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# MS Spine Lesions

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## Multiple sclerosis

[Multiple sclerosis \(MS\)](#) is an immune-mediated disease that causes the body to attack the central nervous system (CNS). The CNS includes the brain, spinal cord, and optic nerves.

A misdirected inflammatory response progressively strips nerve cells of a protective coating called myelin. Myelin coats the nerve fibers from the brain, along the spinal cord, and to the rest of the body.

 In addition to protecting the nerve cells, the myelin coating facilitates nerve transmission signals, or impulses. The resulting decrease in myelin leads to the symptoms of MS.



## Diagnosing MS through spine and brain lesions

People can exhibit many symptoms of MS, but a [definitive diagnosis](#) cannot be achieved with the naked eye.

The most effective and non-invasive way to determine if a person has MS is to scan for brain and spinal cord lesions using [magnetic resonance imaging \(MRI\)](#).

Lesions are usually the most telling symptom of an MS diagnosis. According to the National MS Society, only about [5 percent](#) of people with MS do not show lesions on MRI at the time of diagnosis.

MRI uses strong magnetic and radio waves to produce detailed pictures of the brain and spinal cord. This scan can effectively show any scarring or damage to the myelin sheath associated with MS.

## MS spine lesions

[Demyelination](#), or the progressive stripping of the myelin sheath in the CNS, is a staple of MS. Since myelin coats the nerve fibers that travel through both the brain and the spinal cord, demyelination creates lesions in both areas.

This means that if someone with MS has brain lesions, they are also likely to have spinal lesions as well.

Medically reviewed by [Nancy Hammond, MD](#) on January 7, 2019 —  
Written by Alex Snyder

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Sometimes the number of spinal lesions identified from an MRI can provide the doctor with an idea of the severity of the MS and the likelihood of a more serious episode of demyelination occurring in the future. However, the exact science behind the number of lesions and their location is still not entirely understood.

It's not known why some people with MS may have more lesions in their brain than their spinal cord, or vice versa. However, it should be noted that spinal lesions do not necessarily indicate a diagnosis of MS, and can sometimes lead to a misdiagnosis of MS.

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## Neuromyelitis optica

While spinal and brain lesions can suggest MS, the appearance of spinal lesions can also indicate another disease called [neuromyelitis optica \(NMO\)](#).

NMO has many overlapping symptoms with MS. Both NMO and MS are characterized by lesions and inflammation of the CNS. However, NMO occurs primarily on the spinal cord, and the size of the lesions differ.

If spinal lesions are detected, it's important to get the correct diagnosis because the treatments for MS and NMO are very different. Incorrect treatments can even have negative effects.



## Takeaway



MS is a common neurological disorder characterized by lesions in the CNS, where myelin is stripped away and replaced with scar tissue.

MRIs are used to determine if brain and spinal lesions are associated with MS. It's not entirely understood why more spinal lesions may form over brain lesions, or vice versa.

It's important to keep in mind that not all spinal lesions are the result of MS. In some cases, they may indicate another disease called NMO.

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