Age of onset for multiple sclerosis 'linked to distance from equator'

[**Nicola Davis**](https://www.theguardian.com/profile/nicola-davis)

**[@NicolaKSDavis](http://twitter.com/NicolaKSDavis)**

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Those further from the equator develop symptoms of MS earlier, study suggests, emphasising link between lack of sunlight and disease’s progression

People living in countries further away from the equator develop symptoms of multiple sclerosis at an earlier age, research suggests.

Both genetic and environmental factors are believed to be to behind the development of multiple sclerosis (MS), with previous work revealing that prevalence of the disease is higher among those living further away from the equator - in other words, in locations with higher latitudes.

It is suggested that the link is down to variations in levels of sunlight and hence levels of vitamin D - the production of which is triggered in the skin by UVB radiation.

But the latest study suggests it is not only the prevalence of the disease which is linked to latitude.

“The main finding is that if you have higher latitude you have earlier age of onset,” said Eva Havrdova, professor of neurology at Charles University in Prague and co-author of the research.

That, she says, underscores the need for doctors to be on the lookout for symptoms. “We have to be careful with our young people to really make the diagnosis quickly [and] to be prepared that there may be more MS in society than we are diagnosing now,” she said.

Published in the[Journal of Neurology Neurosurgery & Psychiatry](http://jnnp.bmj.com/lookup/doi/10.1136/jnnp-2016-314013) by an international team of researchers, the study draws on data from more than 22,000 adult MS patients from 52 recruiting centres across 21 countries, collected as part of a large international registry. The average age at which the disease began was 32.3 years.

When the researchers took into account factors around age, sex and type of MS, they found that for every 10 degree increase in latitude of the study centres, the onset of the symptoms among patients began almost 10 months earlier.

The researchers then looked that the impact of UVB radiation - a factor strongly linked to latitude. Average winter UVB levels varied greatly between countries, with Mexico’s nearly 18 times higher than Denmark’s.

The researchers found that patients in countries with the lowest UVB levels developed symptoms almost two years earlier than those in countries with highest levels.

While the authors say that the findings emphasise the importance of exposure to sunlight in the development of MS, they acknowledge that other environmental factors as well as genetic variation could also play a role in the link between latitude and age of onset of the disease.

The fact that the risk of developing the disease is linked to factors that can be influenced is important, says Havrdova.

Danny Altmann, professor of immunology at Imperial College London who was not involved with the study, said the research was, “A really resounding message from application of big data research concerning the importance of environment, latitude and UV exposure - and therefore vitamin D”.

Altmann added that vitamin D dietary supplements could play a role in [reducing the risk](https://www.theguardian.com/society/2015/aug/25/lack-vitamin-d-cause-multiple-sclerosis-study) of developing MS. “It is such a simple answer and it’s crazy that we don’t take it more seriously,” he said.

Dr Sorrel Bickley, head of biomedical research at the MS Society, said: “We’ve known for many years that people living in less sunny climates are more likely to develop MS, and this study indicates that a lack of sunlight could also contribute to when the first symptoms of MS appear. We welcome studies like this that help us understand more about the causes of this unpredictable and challenging condition.”