



# Maintaining Ability in Multiple Sclerosis

# Living with MS

## Take heart – you can live well with MS

You may have just been diagnosed with multiple sclerosis (MS), or have been living with this disease for a while. Today, you can take comfort in knowing that with proper treatment, medical care and support, you can live with MS and maintain a high quality of life and wellness.

Having MS does not necessarily mean giving up your dreams. Understanding what MS is and how it affects your body is the first step in making an educated decision about managing the disease, and understanding how a potential treatment may affect you, your symptoms, and your future.

## What is MS?

MS is a chronic condition that is estimated to affect between 55,000 and 75,000 Canadians.<sup>1</sup> The precise cause of MS is not yet known. Most experts believe that MS is an autoimmune disease that affects the central nervous system (CNS). This means that the immune system mistakenly attacks healthy cells in the brain and spinal cord. One of the main targets of this attack is myelin, the fatty “insulation” that protects the nerve fibres (called axons) in the CNS. As myelin is damaged, the electrical signals travelling along the axons are interrupted. These “short circuits” manifest as MS symptoms, such as tingling, numbness, pain, muscle weakness, tremors or spasticity.

## How MS progresses

After each attack, the body works to repair the areas of damaged myelin. Over time, recovery and repair from each attack may be less and less complete. As the myelin is permanently damaged, or partially repaired, the axon becomes less effective at sending messages to the rest of the body. So messages either get through very slowly or not at all. This permanent damage to the myelin and axons is thought to be the cause of disability in MS.

By starting treatment early in the course of the disease, you have the best chance of maintaining your quality of life and level of ability.<sup>2</sup>



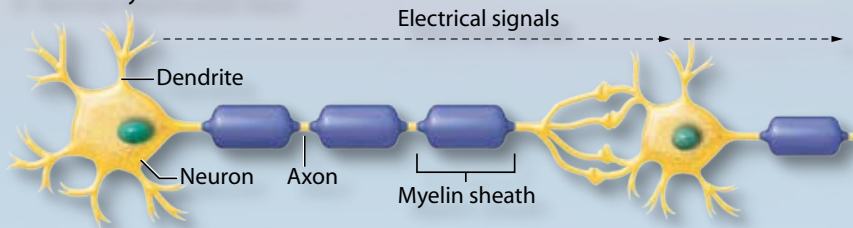
*MS occurs most commonly in those living in northern climates<sup>1</sup>*



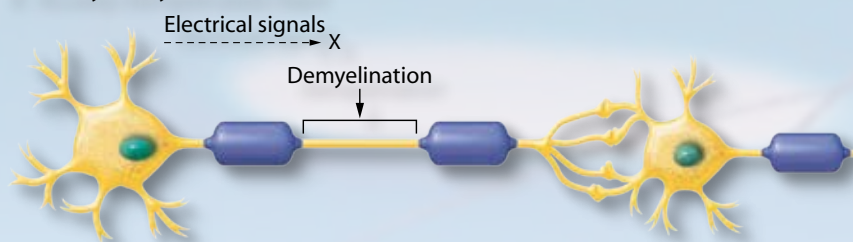
*Canadians have one of the highest rates of multiple sclerosis in the world<sup>1</sup>*

# Living with MS

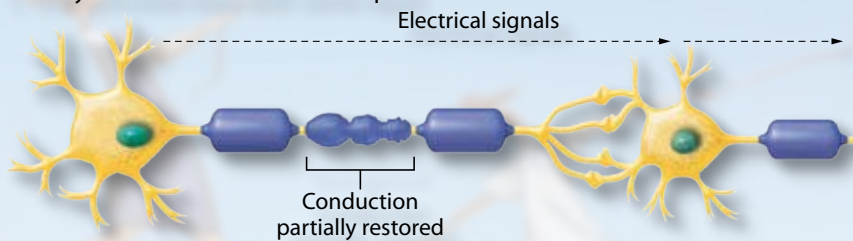
A Normal Myelinated Axon



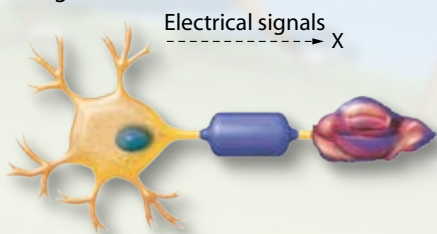
B Acutely Demyelinated Axon



C Demyelinated Axon with some repair



D Degenerated Axon



## How MS progresses

Right now, there is no cure for MS, but there are treatments that have been found to alter the course of the disease and some may even delay the loss of ability. These are called disease-modifying drugs (DMDs).<sup>2-7\*</sup> DMDs have been shown to impact MS in three ways, by:

1. Slowing the progressive loss of ability common in MS (by helping to prevent nerve damage).
2. Reducing the number and severity of relapses.
3. Reducing the number and/or size of lesions seen on MRI scans.\*\*

Not all DMDs have been proven equally effective on all three measures listed above. When choosing a treatment for your MS, it is important to choose one that has been proven to delay the loss of ability in MS.

## When should I start treatment?

Early treatment is recommended to alter the course of MS and to give you the best chance to maintain your current level of function and ability.<sup>2,7</sup> Those who begin treatment early and remain on treatment can minimize the risk of disability and increase their chances of maintaining a more normal and healthy lifestyle.<sup>7</sup>

## Don't delay treatment – aim to maintain ability in MS

\* This publication refers to Rebif<sup>®2</sup>, Avonex<sup>®3</sup>, Betaseron<sup>®4</sup>, Copaxone<sup>®5</sup> and Tysabri<sup>™6</sup>. Tysabri<sup>™</sup> is generally recommended for MS patients who have had an inadequate response to, or are unable to tolerate, other therapies for multiple sclerosis.<sup>6</sup>

\*\* The exact relationship between MRI findings and the clinical status of patients is unknown.



# Maintaining ability in MS

## The Expanded Disability Status Scale (EDSS)

Your doctor or MS nurse will periodically evaluate your degree of ability and function using the EDSS. This scale assesses different body systems, such as sensory (e.g., numbness, pain), bowel/bladder, visual, mental (e.g., memory), and mobility.

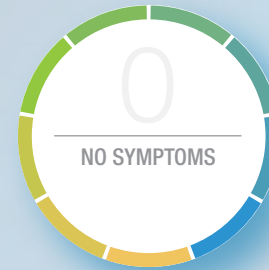
The course of MS is different for everyone, therefore, not everyone spends the same amount of time at each stage of EDSS. It is also not inevitable: many people will remain at a certain level of disability without necessarily progressing to the next level.

## What does an increase of 1 point on the EDSS scale mean to you?

Talk to your neurologist and MS nurse about what maintaining ability means to you (e.g., riding a bike with your kids, walking your dog, etc.)



*MS can cause loss of balance, impaired speech, extreme fatigue and paralysis<sup>1</sup>*



## FUNCTIONAL SYSTEMS

- Ability to Walk
- Coordination
- Speech & Swallowing
- Touch and Pain
- Bowel & Bladder Functions
- Visual
- Mental (e.g., memory)
- Other



*Every day, three more people in Canada are diagnosed with MS<sup>1</sup>*

# Making the right choice for you

Not all DMDs have been proven equally effective on all three important disease measures (delaying the progressive loss of ability, reducing the number and severity of relapses, and reducing MRI lesions). For example, while all DMDs have been shown to reduce relapse rates, only Rebif<sup>®</sup>, Avonex<sup>®</sup> and Tysabri<sup>™</sup> have been shown to delay the loss of ability.

Most people start treatment with one of the beta-interferons (Rebif<sup>®</sup>, Betaseron<sup>®</sup>, Avonex<sup>®</sup>), or glatiramer acetate (Copaxone<sup>®</sup>). Tysabri<sup>™</sup> is generally recommended for MS patients who have had an inadequate response to, or are unable to tolerate, other therapies for MS, due to reports of a rare brain infection called progressive multifocal leukoencephalopathy (PML).<sup>6</sup>

## Comparison of DMDs for the treatment of relapsing-remitting MS

| Therapies   | Rebif <sup>®2</sup><br>(interferon beta-1a)<br>(Demonstrated in clinical trials over 4 years) | Avonex <sup>®3</sup><br>(interferon beta-1a)<br>(Demonstrated in clinical trials over 2 years) | Betaseron <sup>®4</sup><br>(interferon beta-1b) | Copaxone <sup>®5</sup><br>(glatiramer acetate) |
|---|---|--|---|--|
| Indicated to delay disability progression         | •   | •  |   |  |
| Slows the progressive loss of ability             | •   | •  |   |  |
| Reduces the number of confirmed EDSS progressions | •   | •  |   |  |

Rebif<sup>®</sup> (interferon beta-1a) is the only DMD proven to be effective over 2 and 4 years.<sup>2</sup>

Just like any other chronic condition, you may need to take your MS treatment for a long time. It is important to take your medication as directed by your healthcare professional. This will help maximize your chances of treatment success. How your MS treatment fits into your lifestyle (i.e., how convenient and easy a DMD is to administer), is therefore an important factor to consider when selecting a therapy for MS.

There is no “right choice” for everyone, and your selection will depend on a variety of factors that are unique to you. Reviewing the effectiveness, administration and side effects of each DMD with your healthcare professional will help you make the right decision for you by weighing the advantages and disadvantages of your treatment choices.

## The importance of starting treatment

Starting a medication that has been shown to delay progression of disability – and that best fits your lifestyle – can help you live well with MS today and may help you maintain ability in the future.



*The key to successful treatment of your MS is education*



*MS is the most common neurological disease affecting young adults in Canada<sup>1</sup>*



To find out more about how you can live well with MS, visit: [www.livingwithms.ca](http://www.livingwithms.ca)

1. MS Society of Canada. Accessible at [www.mssociety.ca](http://www.mssociety.ca).
2. Rebif® Product Monograph. EMD Serono Canada Inc. October 2008.
3. Avonex® Product Monograph. Biogen Idec Canada Inc. April 2006.
4. Betaseron® Product Monograph. Bayer Canada Inc. November 2008.
5. Copaxone® Product Monograph. Teva Neuroscience. April 2009.
6. Tysabri™ Product Monograph. Biogen Idec Canada Inc. January 2009.
7. Goodin, D.S., Frohman, E.M., Garmany, G.P. Jr. et al. Disease modifying therapies in multiple sclerosis: Report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology and the MS Council for Clinical Practice Guidelines. *Neurology* 2002;58(2):169-178.