

# Cognition & MS

MS Canada

Imaan, lives with MS



# Cognition & MS

Cognition refers to how we think, remember, communicate, and learn. Changes in cognition can occur in over 50% of adults and 30% of children living with MS.<sup>1,2</sup>

The most common cognitive changes or symptoms are:

- Slower information processing speed
- Difficulty remembering information
- Challenges with other cognitive functions may occur

Cognitive symptoms can interfere with work, school, home life, finances, relationships, attending appointments, or taking medications. Recognizing cognitive symptoms early can help a person and their healthcare providers identify strategies to manage cognitive symptoms and improve outcomes.

**“I find I’ve experienced degrees of cognitive decline - names, dates, and words I need to finish my sentences, evaporate on occasion. I’m no longer able to juggle multiple tasks and I’m becoming overwhelmed easily and impulsive at times.”**

-Eric, diagnosed with MS in 1996

**It's important to discuss cognitive symptoms with an MS healthcare provider because cognitive changes may not be recognized by the person living with MS.**



# What Causes Cognitive Symptoms in MS?

Cognitive challenges due to MS may be explained by underlying changes in the brain.<sup>3</sup> MS is a neurological disease that causes lesions in the central nervous system, which includes both the brain and spinal cord.

When lesions occur in the brain, they can interrupt connections, leading to slower information processing speed and disruption of normal cognitive functioning. The size of the brain (brain volume) also decreases in people living with MS faster than with normal aging.<sup>4</sup>

The number and strength of the connections between brain cells are called the active brain reserve. The active brain reserve refers to the brain's capability to stay strong and flexible, even if there is damage caused by MS.

The brain can repair and strengthen connections to build up the active brain reserve, however when enough brain reserve is lost, cognitive symptoms may get worse. Partial or complete recovery of the cognitive symptoms may occur in some people. For example, improvement in cognitive symptoms may occur following an MS relapse.

It's critical to recognize treatable factors that may influence the active brain reserve and cognitive symptoms such as:

- Fatigue
- Mood symptoms (depression)
- Anxiety
- Sleep deprivation
- Infections (for example, a urinary tract infection may be associated with worsening cognitive symptoms)
- Stressors (including major life events or trauma)
- Prescribed medication (including medications used for treating other MS symptoms)
- Other substances (alcohol and drugs)
- Unhealthy diet or insufficient nutrients
- Other health conditions (sleep disorders, other psychiatric conditions, thyroid disorder, stroke, etc.)



# What are the Types of Cognitive Symptoms in MS?

**Memory or recall problems** are reported often. People with MS typically have greater challenges learning and remembering new information. For example, a person may remember what they did for their 18th birthday but may not remember the details of a recent conversation. Most people with less severe cognitive symptoms can learn strategies that help with memory challenges.

**Slowed information processing speed** refers to the time it takes for individuals to take in information, whether it is spoken or written. A person needs to make sense of it, respond, and/or create a new memory. Processing can be challenging when the information presented is multi-step or when there are distractions, such as a loud or busy environment.

**Attention** includes the ability to stay focused on a task over time or do more than one task at a time. Doing more than one task at a time divides our attention and is more challenging. An example of multitasking or divided attention is walking and talking on the phone at the same time. Tasks can be especially difficult to complete when distracted.

**Reasoning, insight, and problem-solving abilities** refer to how a person analyzes, identifies, and solves a problem. For example, a person must first be aware they have a tendency to leave the stove on by mistake to be able to create a plan that will ensure safety in the home. In everyday life, good insight into one's challenges and how to address them is essential to safe independent living and productivity.

**Visual-spatial abilities** include the ability to recognize objects accurately and to draw or assemble things. Visual-spatial abilities involve everyday tasks such as driving, finding one's way around, locating items in your home or a grocery store, or packing a suitcase.

**Verbal fluency difficulty** in people with MS is often described as a "tip-of-the-tongue" phenomenon, where an individual wants to say a word, that's on the tip of their tongue, but they just can't think of it. Slowed information processing speed can also contribute to delays in finding the word you want.

# How are Cognitive Symptoms Detected in MS?

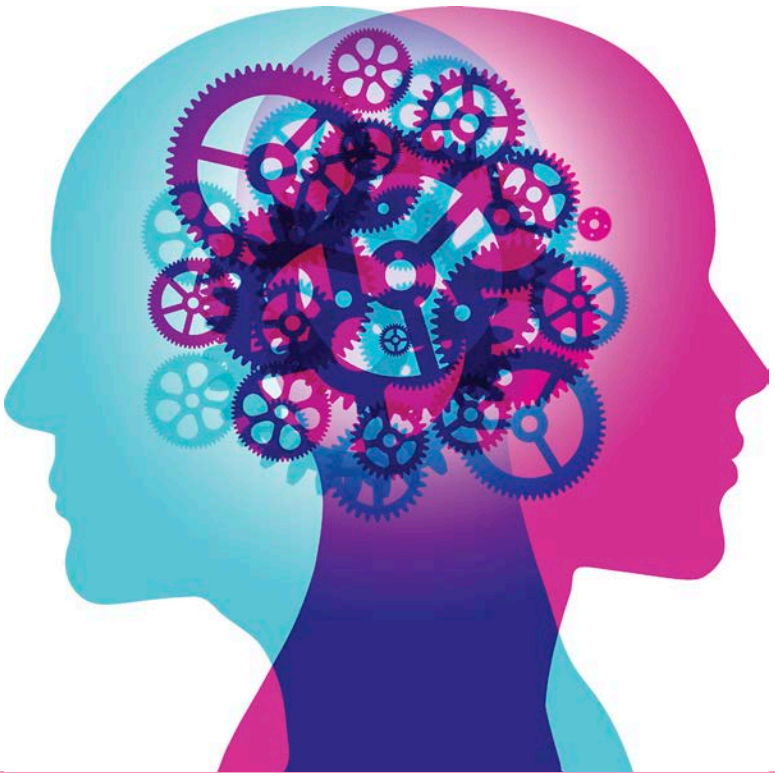
Cognitive symptoms may not be obvious to the person living with MS or others. They often happen slowly over years or decades and may worsen during an MS relapse or may even begin before an MS diagnosis. People without any physical disability may still experience cognitive symptoms.

Identifying cognitive symptoms early on can help a person develop strategies to manage the symptoms in their daily life. Close friends or family may notice cognitive changes before the person living with MS.

The Canadian MS Working Group<sup>5</sup> and international experts<sup>6</sup> recommend that screening for cognitive changes should take place at regularly scheduled MS appointments. Before a medical appointment, people living with MS can ask those closest to them if they've noticed any cognitive changes, and if they have, to write them down so they can share them with their provider at the appointment.



The Symbol Digit Modalities Test (SDMT)<sup>7</sup> is a tool the MS healthcare team may use to look for changes in cognition.<sup>8,9</sup> It's most helpful to do the test shortly after an MS diagnosis and then every 2-3 years later. Depending on what the test shows, some people may be referred to another healthcare professional for additional cognitive testing.



# Who Provides Services for Cognitive Rehabilitation?

Healthcare professionals who specialize in cognition include neuropsychologists, occupational therapists, or speech-language pathologists. Access to these specialists and the type of cognitive rehabilitation offered will be different depending on where a person lives. People usually need a doctor's referral for cognitive symptom management and rehabilitation services. Individual and family-centered services that focus on goal setting are most likely to improve cognitive functioning in daily life settings. Physiotherapists, exercise therapists, nurses, occupational therapists, home care workers, mindfulness coaches, or social workers may be involved in cognitive rehabilitation programs.

Stress management, counseling, computer training programs, and assistive technology may be part of the treatment approach. For some people, written strategies are the easiest and best.

Ask your healthcare team about cognitive rehabilitation strategies and services that could be most helpful for you. Family members may play a role as key support persons. Cognitive rehabilitation programs that are offered in group settings or virtually are also helpful in improving cognitive symptoms for some people.<sup>10</sup>



A **neuropsychologist**, who specializes in the brain and behaviour, may identify which cognitive areas are most affected, and which have the most strengths. They can also help identify other factors that may impact a person's cognitive function, such as depression and cognitive fatigue. A person can experience cognitive symptoms even if cognitive testing does not show any problems. An **occupational therapist** may identify and provide recommendations specific to daily cognitive challenges (for example cooking or using an electronic device). A **speech-language pathologist** may help identify and manage challenges with language and communication (such as problems with finding words).

# Are there Medications for Cognitive Symptoms in MS?

There are no medications approved to treat cognitive symptoms in MS. Many medications have been studied in clinical trials for the treatment of cognitive symptoms in MS, but no single medication has consistently shown beneficial results.

Starting an MS disease-modifying therapy (DMT) early in the course of MS may help delay the onset and progression of cognitive symptoms. However, MS disease-modifying therapies are not indicated for the treatment of existing cognitive symptoms in relapsing-remitting or progressive MS.



# Are there Non-medication Treatments for Cognitive Symptoms?

Healthy behaviours such as eating a balanced diet, exercising, going out socially, and doing activities that challenge your mind are important for managing, delaying, or possibly preventing cognitive symptoms from starting. Different cognitive rehabilitation strategies alone, or in combination may improve cognitive symptoms. Treatment plans will be different for each person, based on their treatment goals and the level of cognitive change they are experiencing. Some examples of non-medication treatments include:

- Being socially and physically active
- Learning mental imagery techniques to improve memory
- Using calendars and organizational strategies
- Setting reminders
- Involving care partners in establishing routines

**Cognitive rehabilitation is an approach to improve cognitive function through goal setting, new learning, or adaptation. Cognitive rehabilitation strategies may include combinations of compensatory strategies and restorative strategies.**

**Compensatory strategies** maximize the use of existing cognitive skills for the best cognitive performance. An example of a compensatory strategy is using a grocery list. Compensatory strategies offer a different way to complete a task that's become difficult.

**Restorative strategies** require new learning and engaging in tasks that target areas of cognitive difficulty. Restorative strategies rely on the brain's ability to recover or establish neural connections to complete cognitive tasks. Restorative strategies aim to increase the active brain reserve.

**Questions about MS or more resources available to you?** For information and support on navigating your MS journey, you can connect with our MS Navigators toll-free at **1-844-859-6789**, by email at **msnavigators@mscanada.ca**, or visit **mscanada.ca** to live web chat Monday to Friday, 8am-8pm ET.

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Sylvie, lives with MS,  
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