

Do lifestyle choices affect MS?



So much about MS is unpredictable, but there are factors you can control.

by Mary E. King, PhD

When doctors hear questions such as, “What can I do to reduce my risk of MS progression?” or “What can my children or other family members do to reduce their risk of developing MS?” they’re now able to respond with reassuring news. There are several lifestyle changes individuals can make to lessen the risk of progression—or the risk of developing the disease in the first place.

Stop (or don’t start!) smoking

While cigarette smoking has long been connected to lung cancer and heart disease, researchers now know it is also a risk factor for developing MS. As Dr. Tiffani Stroup, a clinician educator with NorthShore University HealthSystem in Evanston, Illinois, explains, “Smokers have an increased risk of developing MS, especially the primary progressive form.”



Smoking is a risk factor for developing multiple sclerosis, particularly the primary progressive form, says Dr. Tiffani Stroup. Photo courtesy of Dr. Tiffani Stroup

In a Swedish study published in 2009, for example, the risk for women smokers developing any form of MS was about 1.4 times that of nonsmokers; for men, it was about 1.8 times. Dr. Stroup notes that children and adults who breathe in secondhand smoke are also at higher risk of developing MS, and the risk increases in proportion to the amount of exposure.

Smoking worsens MS in people who already have this disease, too. According to Dr. Stroup, “When people with MS continue to smoke, they have a higher risk of relapse, increased [indicators of brain tissue damage] on MRI, and more disability—including cognitive impairment—than nonsmokers with MS.” Smokers also progress to secondary progressive MS faster than nonsmokers, and smoking may interfere with certain disease-modifying therapies for MS, including interferon beta and natalizumab (Tysabri®), Dr. Stroup adds. Each additional year of smoking after diagnosis can hasten the time it takes for a person to progress to secondary progressive MS by 4.7 percent, for example.

Why does smoking have these effects? The reasons aren’t completely understood, says Dr. Stroup. One possibility, she says, is that cigarette smoke, including passive exposure, raises the risk of infection, and infections can temporarily worsen MS symptoms. “However, we don’t know if infections are the key to smoking’s impact on MS,” Dr. Stroup says.

Even people who already have MS can benefit from quitting smoking. “If people with MS stop smoking, they will immediately lengthen the time it takes to develop secondary progressive

MS by an average of eight years compared to current smokers with MS,” Dr. Stroup emphasizes.

The bottom line: If you are a smoker, stop smoking or at least cut back as much as possible. Dr. Stroup recommends that you talk to your doctor about help with quitting. As she points out, “There are many good options now, including nicotine patches and gums, and oral medications.”

Maintain a healthy weight

Being overweight or obese heightens the risk of developing MS for adolescent girls, according to Dr. Annette Langer-Gould, a partner physician and neurologist at Kaiser Permanente in Pasadena, California. In a study published in **Neurology** in 2013, she and her colleagues found that overweight adolescent girls (18 and younger) have 1.5 times the risk of developing MS or clinically isolated syndrome (CIS, a first clinical episode suggestive of MS that indicates increased MS risk) than normal-weight girls. If they are obese, they have about two to three times the risk. Overweight and obesity were defined using standard measures of body-mass index.



Michelle, who lives in Memphis, Tennessee, was diagnosed with MS in 2001. Photo courtesy of the National MS Society

“We could only detect this elevated risk in girls, not boys,” says Dr. Langer-Gould,” so we think that increases in estrogen, which are linked with overweight/obesity, may be part of the explanation.” She explains that fat tissues release molecules that promote inflammation, so inflammatory response might increase the risk of developing MS.

Dr. Langer-Gould adds that besides being associated with excess weight, having more estrogen also causes girls to start menstruating at a younger age. And, she points out, “We know that girls and women have stronger immune system responses, for example, to vaccines, during the years when they menstruate.” So, by the time overweight or obese girls

reach their teenage years, they will have spent more of their life menstruating and, therefore, have spent more years with stronger immune responses. “This may increase the risk for diseases like MS that are linked to the immune response,” Dr. Langer-Gould adds.



Being overweight or obese increases adolescent girls' chance of developing MS, notes Dr. Annette Langer-Gould.

Photo courtesy of Dr. Annette Langer-Gould

What should young women and their parents do? Dr. Langer-Gould stresses that regular exercise and a healthy weight are important for everyone. While it hasn't been proven yet that an already overweight or obese girl who loses weight will definitely reduce her risk for MS, Dr. Langer-Gould says weight loss is still a healthy step to take. Overweight girls and their parents should create healthy diets and exercise plans with their doctors. The adults should keep in mind that weight and body image can be sensitive topics for adolescent girls, and that they need to pay close attention to issues of self-esteem and mental health during the process.

What if a person who already has MS is overweight or obese? “This increases the risk of long-term disability,” Dr. Langer-Gould says, so she encourages her patients to pursue weight loss within the framework of a healthy lifestyle. As she points out, “Two chronic diseases—MS and obesity—are much worse than one, so take charge of the one that is in your control!”

Aim for adequate vitamin D

Low vitamin D levels in the blood have been linked to both the risk of developing MS and of MS progression, says Dr. Ellen Mowry, associate professor of neurology at Johns Hopkins

University School of Medicine. However, earlier studies haven't proved that increasing vitamin D will actually reduce disease activity, so Dr. Mowry is leading a clinical trial to test whether supplementation with vitamin D will benefit people with MS.

Researchers across the United States are enrolling individuals with relapsing-remitting MS. Participants are randomly assigned to one of two treatments, both of which combine vitamin D plus standard therapy with glatiramer acetate.

One group is taking the recommended daily amount of vitamin D for adults in the general population (600 IU each day), while the other group is taking a much higher, experimental dose. Dr. Mowry hopes to know sometime in 2018 whether higher vitamin D supplementation will reduce the number of people who relapse or slow the rate of relapse, and determine any effects on disability.



Why low vitamin D levels are linked to increased MS risk isn't clear, Dr. Mowry says. Vitamin D can decrease the numbers of certain inflammatory cells in the blood, and therefore might protect against immune responses that target the brain, she says.

Because study results are still a couple of years away, Dr. Mowry does not necessarily advise vitamin D supplementation for everyone with MS; she stresses that there is no proven benefit of the supplements and that they may be harmful for some: "We know that adequate vitamin D levels are linked with overall health and wellness, but vitamin D supplements are not recommended for patients with certain heart conditions, certain infections or a history of calcium kidney stones." So, she stresses, it is important to discuss your individual risk factors and possible benefits with your doctor before adding vitamin D supplements to your diet.

The big picture

It's important to note that none of these factors is a single cause of the disease. Furthermore, it's clear that not everyone who has MS has been exposed to these factors, nor will everyone who is exposed to these factors develop MS. Nevertheless, they provide important information in the search for the cause and the cure, and provide opportunities to maximize wellness.

"It is great to see an explosion in the study of modifiable risk factors and MS," Dr. Langer-Gould says. "This research encourages us as MS clinicians to look at the entire health picture

of our patients, and to counsel them about healthy lifestyles and modifiable risk factors for their long-term health.”

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Find information on [quitting smoking](#), or call 1-800-QUITNOW (1-800-784-8669).

Learn about enrolling in the [vitamin D study](#).

Visit [Wellness for People with MS](#) for more information on diet and exercise.