

# Smoking and MS

**The evidence is getting clearer all the time: if you have MS, smoking has extra risks for you on top of the well-known ones (cancer, heart disease, stroke, and so on). This factsheet looks at how smoking makes MS worse – and how quitting makes a real difference to that.**

## Background

A large study in 2021 found that among people with MS in the UK around 16% smoked, the same as in the general population. But the proportion of people with MS who used to smoke was higher than in the general population. This suggests that in the past smoking was more common in people with MS than in others.

For years studies have pointed towards links between smoking and MS. Many found that smoking can make MS worse if you already have it. And smoking can make you more likely to get MS in the first place.

Over the last few years we've also seen people who smoke do worse on some disease modifying therapies (DMTs) compared to non-smokers.

In 2017 a review of 56 studies highlighted again the growing evidence about smoking and MS – and why people with MS who smoke should quit the habit. In 2021 the largest study yet into the benefits of quitting (funded by the MS Society) underlined these benefits.

This growing evidence is why the MS Society launched a campaign in 2018 to spread the news

about how especially harmful smoking is for people with MS.

The MS Society's own research found very few people with MS know smoking and MS are linked. This is despite official guidelines that ask doctors and MS nurses to encourage patients to give up smoking. The people with MS we spoke to usually hadn't been warned about smoking and MS.

## Risks of smoking at a glance

Compared to people with MS who don't smoke, if you keep smoking, you're more likely to:

- have more relapses
- get more lesions (areas of nerve damage) in your brain
- become more disabled at a faster rate

Also:

- If your MS is relapsing remitting, it can become secondary progressive MS many years sooner
- Some DMTs work less well for people who smoke (they have more relapses)
- The more cigarettes you smoke, and the longer you smoke, the worse it makes your MS
- If you're the close relative of someone with MS, smoking makes your already higher risk of getting MS even higher. Passive smoking could increase this risk, too
- The good news is that quitting can lower these risks quite quickly. They can soon drop to the same as a non-smoker's

# The ways smoking makes MS worse

You might notice some of the ways smoking makes MS worse, such as the effect on some symptoms. But you won't notice most of the harm that's happening to you.

## Lesions and other effects on the brain

Compared to non-smokers, studies have found more lesions on the MRI scans of brains of people who smoke.

Smoking causes brains to shrink ('atrophy'). Our brains get a bit smaller as we get older, whether we have MS or not. But this happens faster when you have MS. When you smoke you have even more brain shrinkage.

Your brain shrinking is linked to having more disability, poorer memory and thinking, and being less able to recover from the damage MS does to your brain.

## Relapses

Smoking is linked to having more relapses.

## Symptoms

Among the symptoms that could be made worse by smoking are:

- memory and thinking ('cognition')
- eyesight (blurred or double vision and problems with colours)
- vertigo (feeling that the room is spinning) and poor balance
- weakness in your muscles and lack of control over them
- fatigue
- odd sensations in your skin (like pins and needles)
- poorer hands and arm movement within minutes of smoking a cigarette

## Disability

Studies have found that people with all types of MS who smoke are more likely to have worse levels of disability. They become more disabled more quickly. This is compared to people who've never smoked and ex-smokers.

## Relapsing remitting MS turning into secondary progressive MS

Studies have found that people with relapsing remitting MS who smoke are more likely to see this turn into secondary progressive MS sooner. DMTs only work if your MS still has relapses, so MS is much harder to treat when relapsing MS becomes progressive MS.

## DMTs work less well

DMTs don't protect you from the harm that smoking causes. Taking a DMT should mean fewer relapses. But people who smoke and who take two types of DMT have more relapses than non-smokers who take the same drugs.

People who smoke are more likely to produce neutralising antibodies to these two drugs. This stops them working like they should.

The DMTs this has been seen with so far are natalizumab (Tysabri) and the beta interferons (Avonex, Rebif, Plegridy, Betaferon and Extavia).

# Exactly how does smoking make your MS risk higher?

We don't know for sure. There are many theories but no hard evidence to support them.

One thing we do know: nicotine isn't to blame. People who use nicotine without smoking it (such as snuff users) have no higher risk of getting MS or of their MS getting worse.

## Benefits of quitting

Relatively soon after you quit your brain can go a long way to healing the damage smoking was causing.

Stop smoking and the rate at which you get more lesions can go down to the rate of a non-smoker. How much your brain shrinks also returns to that of someone with MS who's never smoked.

If you quit, you also see a drop in how much disability you develop. A large 2021 study found that after stopping, there was a slow down in how quickly people's walking got worse. It slowed down to the same rate seen in people who had never smoked. This was seen in how other parts of their body moved, too.

In another study, when people stopped smoking, the risk of their disability getting worse dropped 4% for each year they stayed 'smoke-free'. That would mean over 12 years they'd halve their risk of their disability worsening.

People who stop smoking can also slow down how soon their relapsing MS becomes secondary progressive MS.

In one study people who quit within a year of being diagnosed with relapsing MS took eight years longer on average for their MS to become secondary progressive. This was compared to people who smoke.

The large study from 2021 also found that people with MS who smoked had higher levels of anxiety. But these levels went down after they gave up smoking.

## Help with quitting

if you manage to stay smoke-free for 28 days, you're five times more likely to quit for good.

### **Nicotine replacement (gum, patches and inhalers)**

Studies have shown that nicotine taken in ways other than smoking doesn't pose any MS risk. So

using nicotine replacement products to help you quit won't make your MS worse.

### **Vaping**

For your general health, vaping can be a safer alternative to smoking, especially if it helps you quit smoking completely.

We don't know yet if vaping has its own dangers. Some studies have shown that it could irritate the lungs or damage cells in your body. Both of these might have a negative effect on MS.

### **Money**

If you smoke a packet of cigarettes a day, quitting means you'd save around £250 each month. That's £3,000 each year.

Find more support to help you quit at [nhs.uk/oneyou/stoptober/home](https://www.nhs.uk/oneyou/stoptober/home)

## Smoking can cause MS

There's strong evidence that people who smoke are more likely to get MS. In fact, they're up to 50% more likely than non-smokers to get MS. Imagine if two non-smokers get MS but three people who smoke get it. This is what '50% more likely' looks like.

This higher risk is also there if you have a clinically isolated syndrome (CIS). That's a first attack of MS-like symptoms (if you have a second attack, you'll be diagnosed with MS).

Evidence from some studies (but not all) shows that people who have a CIS and who smoke are more likely to later get a definite diagnosis of MS.

Smoking is one of several things that researchers believe might trigger MS. Others include your genes, having low levels of vitamin D, getting less sunshine, being very overweight and having had Epstein-Barr Virus (which causes glandular fever). MS could also be caused by a mix of any of these things acting together.

So if you smoke (or used to smoke) and now have MS, it's not possible to say what role – if any – smoking played in that. One thing we do know for certain: giving up smoking is better for your MS.

Are you a close relative of someone with MS? If you're their parent, child or brother or sister, you already have a risk of getting MS that's a bit higher than the general population. Not smoking is something you can do to keep this risk from getting any higher.

## Passive smoking

In several studies people were more likely to get MS if they'd been exposed to other people's cigarette smoke.

The evidence for this isn't as strong as the evidence for smoking itself causing MS. More studies are needed into this risk from this second hand smoke.

If you're closely related to someone with MS, then you might want to avoid passive smoking. That way you'll help keep your (already slightly higher) risk of MS as low as you can.

By 'close relative' we mean you're their brother, sister, child or parent.

## Smoking cannabis

The MS Society has been campaigning since 2017 for people with MS to have cannabis for medical use on the NHS.

But because of the risk from smoking, we warn people about smoking cannabis, especially if you mix it with tobacco.

There are ways of taking cannabis that don't involve smoking. Some people take it by mouth by putting drops of cannabis oil under their tongue, by swallowing capsules or by using a mouth spray.

Some people heat the oil and breathe in the vapour. We don't know yet if this vapour has the same kind of risk as smoking it.

## More information

If you're interested in more detail about the evidence on smoking and MS (including references), you can read our evidence summary at [mssociety.org.uk/smoking-and-ms](https://mssociety.org.uk/smoking-and-ms)

We're the MS Society. Our community is here for you through the highs, lows and everything in between. We understand what life's like with MS.

Together, we are strong enough to stop MS.

The MS Society provides this information free of charge but if you would like to help cover the cost, which will help towards our essential work, please call **0800 100 133** or visit the fundraising section of our website to make a donation. Anything you can give will be greatly appreciated.

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