

For people with MS, the consequences of pain can have a severe impact on quality of life. About 50% of people with MS will experience some MS related pain during the course of their illness. Pain may contribute to sleep disturbance, leading to fatigue and depression. It can prevent you from going to work and fulfilling social roles. The good news is that most MS-associated pain can be prevented, eliminated or improved through a variety of management strategies and newer therapies.

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Types of Pain

Nociceptive pain results from tissue damage. Pain receptors in the tissues, called the nociceptors, send electrical impulses to the brain signaling pain messages.

Neuropathic pain occurs due to damage or faulty connections within the nervous system. This damage distorts messages to the brain and may cause the brain to interpret signals as pain messages even when there's no injury.

Neuropathic Pain in MS

Pain signals are carried throughout the body to the brain via nerve cells, which make up the nervous system. MS attacks myelin and the more your myelin is damaged, the more difficult it is for the signals to get through. Sometimes signals become distorted by the poor transmission and your brain receives them as pain.

Duration of pain

Acute pain is short-term, often intense pain, usually associated with tissue damage such as a burn, cut or blow. Acute pain often gets better by itself and goes away when healing occurs. It generally responds well to simple painkillers such as acetaminophen or ibuprofen.

Chronic pain is persistent, long-lasting pain. Chronic pain may continue for weeks or months, long after any possible healing has occurred. The pain intensity may vary, but for many, the pain seems always to be there. Chronic pain usually doesn't respond to the same treatments used to relieve acute pain.

Type of pain in MS

Pain in MS may be caused directly by the disease acting on your nervous system or indirectly following decline in function. The two main types of pain (acute and chronic) have been reported by people with MS. Each type is associated with a variety of different nociceptive and neuropathic syndromes which may vary in intensity and duration.

Acute MS Pain - Paroxysmal, spasmodic episodes

Trigeminal Neuralgia (TN)

An extremely painful nervous disorder in which gentle stimulation of the face or mouth results in a stabbing, electric shock-like pain. Pain usually lasts for a few seconds, but several attacks may occur in succession giving an impression of persistent pain. Symptoms may affect lips, eyes, nose, scalp, forehead and jaws.

Muscle Spasm and Spasticity

An involuntary muscle contraction that is not co-ordinated with other muscles. Painful tonic spasm (PTS) is an extreme form of spasticity seen in 1 in 10 people with MS. The muscle suddenly contracts causing a violent and painful extension or flexion of the limb. It feels like an extreme cramp.

Lhermitte's Sign

Electric sensations (and sensations of light) that feel like a surge of pins and needles down the back and neck. They are caused by a discharge of partially demyelinated neurons brought on when the neck is flexed forward.

Chronic MS Pain

Musculoskeletal Pain

Caused by abnormal stresses on joints, muscles and ligaments. It is often a result of muscle weakness. Low back pain is a particularly common MS-associated pain, caused by poor posture or wheelchair use. Musculoskeletal pain often responds to traditional painkillers.

Chronic Neurogenic Pain (Dysaesthesia)

A continuous burning, aching or prickling sensation, typically persistent in the extremities and usually worst in the legs. This appears to be a direct result of MS disrupting the central nervous system.

Allodynia

Hypersensitivity to touch. A painful response to normally non-painful things such as stroking with a soft brush, getting dressed, or going out in the wind.

Optic neuritis

Blurred vision, dimming of colours, pain when the eye is moved, blind spots and loss of contrast sensitivity. Optic neuritis is the most common visual symptom of MS. It results from inflammation of the optic nerve, or as the result of demyelination along the nerve pathways that control eye movements and visual coordination.

Pain Management Strategies in MS

The management of pain in MS over time will require a multidisciplinary team. These individuals may include a neurologist, nurse, pain specialist, psychiatrist, occupational and physiotherapist, psychologist, and practitioners of alternative and complementary medicines.

Therapeutic Options in Pain Management

There are a number of different treatment options for pain in MS. The choice of treatment depends largely on the nature of the pain itself, rather than the exact underlying cause. If possible, a single drug is used to avoid drug interactions and additional side effects of multiple drugs.

Pharmacological Pain Relief

▶ Amytriptyline (Apo[®]-Amitriptyline)

This sedative tricyclic antidepressant can be useful in extreme hypersensitivity to touch pains of MS (allodynia/dysaesthesias). Side effects may include dry mouth and fatigue.

▶ Gabapentin (Neurontin[®] and other generics)

This anticonvulsant is used to treat dysaesthesias and spasticity induced pain. Side effects may include fatigue, sleepiness and dizziness.

▶ **Carbamazapine (Tegretol® and other generics)**

This anticonvulsant and antipsychotic drug is the mainstay of treatment for trigeminal neuralgia in MS. Side effects may include dizziness, loss of balance and sedation.

▶ **THC/CBD (Sativex®)**

This plant-based analgesic works in the endocannabinoid system by binding to sensory neurons throughout the nervous system and partially blocking the transmission of neuropathic pain signals. Side effects may include headache, dizziness, depressed mood, memory loss and dry mouth.

▶ **Baclofen (Lioresal® and other generics)**

▶ **Dantrolene sodium (Dantrium®)**

▶ **Tizanidine (Zanaflex®)**

These muscle relaxants are used for night cramps. Side effects of baclofen may include weakness and sedation. Side effects of dantrolene sodium may include drowsiness, dizziness, fatigue or diarrhea. Side effects of tizanidine may include fatigue, sedation, and low blood pressure.

▶ **Botulinum toxin (Botox®)**

This medication is used as a relaxant for thigh muscle spasm. Side effects of botulinum toxin may include headache and weakness.

▶ **Naproxen (Anaprox® and other generics)**

▶ **Ibuprofen (Motrin® and other generics)**

▶ **Diclofenac (Voltaren® and other generics)**

These non-steroidal anti-inflammatories are used for relief of musculoskeletal pain and the pain associated with optic neuritis. Side effects may include stomach irritation and ulcers with long-term use.

▶ **Pregabalin (Lyrica®)**

This medication is used to treat neuropathic pain associated with damaged nerves of the central nervous system. Side effects may include dizziness, sleepiness, blurred vision, swelling of extremities and weight gain.

A Word on Opioids¹

Opioids are minimally useful in MS-related CNS pain and usually only effective at very high doses. Neurogenic pain does not respond well to treatment with opioids and the side effects can outweigh the benefits. For this reason, doctors generally do not recommend the use of opioids to manage MS pain.

Non-Pharmacological Pain Relief

Acupuncture

Traditional Chinese medicine involving the insertion of extremely fine needles into precise nerve stimulation points in the skin and muscle. It is thought to work by increasing the body's release of natural painkillers – endorphin and serotonin – in the pain pathways of the spinal cord and brain.

Transcutaneous Electrical Nerve Stimulation (TENS)

Using the same principle as acupuncture, TENS uses an electrode on the skin to produce a weak current to stimulate a painful muscle or skin. The current causes endorphins to be released into the cerebrospinal fluid.

Exercise

Exercise can be very helpful to prevent and treat pain from musculoskeletal causes. A regular stretching program can help the discomfort from spasticity. Optimizing weight and core strength can help prevent and treat back, neck and joint pain. Exercise has been shown to help pain from many different conditions, partly through the enhanced release of the body's own pain-relieving chemicals.

Massage

Massage stimulates blood flow around the body, which may promote relaxation and pain relief. However, it may also send muscles into spasm, so should be used with caution.

Tips for communicating with health care professionals about pain²

Keep a diary of your pain. Record:

- location of pain
- severity of pain
- time and extent of the response
- time of day
- what the pain feels like
- what improves or worsens the pain:
 - activities
 - heat/cold
 - certain positions

- any changes in the pain over time
- any new pain symptoms
- any treatment side-effects
- Take a list of medications (prescription and herbal) and complementary therapies.
- Discuss realistic expectations for managing your pain.
- Discuss your satisfaction / dissatisfaction with your pain management strategy.
- Seek a second opinion from your neurologist, if necessary.
- Ask for a referral to a pain specialist, if you don't think your doctor understands the impact of your pain.

Related resources

The following resources can be found online at mssociety.ca

Canadian Physical Activity Guidelines for Adults with MS**Managing Pain and Sleep Issues in MS****Pain and MS: Options exist to manage this difficult symptom**

This resource was adapted from *Living for Today: Managing MS Pain* (2008). Bayer HealthCare.

¹ North American Education Program. (2012). *Managing Pain and Sleep Disorders in MS*. (National MS Society, USA and the MS Society of Canada)

² Roberts, A. (2005). *Pain and MS: Options exist to manage this difficult symptom*. MS Society of Canada online resource.

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