

Seeing through the smoke



The verdict is clear: Smoking can have a significantly negative impact on MS.

by Marcella Durand

E-cigarettes spark controversy

[Are e-cigarettes really any healthier](#) than traditional cigarettes?

By now, most people are aware that smoking has been linked to heart disease, respiratory illnesses, cancer and a long list of other medical ailments. But fewer know that study after study shows smoking can also negatively affect the course of multiple sclerosis, and even whether a person develops MS in the first place.

A clear risk factor

The current thinking is that MS develops when people whose genes make them susceptible to the disease encounter something in the environment that triggers it. And smoking, especially when combined with other risk factors, may be one of those environmental “triggers.”

Dr. Alberto Ascherio, a professor of epidemiology and nutrition at the Harvard School of Public Health, has been researching the links between risk factors such as smoking and the development of MS for the last decade. Based on his findings, he estimates that the risk of developing MS can be lowered 30 to 60 percent by quitting smoking—today.

“The [risk] reduction is greater in men than in women, and greater for heavy smokers than light smokers,” he says. In addition, he points out, if someone is already diagnosed with MS, his or her relatives who smoke should realize their own risk for MS could be increased, as they may carry the same genes that make them more susceptible to the disease.

Dr. Ascherio’s research also demonstrates an even more potent effect when smoking is combined with exposure to Epstein-Barr virus (EBV). Previous research had already found that people who have both a specific gene, HLA-DR15, which has been shown to confer higher susceptibility to MS, and high levels of antibodies to EBV, which indicate previous exposure to the virus, were nine times more likely to develop MS than people without the gene and with low levels of antibodies.

In a 2010 study published in **Neurology**, Dr. Ascherio and collaborators in Australia and Sweden examined evidence from three studies: the Nurses’ Health Studies, an ongoing long-term study that tracks risk factors for chronic diseases in female nurses; the Tasmanian MS Study; and the Swedish MS Study. In a combined group of 442 people with MS and 865 controls (people without MS), the researchers found that smoking increased the risk of developing MS by 70 percent in people with high levels of EBV antibodies.



Dr. Alberto Ascherio has uncovered powerful links between smoking and the development of MS. Photo courtesy of Dr. Alberto Ascherio.

Progressing MS

In addition to heightening the risk of developing MS, smoking also may hasten the progression of MS and the degree of disability it can produce, according to mounting evidence.

“Smokers seem to convert from relapsing-remitting MS to a progressive course faster than nonsmokers,” says Dr. Ascherio.

Although the exact biological mechanism is still unclear, several studies seem to confirm this, with the largest one, published in the **Archives of Neurology** in 2009, comparing 1,465 smokers, ex-smokers and nonsmokers, all with MS. The study, conducted at Harvard School of Public Health by Dr. Ascherio and his colleagues, looked at whether smoking history related to disease progression over the course of the study.

The investigators found that current smokers had significantly worse clinical disability scores than ex-smokers or never-smokers, and that smokers were more likely to have a primary-progressive course of MS. Current smokers also had more MRI-detected indicators of disease severity at baseline than ex-smokers or never-smokers, including atrophy, or shrinkage of tissue, in the brain. While the results of this observational study strongly correlate smoking with worsening MS, the researchers caution that this does not mean that smoking causes MS; other factors, such as genes and other environmental exposures, play a role.

Impeding treatment

In addition, recent research is indicating that smoking may impact the effectiveness of disease-modifying treatments (DMTs). The results of a Swedish study that examined the health records of 695 people with MS, and which was published in **Multiple Sclerosis Journal** in 2013, found that current smokers were significantly more likely than nonsmokers to develop neutralizing antibodies (also known as Nabs), which are associated with incomplete response to interferon beta-1a medications (Betaseron®, Extavia®, Avonex® and Rebif®).

More research is needed to examine whether smoking affects the body’s response to other DMTs, but the researchers brought up the possibility that the irritation caused to the lungs by smoking may alter the immune system’s response to treatment, although this needs to be confirmed by further studies.

Starting to quit

The reasons to quit are many, and the benefits begin almost immediately. The 2009 Harvard study found that, for several measures of MS progression, ex-smokers did not differ significantly from people who never smoked. “From a practical perspective quitting seems the only reasonable solution,” says Dr. Ascherio.

However, as most smokers—and ex-smokers—know well, quitting is easier said than done, and many people struggle for years before finding a way to quit.



Kathie Moore, who has MS, was able to quit smoking with the help of hypnosis, her faith and a strong decision to prioritize her health. Photo courtesy of Kathie Moore.

Kathie Moore, diagnosed with MS in 1997, says she smoked for 34 years and had tried quitting a number of times using a variety of approaches, including acupuncture, nicotine patches, smoking-cessation classes and prescription medicine, “with no luck.”

Because of her MS, however, “I had started losing use of my right hand to the point where the cigarette sometimes would fall,” Moore says. “So I started smoking with my left. I knew there was something wrong with this picture and it was time to try again to quit smoking,” Moore remembers. She says she had to ask herself, “How badly do I really want to quit?” Finally, on Jan. 29, 2006, she was able to stop smoking for good, finding that hypnosis, faith and arriving at a deep decision about her health was the winning combination for her.

The techniques that are successful for one person may not be for the next. It takes a lot of patience and persistence to find the right way to quit. Numerous support groups, websites and resources can help. Your healthcare provider can help you make a plan. You can also visit MSconnection.org to connect with other people with MS who smoke or who have quit—they may offer tips and advice that have worked for them, and that may help you too.

If you’re a veteran with MS, the Department of Veterans Affairs offers support. Go to va.gov and search for “smoking and MS.”

According to smokefree.gov, a website sponsored by the National Institutes of Health, one of the first steps to quitting successfully is mobilizing your support network of family, friends,

co-workers or neighbors. Let them know you want to quit and ask them for help and advice in figuring out how you will quit. Once you've made your promise to quit, you can even ask them to hold you to it!

It's also important to manage your stress—and your overall health—while you go through the quitting process, so you can minimize potential triggers for smoking. Breathing exercises, meditation and exercise all help lay the groundwork for better health and a successful quit.

Marcella Durand is a frequent contributor to Momentum.

Visit nationalMSSociety.org/smoking to learn more about the links between smoking and MS.