, family, or social life.	_____

Once you fill out the scale, the health care provider takes the average score by adding up the numbers and dividing by 9. A score of 4 or higher generally means that your fatigue is severe.

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The Fatigue Impact Scale is an example of a multidimensional scale that categorizes your feelings of fatigue into physical, cognitive, and social components. **Table 3-3** shows you which components on this 40-item scale are considered signs of physical, cognitive, or social fatigue.

Other tests to diagnose fatigue are called *performance-based* or *objective tests*, because they measure your actual ability to perform certain skills, instead of asking you how you would subjectively rate your fatigue. When fatigue affects only certain muscles or muscle groups, your physician can use techniques that measure the amount of force your muscles are able to generate with repetitive activity and the time that it takes for them to recover.

Performance-based tests that measure skills such as memory and verbal abilities are also used to test for cognitive fatigue. As described in more detail in Part 1, people without MS usually improve on tests of learning ability and verbal ability when these tests are given repeatedly over the course of a testing session. In contrast, people with MS who experience cognitive fatigue fare worse when the tests are repeated.

During most visits to a doctor or nurse, the evaluation is based primarily on your history and physical findings. The use of evaluation instruments such as fatigue questionnaires is not yet part of routine medical or nursing practice. However, as more medical knowledge is accumulated about fatigue and its causes, these questionnaires and other tools will become more common in general office use.

## Conclusions

The diagnosis of MS-related fatigue involves the exclusion of other diseases that may be causing your fatigue and an assessment of the fatigue severity. Advances in fatigue evaluation are occurring, and with them we will broaden our ability to treat this often frustrating symptom.

**Table 3-3** The Fatigue Impact Scale

*For each of the following statements, rate your score as a small problem (score of 1), moderate problem (2), big problem (3), or extreme problem (4).*

<b>Because of my fatigue:</b>	<b>Score</b>	<b>Dimension</b>
1. I feel less alert.	_____	Cognitive
2. I feel that I am more isolated from social contact.	_____	Social
3. I have to reduce my workload or responsibilities.	_____	Social
4. I am more moody.	_____	Social
5. I have difficulty paying attention for a long period.	_____	Cognitive
6. I feel like I cannot think clearly.	_____	Cognitive
7. I work less effectively (both inside or outside of the home).	_____	Social
8. I have to rely more on others to help me or do things for me.	_____	Social
9. I have difficulty planning activities ahead of time.	_____	Social
10. I am more clumsy and uncoordinated.	_____	Physical
11. I find that I am more forgetful.	_____	Cognitive
12. I am more irritable and more easily angered.	_____	Social
13. I have to be careful about pacing my physical activities.	_____	Physical
14. I am less motivated to do anything that requires physical effort.	_____	Physical
15. I am less motivated to engage in social activities.	_____	Social
16. My ability to travel outside my home is limited.	_____	Social

*(continued on next page)*

**Table 3-3 (cont'd) The Fatigue Impact Scale**

*For each of the following statements, rate your score as a small problem (score of 1), moderate problem (2), big problem (3), or extreme problem (4).*

<b>Because of my fatigue:</b>	<b>Score</b>	<b>Dimension</b>
17. I have trouble maintaining physical effort for long periods.	_____	Physical
18. I find it difficult to make decisions.	_____	Cognitive
19. I have few social contacts outside of my own home.	_____	Social
20. Normal day-to-day events are stressful to me.	_____	Social
21. I am less motivated to do anything that requires thinking.	_____	Cognitive
22. I avoid situations that are stressful to me.	_____	Social
23. My muscles feel much weaker than they should.	_____	Physical
24. My physical discomfort is increased.	_____	Physical
25. I have difficulty dealing with anything new.	_____	Social
26. I am less able to finish tasks that require thinking.	_____	Cognitive
27. I feel unable to meet the demands that people place on me.	_____	Social
28. I am less able to provide financial support for myself and my family.	_____	Social
29. I engage in less sexual activity.	_____	Social
30. I find it difficult to organize my thoughts when I am doing things at home or at work.	_____	Cognitive

*(continued on next page)*

**Table 3-3 (cont'd) The Fatigue Impact Scale**

*For each of the following statements, rate your score as a small problem (score of 1), moderate problem (2), big problem (3), or extreme problem (4).*

<b>Because of my fatigue:</b>	<b>Score</b>	<b>Dimension</b>
31. I am less able to complete tasks that require physical effort.	_____	Physical
32. I worry about how I look to other people.	_____	Physical
33. I am less able to deal with emotional issues.	_____	Social
34. I feel slowed down in my thinking.	_____	Cognitive
35. I find it hard to concentrate.	_____	Cognitive
36. I have difficulty participating fully in family activities.	_____	Social
37. I have to limit my physical activities.	_____	Physical
38. I require more frequent or longer periods of rest.	_____	Physical
39. I am not able to provide as much emotional support to my family as I should.	_____	Social
40. Minor difficulties seem like major difficulties.	_____	Social

The total points for each subgroup (physical, cognitive, social) and the entire questionnaire are summed. For the Cognitive subscale (10 questions) and Physical subscale (10 questions), the maximum scores are 40 for each. For the Social subscale (20 questions), the maximum score is 80.

Source: Fisk JD et al. Measuring the functional impact of fatigue: initial validation of the Fatigue Impact Scale. *Clin Infect Dis* 1994;18(suppl 1):S79-S83.

# Part 4:

## Managing Fatigue With Your Health Care Provider

Once your doctor or nurse has made a diagnosis of fatigue and ruled out causes not related to MS, a comprehensive treatment plan must be devised. The goals of treatment are to eliminate or minimize the effect of secondary causes of fatigue, to address the primary fatigue that is related to the MS disease process in the CNS, and to restore the maximum possible health and quality of life.

Accomplishing this requires a teamwork approach that includes you, your neurologist, physical and occupational therapists, the MS nurse, social worker, and psychologist.

### Elements of the Management Plan for Fatigue

- Keep an activity diary to discover “fatigue triggers”
- Adjust or eliminate medications that can cause fatigue
- Follow a sound nutrition plan
- Adopt energy effectiveness strategies
- Choose a disease-modifying therapy that does not cause fatigue
- Adopt an exercise program that includes aerobic conditioning and muscle strengthening
- Use pharmacologic therapy to treat primary MS fatigue

Following your fatigue management plan will help you reduce your fatigue and improve your quality of life. Always remember that you should *never* accept fatigue as an inevitable consequence of MS; many management options are available, and you should keep working diligently with your health care team until your fatigue is eliminated or at least manageable.

Educating yourself on MS-related fatigue, why it occurs, and how it can be controlled is the first step towards controlling this symptom. Your family should also be involved in the process of education. It is important for them to understand that your fatigue is a very real and potentially very debilitating symptom of your MS, and is not simply laziness or tiredness.



*“Always remember that you should NEVER accept fatigue as an inevitable consequence of MS; many management options are available, and you should keep working diligently with your health care team until your fatigue is eliminated or at least manageable.”*

## **A. Discovering What Triggers Your Fatigue**

One of the most important steps in management is to find out what triggers your fatigue, what makes it worse, and what appears to reduce it. An excellent way to detect patterns of fatigue is to keep a daily activity diary for a brief time period. An activity diary allows you to record your activities on a regular basis throughout the day, describe your sleep the night before, and assess your level of fatigue associated with these activities. An example of an activity diary that you can use is given in the Appendix, but you can make your own diary by carrying around a small notebook and writing in it throughout the day. Keeping a daily activity diary for a few weeks and then discussing your findings with your physician, nurse, or

other health care provider can help you identify triggers for fatigue (for example, heat, prolonged work, taking a medication), as well as times of day when fatigue is better or worse. By keeping a diary, you can work to avoid triggers and schedule important activities for times when you are least likely to feel fatigued.

## **B. Adjusting Medications That Can Cause Fatigue**

As discussed in Part 3, many medications can contribute to feelings of fatigue and interfere with daytime functioning. Discuss your medications with your prescriber. It may be possible to dose sedating medications during the evening, when they will actually help you sleep, making you feel more refreshed the next morning. Some sedating medications, such as antihistamines, have non-drowsy alternatives. It may also be possible to reduce the dose of certain medications. Never take these steps without guidance from your prescriber; switching medication times or reducing doses can interfere with the control of other MS symptoms.

The disease-modifying therapies are immune-modulating medications that are prescribed to reduce the number of MS exacerbations. Some of these, in the class of medications called the interferon betas (Avonex<sup>®</sup>, Betaseron<sup>®</sup>, and Rebif<sup>®</sup>) can cause a flu-like reaction after they are injected that includes fatigue, fever, and chills. This is believed to be due to an immune reaction by the body to interferons, which are natural proteins. This reaction can last several days following the injection, and should diminish over the course of several months as your body adjusts to interferon therapy. This flu-like reaction can be treated with a combination of acetaminophen (Tylenol<sup>®</sup>) and ibuprofen (Advil<sup>®</sup> or Motrin<sup>®</sup>) for pain and fever control. You will usually be advised to take these medications prior to the injection, several hours after the injection, and the next day in the morning.

The immunomodulator glatiramer acetate (Copaxone®), which also reduces exacerbations, is not an interferon, and does not produce this type of flu-like reaction. If you are just beginning a disease-modifying therapy and fatigue is a major concern, the fact that glatiramer acetate is not associated with fatigue should be taken into account.

All four disease-modifying therapies are prescribed to reduce the number of MS exacerbations, *not* to manage MS symptoms such as fatigue. However, a recent study showed that individuals taking glatiramer acetate over time experienced relative decreases in fatigue compared with individuals taking interferon beta therapy. This study, performed at the University of Calgary in Canada, followed people with relapsing-remitting MS who were taking any of the four disease-modifying therapies — glatiramer acetate or one of the three interferon betas—for at least 6 months. The individuals were asked to fill out the Fatigue Impact Scale (see Table 3-1 in Part 3 of this booklet) at the beginning of the study and again after 6 months of treatment.

After 6 months of therapy, 25% of individuals taking glatiramer acetate showed reductions in their fatigue scores on the Fatigue Impact Scale, compared with about 12% of those taking any of the interferon betas. Overall, those taking glatiramer acetate were more than twice as likely to have an improved Fatigue Impact Scale score compared with those taking an interferon beta. The reduction in the fatigue was seen on all three of the subscales of the Fatigue Impact Scale: physical functioning, cognitive functioning, and social functioning.

While more research needs to be performed, this study suggests a relative advantage for glatiramer acetate compared with the other disease-modifying therapies regarding the symptom of fatigue.

## C. Following a Healthy Nutrition Plan

Unfortunately, there is no special diet that specifically treats fatigue. However, developing a solid nutrition program can maintain your health, increase your energy reserves, help you sleep better, and reduce your level of tiredness. If you are unfamiliar with the elements of good nutrition, ask your health care provider to refer you to a nutritionist, so that you can discuss your dietary goals. The following are some important tips:

**Avoid refined sugars and other sweets:** Excess sugar can dramatically change blood glucose levels, causing them to rise quickly and then crash, making you more tired than before.

**Drink at least eight 8-oz glasses of water every day:** Dehydration can increase feelings of fatigue, so drinking enough water is essential. Consult with your health care provider if you are having bladder problems; drinking too much liquid can interfere with bladder control while you are sleeping.

**Avoid caffeine and tobacco:** Both caffeine and tobacco act as CNS stimulants and can interfere with sleep. If you drink coffee, make sure that you drink your last cup no later than early afternoon.

**Eat nutrient-dense foods:** You should make every meal count, eating foods that are high in vitamins, minerals, protein, and complex carbohydrates. High-quality protein (fish, poultry, and lean meat) can help you preserve muscle mass, while complex carbohydrates (such as potatoes, whole-grain foods, and legumes) can help stabilize blood sugar levels, giving you energy throughout the day.

**Become a grazer:** Eating smaller meals throughout the day instead of three large meals will stabilize your energy levels. Large meals can make you feel tired and lethargic.

**Increase your fruit and vegetable intake:** Vegetables are high in calcium, magnesium, and potassium, as well as antioxidants, including vitamins A and C. Fruits are also high in vitamins. Because both fruits and vegetables are high in fiber, they can help avoid constipation, which can contribute to feelings of fatigue.

**Avoid alcohol:** Although having a drink on occasion is not harmful, you should avoid alcohol as much as possible. Alcohol depresses the CNS and also interferes with sleep, coordination, and balance. In addition, alcohol can interact with a number of medications that you may be taking for other MS symptoms, so ask your health care provider if you are allowed to drink.

**Exercise regularly:** Regular exercise can help stimulate your appetite.

**Eat to maintain a healthy weight:** Carrying extra weight increases stress on the body and can make you more tired. If you are overweight, a reduced fat, balanced diet should be followed.

For many individuals with MS, the struggle is not to lose weight but to maintain a high enough weight. Chronic diseases such as MS can cause a state of “high metabolic demand” in which your body has increased nutritional needs. Make sure you eat enough calories to keep you strong. Schedule your meals for times when you feel least fatigued and can eat well.

**Be cautious of supplements and herbal remedies:**

Manufacturers of supplements and herbal products often make claims that these products can fight fatigue. With the exception of iron supplements, which can treat fatigue related to anemia, there is no evidence that these alternative therapies are useful for fatigue.

**Ask for help:** Always remember that you do not have to make these changes alone. If your fatigue is simply overwhelming, call on family and friends to cook and bring over meals.

**D. Using Energy Effectiveness Strategies**

*Energy effectiveness* strategies are steps that can be taken to conserve energy and to accomplish tasks of daily living in the most efficient way possible. An occupational therapist can help you to devise more efficient ways to work, perform household chores, and accomplish important tasks. Some tips include:

**Take advantage of times when fatigue is mild:** Use these times to accomplish important tasks that require sustained energy, such as shopping, cooking, or yard work. You may be able to identify these times by using your fatigue diary.

**Take frequent breaks and pace yourself:** Short, 15-minute rests throughout the day can help you conserve energy. However, make sure to avoid frequent napping, which can interfere with nighttime sleep. If you need to accomplish a long and difficult task, such as cleaning the house, pace yourself. If you are at work you may want to consult with your employer about the possibility of scheduling rest periods in your workday.

**Maintain a regular sleep schedule:** Go to bed and wake up at the same times each day (even on the weekends). Maintaining a regular sleep schedule will help regulate your body's Circadian rhythm (your internal clock) and stabilize your energy levels.

**Postpone nonessential activities:** It is OK to postpone nonessential activities when you are feeling fatigued. Always keep in mind that you are battling a very real and very disabling symptom of MS. You should never feel guilty for not accomplishing everything on your list.

**Engage in restorative activities:** Activities such as meditation, yoga, sitting in the park, and walking on the beach can help restore your internal sense of balance and energy, and also reduce stress.

**Rearrange your environment:** Rearrange your home and work environments to conserve energy. For example, if you have bathrooms on both the first and second floors, keep cleaning products both upstairs and downstairs to avoid unnecessary trips when you are cleaning.

**Ask for help:** Devise a plan for the whole family to accomplish chores and other activities. If necessary, enlist the help of your health care provider, who can explain to your family how fatigue affects your ability to accomplish tasks.

## **E. Exercise Therapy**

If you have had MS for a number of years, you may remember a time in the past when your physician told you to avoid any exercise in order to conserve energy. In fact, it is now known that the exact opposite is true. Exercise has many important benefits for the fatigued person. It increases lung capacity and your body's ability to use oxygen efficiently. It preserves or increases muscle flexibility, and can reduce pain. It increases strength and energy reserves. It can help strengthen the respiratory muscles (the muscles that help you breathe), which become weak from disuse when your mobility is limited. It can also help to relieve feelings of depressed mood, anxiety, and stress, all of which have been linked to fatigue.

Recent research has shown that regular exercise may reduce fatigue in individuals with MS, as well as improve social interaction, home management skills, and recreation. It can also reduce anger. Because individuals with MS have widely varying levels of disability, it is important to consult with your treating clinician before beginning an exercise program. Your clinician can refer you to a physical therapist to devise a plan that fits within your level of mobility and physical conditioning. The following are some guidelines for exercise:

**Make sure you have the right equipment:** Depending on your level of mobility, you may need adaptive equipment, such as special footwear or walkers. A physical therapist will be able to guide you on obtaining the right equipment.

**Start low and go slow:** Your exercise plan should be based on a pyramid approach, both for muscle fitness and aerobic fitness. With a pyramid approach to muscle fitness, you may start with simple range-of-motion exercises, gradually working up to strength training exercises that involve all major muscle groups. For aerobic fitness, you can start by slowly increasing the number of normal daily activities you can perform. From there, you can move on to mild recreational activities (for example, a stroll in the park with your family) and eventually to a structured exercise program. An exercise program can involve activities such as walking, treadmill work, or cycling for 30 to 45 minutes three to four times per week.

**Choose exercise activities that you enjoy:** Give yourself a better chance to succeed by doing things you enjoy. If you found walking on a treadmill boring before you were diagnosed with MS, it is an excellent bet that you are not going to enjoy it if you have MS and a severe case of fatigue!

**Choose your exercise time wisely:** Get enough sleep the night before and plan to exercise during times when your fatigue is less severe. Again, keeping an activity diary can help you identify those times. Never exercise to the point of exhaustion.

**Hold yourself accountable:** Treat exercise like any other medication that you are taking for your MS symptoms and fill your “exercise prescription” regularly. Keeping track of your improvement and discussing your exercise plan with your health care provider at every visit can make you feel that you are taking charge of your fatigue.

**Reward yourself:** Give yourself small rewards for achieving exercise goals, such as a new shirt or a trip to the movies. Giving yourself regular rewards will help keep you motivated.

Because fatigue is made worse by heat, it is important not to let yourself become overheated during exercise. If you enjoy water activities, consider joining an aquatic exercise program. Your local MS Society office, physical therapist, or your local gym may be able to guide you to a program. Taking a cooling bath or shower in cool or tepid water can help you cool down after exercise.

## **F. Drug Therapy**

The first steps to take in treating fatigue should always focus on the non-drug therapies listed in Section E. However, if you and your health care team have followed these steps and your fatigue remains unmanageable, drug therapy is an important option that should be considered.

There is currently no pharmacologic therapy specifically approved by the Health Products and Food Branch of Health Canada for the treatment of fatigue in the individual with MS. However, there are medications available that have proven useful for reducing or even eliminating fatigue (**see Table 4-1**).

**Amantadine (Symmetrel™):** Amantadine is an antiviral drug that is approved for the treatment of influenza type A infection. Amantadine exerts an effect on the brain chemical *dopamine*, a neurotransmitter that is involved in vigilance and also in controlling motor functions. It is believed that amantadine works in MS fatigue through its effects on the body's dopamine levels.

Several clinical trials over the past 20 years have shown that amantadine is effective for reducing fatigue in about 40 percent of individuals with MS. The medication is safe, with some people reporting side effects such as vivid dreams and insomnia. A dose of 100 mg can be used at the start, and moved up (titrated) to 300 mg daily. Some people who take amantadine for extended periods of time may notice that it does not appear to work as well after a while. If this happens, talk to your prescriber about a *drug holiday*, when you stop taking amantadine for a few weeks and then start it again.

**Methylphenidate (Ritalin®):** is one of a class of drugs called Central Nervous System (CNS) stimulants. These drugs are used to manage Attention Deficit Disorder (ADD) in children. Side effects can include nervousness, insomnia, dizziness, and potential liver problems. These drugs are only available in Canada with a written prescription, and should only be used under close supervision by your physician.

**Table 4-1** Drugs That May Be Beneficial to Treat MS-Related Fatigue (Adult Doses)

Dose	Starting Dose	Usual Maintenance Dose	Usual Maximum Dose	Side Effects
Amantadine (Symmetrel™)	100 mg per day in the morning	100 mg twice per day	300 mg per day	Insomnia, vivid dreams
Modafinil (Alertec®)	100 mg per day in the morning	200 mg per day in the morning, or 100 mg in the morning and 100 mg at lunchtime	200 mg per day (some people might respond well to higher doses)	Headache, insomnia
Methylphenidate (Ritalin®)	5 mg per day in the morning	5-10 mg once or twice per day	20 mg per day	Nervousness, insomnia, dizziness, potential liver problems
Bupropion, sustained release (Wellbutrin SR®)	150 mg per day in the morning	150 mg twice per day	200 mg twice per day	Agitation, anxiety, insomnia
Fluoxetine (Prozac®)	20 mg per day in the morning	20-80 mg per day	80 mg per day	Weakness, nausea, insomnia
Venlafaxine (Effexor-XR®)	75 mg per day in the morning	140-180 mg per day	225 mg per day	Weakness, nausea, dizziness

**Modafinil (Alertec®):** Modafinil is a drug used to treat daytime sleepiness in narcolepsy patients. It is a wake-promoting drug that is believed to work at least in part by affecting a portion of the brain called the *hypothalamus*, which controls the release of histamine. A recently published study showed that modafinil, at a dose of 200 mg per day, can significantly reduce fatigue in individuals with MS. It appears to be safer than CNS stimulants. The most common side effects are insomnia and temporary headaches while your body is adjusting to the medication. For individuals who fail to respond to amantadine treatment or for those patients with very overwhelming and severe fatigue, some physicians and nurses consider modafinil to be the next choice.

**Antidepressants:** Several types of antidepressants can be prescribed that may reduce fatigue. While clinical trials have not tested these drugs specifically for fatigue, many antidepressants, such as fluoxetine (Prozac®), venlafaxine (Effexor-XR®), and bupropion (Wellbutrin-SR®), are believed to have “activating properties” that increase energy levels. These drugs are useful in fatigued people who also have signs and symptoms of depression.

**Aminopyridines:** The aminopyridines are members of a class of drugs called potassium channel blockers. They have been tried in MS-related fatigue because they can help damaged nerves improve their conduction of electrical impulses. Although they have shown some benefits in improving functioning (for example, helping people with walking difficulties), they have generally not been effective for treating fatigue and have some notable side effects, including an increased risk for seizures.

## **Conclusions**

A comprehensive management plan for MS-related fatigue requires the efforts of the individual with MS as well as physicians, physical and occupational therapists, and psychologists. It is always important to keep in mind that there are many options to treat MS-related fatigue. Working closely with your health care team will help you control your fatigue symptoms and improve your functioning, mood, and quality of life.

## MS Daily Activity Diary

### Instructions

1. At the top of the day's diary, describe how you slept the night before.
2. Assign a number value from **1 to 10** (1 being very low and 10 being very high) for:
  - Your level of fatigue (**F**).
  - The value or importance of the activity you are doing (**V**).
  - The satisfaction you feel with your performance of the activity (**S**).

You can compute the “value” of an activity by comparing it to other activities you would like to do during the course of the day.

For example:

**1 PM: F=7 V=3 S=2**

**Activity: Fixing lunch standing 15 minutes (hot)**

**Comment: Blurred vision**

3. Always describe the physical work done in the **Activity** section (eg, stood to shower 10 minutes, went up 20 stairs, walked 200 feet).
4. Note the **external temperature** of the environment under **Activity**.
5. List under **Comments** all MS symptoms as they appear or worsen during the day, including cognitive problems, visual problems, weakness, dizziness, dragging foot, pain, numbness, burning, and so forth.
6. Make notes **every hour**.

## MS Daily Activity Diary

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Describe last night's sleep: \_\_\_\_\_

Time	F	V	S	Activity	Comment
6:00 AM					
7:00					
8:00					
9:00					
10:00					
11:00					
12:00 PM					
1:00					
2:00					
3:00					
4:00					
5:00					
6:00					
7:00					
8:00					
9:00					
10:00					
11:00					

Source: Multiple Sclerosis Council for Clinical Practice Guidelines. Fatigue and Multiple Sclerosis: Evidence-based management strategies for fatigue in Multiple Sclerosis. Washington, DC: Paralyzed Veterans of America; 1998.

# MS Fatigue Resources

The following organizations can offer valuable information for learning more about MS-related fatigue. Phone numbers are provided where possible for those who do not have access to the Internet.

The Multiple Sclerosis Society of Canada offers the latest information on research in all areas of MS, including MS-related fatigue. The National MS Society (NMSS) of the United States website has sections on fatigue, depression, sleep disorders, and exercise, including a handy sleep diary and medication list that can be downloaded and given to your health care provider.

## Associations

### **Multiple Sclerosis Society of Canada :**

[www.mssociety.ca](http://www.mssociety.ca)

1-800-268-7582

### **National MS Society (USA) :**

[www.nmss.org](http://www.nmss.org)

Note that some of the information is only relevant to the U.S.

### **Multiple Sclerosis International Federation :**

[www.msif.org](http://www.msif.org)

### **The Consortium of Multiple Sclerosis Centers :**

[www.mscares.org](http://www.mscares.org)

The Consortium of Multiple Sclerosis Centers has information on a variety of topics for the MS patient, including fatigue. The CMSC is also the publisher of the International Journal of MS Care, which offers information from multiple groups of health care professionals.

### **The Paralyzed Veterans Association :**

[www.pva.org](http://www.pva.org)

The Paralyzed Veterans Association has published guidelines for health care providers on the diagnosis and treatment of MS-related fatigue. A patient version is also available.

### **General Health Information**

#### **Canadian Health Network :**

[www.canadian-health-network.ca](http://www.canadian-health-network.ca)

### **Pharmaceutical Companies**

**The following companies manufacture disease-modifying therapies for MS :**

- Berlex : [www.mspathways.ca](http://www.mspathways.ca)
- Biogen : [www.msalliance.com](http://www.msalliance.com)
- Serono Canada : [www.serono-canada.com](http://www.serono-canada.com)
- Teva Neuroscience : [www.mswatch.ca](http://www.mswatch.ca)

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## **Ontario Division**

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## **Manitoba Division**

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The Multiple Sclerosis Society of Canada is an independent, voluntary health agency and does not approve, endorse or recommend any specific product or therapy but provides information to assist individuals in making their own decisions.

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