

A photograph showing hands preparing a meal. A person's hands are visible, one holding a wooden spoon and another holding a wooden fork, both over a plate of green leafy salad. In the foreground, there's a bowl of salad, a bowl of what looks like fried plantains or chips, and a small white plate with a slice of bread. The background is slightly blurred.

# Nutrition & Multiple Sclerosis

Produced by Lind Publishing, Inc.



Living with MS

# **MSology Essentials Series**

## **Nutrition & Multiple Sclerosis**

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## Introduction

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Multiple sclerosis (MS) is the most common disabling neurological condition affecting people during adolescence and early adulthood. The hallmark of relapsing-remitting MS is a *relapse*, or new or worsening neurological symptoms that persist for at least a day or two. Relapses are generally caused by a flare-up of inflammation in the central nervous system (CNS). Relapse symptoms, such as tingling, numbness, nerve pain, or muscle weakness, can be short-lived, or may drag on for several weeks or months, which may leave you with lasting problems. This uncertainty – about when a relapse will occur and what will be the “new normal” after an attack – is one of the greatest challenges of living with MS.

A diagnosis of MS can leave people feeling as if their life has spiralled out of control. Much about the disease process isn’t known: what causes it to develop, why relapses occur, and why some people do well and others develop serious disabilities. But as you face the daily challenges of going to work or school, having relationships and raising a family, it’s important to remain optimistic and try to reassert some measure of control over your life.

One way to take control over your situation is to take an MS medication to limit the damage caused by the disease. Another way is to pursue a healthier lifestyle – getting enough sleep, exercising regularly and eating properly. In this booklet we’ll look at the importance of nutrition in your daily life, and the foods and dietary supplements you may want to consider to maintain your energy, health and well-being.



## The Importance of Healthy Eating for People With MS

The health benefits of eating a well-balanced diet of fruits and vegetables, grains, dairy products and proteins are well known (see Tables on pages 3 and 4).

For people with MS, good nutrition is especially important to ensure the proper functioning of the immune system, maintain muscle strength, and enhance general well-being. MS is caused by changes in how the immune system responds: immune cells attack tissues in the body such as myelin, the protective covering around nerve fibres, which causes inflammation and damage in the CNS.

A new area of research is investigating how food choices may be able to make this immune response less inflammatory. For example, there is some early evidence to suggest that dietary fibre can help to re-regulate the immune profile and reduce inflammation in the CNS. This work is still preliminary and no firm conclusions can be drawn yet, but it does suggest that a balanced diet of nutritious foods is an important ingredient in maintaining your overall health.

Maintaining muscle strength with good nutrition and exercise is especially important. Muscle impairments, such as weakness, stiffness and pain, are common in MS, and these can affect your ability to walk and to accomplish all of the tasks you need to do in your daily life. By building stronger muscles, you can compensate for some of this impairment, improve stability to prevent falls, and keep yourself active.



### Quick Tip

Good nutrition doesn't mean special diets or expensive supplements. All it takes is a little attention to the foods you eat and ensuring that you have a well-balanced diet.



## Guide to Healthy Eating



Food Group	Examples	Serving Size	Recommended Servings per Day for Adults
 Fruits and Vegetables	• Fresh, frozen or canned vegetables	½ cup	7-10
	• Leafy vegetables either raw or cooked	1 cup (raw) ½ cup (cooked)	
	• Fresh fruits	1 fruit	
	• Frozen or canned fruits	½ cup	
	• 100% fruit juice	½ cup	
 Grains	• Bread	1 slice	6-8
	• Bagel	½ bagel	
	• Flat breads (e.g. pita, tortilla)	½ pita or tortilla	
	• Cooked rice, quinoa or bulgur	½ cup	
	• Cereal	30 g (1 oz) (cold) ¾ cup (hot)	
	• Cooked pasta or couscous	½ cup	



Food Group	Examples	Serving Size	Recommended Servings per Day for Adults
Dairy Products 	<ul style="list-style-type: none"><li>Milk</li><li>Canned milk</li><li>Soy milk</li><li>Yogurt or kefir</li><li>Cheese</li></ul>	<ul style="list-style-type: none"><li>1 cup</li><li><math>\frac{1}{2}</math> cup</li><li>1 cup</li><li><math>\frac{3}{4}</math> cup</li><li>50 g (1 <math>\frac{1}{2}</math> oz)</li></ul>	2-3
Proteins 	<ul style="list-style-type: none"><li>Lean meat, fish, poultry, shellfish</li><li>Cooked beans</li><li>Tofu, hummus, lentils</li><li>Eggs</li><li>Peanut butter</li><li>Shelled nuts, seeds</li></ul>	<ul style="list-style-type: none"><li>75 g (2 <math>\frac{1}{2}</math> oz)</li><li><math>\frac{3}{4}</math> cup</li><li>150 g (5 oz) or <math>\frac{3}{4}</math> cup</li><li>2</li><li>2 tablespoons</li><li><math>\frac{1}{4}</math> cup</li></ul>	2-3
<p><b>Oils and Fats:</b> Include a small amount (30-45 mL) of unsaturated fat each day. This may include cooking oil, salad dressings, margarine and mayonnaise. Vegetable oils (canola, olive, soybean) are preferable. Select soft margarines that are low in saturated and trans fats.</p>			

Adapted from the Canada's Food Guide, 2016



## Common Dietary Difficulties in MS

People with MS often face two important nutritional challenges.

The first is obesity – hardly a unique situation in our increasingly overweight society. It is well-established that weight gain increases the risk of high blood pressure, heart disease, diabetes and other medical conditions, so it's important to do everything you can to maintain your general health. Having MS doesn't mean you aren't at risk of developing other illnesses.

But obesity has a special significance to MS. Being overweight during adolescence reportedly increases a person's risk of developing MS. Fat tissue promotes a more inflammatory environment in the body, which is believed to be one of the ways that body fat contributes to the onset of MS. Once you have been diagnosed with MS, being overweight doesn't appear to affect your chances of developing disability later on. But carrying extra body weight can be a problem if you are already experiencing fatigue and mobility problems.

Maintaining a proper weight can admittedly be a challenge. Many MS symptoms, such as fatigue, muscle stiffness, and depression, make it difficult to remain active. This inactivity contributes to weight gain. And weight gain adds to the fatigue, muscle stiffness and depression. It's a vicious cycle – but improving your eating habits will help to break the pattern. Eating well and maintaining a healthy weight will help you remain active, which may relieve some of your symptoms and help you cope better with your MS.



The second challenge is malnutrition. Recent studies have suggested that people with MS are more likely to be malnourished compared to people with other chronic illnesses. This seemingly contradictory situation had been called the “double burden of disease” – where someone is both overnourished (too much food) and malnourished (eating the wrong foods). Malnourishment can mean too little fibre or carbohydrates in your diet, not enough vitamins and minerals (or the wrong ones), and too many calories from saturated fats. For people with MS, malnourishment can be associated with nutrient deficiencies, impaired immune function, reduced muscle strength (including the muscles used for breathing), and changes in mental functioning.



### Quick Tip

Try to maintain a healthy body weight –  
for your MS and for your overall health and well-being.



## Is there a special diet that will help my MS?

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The internet has countless websites devoted to “special diets”, with many claims about how certain foods will improve your MS. There is no good scientific evidence that any of these diets will affect your MS. You can certainly try changing your food habits to see if that helps you feel more energized or less fatigued. But be aware that some diets may require that you buy specialty item foods or supplements, which can be expensive.

Your usual diet may have certain restrictions because of religious observance (e.g. kosher, halal) or personal preference (e.g. vegetarian or vegan). Rest assured that these practices will not have an effect on your MS and will not prevent you from obtaining all the nutrients you need if you eat a properly balanced diet.

The effects of fasting (e.g. during the month of Ramadan) has also been studied in MS. As a general rule, fasting does not appear to have any adverse effects on the severity or long-term course of MS. Some people report that certain MS symptoms, such as fatigue, dizziness, balance and vision problems, may worsen during fasting periods, but these symptoms typically go away once you start eating again. Some caution is needed for people with severe MS, and those with other medical conditions, who plan to fast. Talk to your doctor if you have concerns that fasting may have harmful effects on your health.



## Should I avoid certain foods?

Many people avoid eating certain foods, such as gluten, dairy products or nuts, because of food allergies or sensitivities. Little research has been done to investigate whether people with MS are more or less likely to have food allergies. To determine if you have a true allergy to certain foods, you'll need your doctor to refer you to an allergist, who can identify what you should be avoiding. This is important because there is some preliminary evidence that people with MS who have food allergies are more likely to have more frequent or severe symptoms if they are exposed to their problem foods.

Food sensitivities (rather than allergies) don't produce an immune reaction. But you may associate those foods with troublesome symptoms, such as fatigue, gastrointestinal distress, or headaches. These foods are unlikely to worsen your MS, but it may be best to avoid them if you feel better without them in your diet.



### Quick Tip

Read the product labels to ensure that the foods you eat don't contain too much salt, sugar or trans fats.



## Should I take dietary supplements?

A multivitamin supplement may be helpful to ensure that your body is getting all of the vitamins and minerals it needs. But keep in mind that your body needs only small amounts of vitamins (see Tables on pages 11 and 12). This is especially important when it comes to fat-soluble vitamins (i.e. vitamins A, E, K and D), which are stored in body fat and in the liver – so very high doses can be toxic.

**Vitamin D:** This is a hormone that our bodies produce when exposed to sunlight. Many people – notably those living in northern countries – are deficient in this vitamin due to low sun exposure, especially during the winter months. Vitamin D affects how the immune system functions, and there is some evidence that higher doses of vitamin D may benefit your MS. Talk to your neurologist about whether higher doses of vitamin D supplements would be right for you.

You can also boost your level of vitamin D with more sun exposure – but it's important to avoid sun burns! Limit the amount of time you spend in the sun so you don't damage your skin.

**Calcium:** Low bone density (called osteopenia) or bone deterioration (called osteoporosis) is common in people with MS, which increases your risk of fractures. Regular exercise and proper nutrition will keep your bones strong and healthy. Your doctor may also prescribe a calcium supplement (taken with vitamin D) to maintain your bone health.



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**Probiotics:** Probiotics are live bacteria (e.g. *Lactobacillus*, *Bifidobacterium*) that are found in certain foods (e.g. yogurt, other dairy products) and supplements. These are beneficial bacteria that can maintain the health of your gastrointestinal tract (the stomach, small intestine and bowel) and are often prescribed for gastrointestinal problems, such as diarrhea or irritable bowel syndrome (IBS). Probiotics may provide some benefits in people with MS, although this hasn't been well-studied.





## Recommended Daily Doses of Vitamins

Vitamin	Recommended daily amount for adults*	Food sources
<b>Water soluble</b>		
C	2000 mg	Citrus fruits
<b>B complex:</b>		
Thiamin	1.1 mg (F); 1.2 mg (M)	Whole grains; peas; pork; liver; legumes
Riboflavin	1.2 mg (F); 1.3 mg (M)	Whole grains, milk, eggs, dark green vegetables
Niacin	14 mg (F); 16 mg (M)	Whole grains, liver, fish, poultry, meat, peanuts
B6	1.2 mg**	Whole grains, cereals, pork, meats, leafy vegetables
Folate	400 µg***	Fortified grains, meats, fish, leafy vegetables, citrus
B12	2.4 µg	Meats, liver, kidney, fish, eggs, milk, shellfish
Biotin	30 mg	Fresh vegetables, yeast, liver, kidney, egg yolk, milk



Vitamin	Recommended daily amount for adults*	Food sources
<b>Fat soluble</b>		
A	700 µg (F); 900 µg (M)	Dairy products, fish and liver <sup>†</sup>
D	400 mg‡	Vitamin D-fortified milk, oily fish, cod liver oil
E	15 mg	Vegetable oils, almonds, hazelnuts, sunflower seeds
K	90 mg (F); 120 mg (M)	Green leafy-vegetables, oils (soybean, canola, olive)

\*F, females. M, males. \*\*higher amounts (1.5 mg in females, 1.7 mg in males) recommended after age 50. \*\*\*A folate supplement (400 µg) is recommended for all women of childbearing age. <sup>†</sup>Also important is beta-carotene, which your body converts to vitamin A. Good sources of beta-carotene include orange or dark green fruits and vegetables (e.g. carrots, squash), leafy vegetables and apricots.

<sup>‡</sup>Talk to your doctor about whether higher doses would be right for you.

Adapted from Health Canada, Dietary Reference Intakes, [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)



## 5 Tips for Healthy Living

1

Eat a well-balanced diet of whole grains, fruits, vegetables and protein (meat or meat substitutes). Avoid fad diets offering unproven benefits.

2

Try to maintain a healthy body weight. Your MS clinic can refer you to a dietitian or physiotherapist to help you eat well and remain active.

3

Avoid too much salt in your diet (often hidden in processed foods). A low-salt diet is heart healthy, and there is some evidence that it may benefit your MS.

4

Drink water to remain hydrated – especially after exercising.

5

Develop a health plan of good nutrition, regular exercise, stress reduction and personal happiness. Whatever is healthy for your mind and body is likely to be helpful for your MS!





## Questions to Ask Your MS Nurse

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### Contacts

MS clinic: \_\_\_\_\_

Family physician: \_\_\_\_\_

Nutritionist: \_\_\_\_\_

Other numbers: \_\_\_\_\_

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The MS Essentials series provides the latest information on multiple sclerosis medications, research, and lifestyle issues such as health, nutrition and exercise. All of the booklets are developed by Lind Publishing, publishers of MSology, to help people affected by MS remain active and informed.

MS Essentials is provided free of charge. The full series of publications is available for download at [www.MSology.com](http://www.MSology.com)



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