

July 2020 Newsletter



Does MS Weaken With Age?

The immune system protects the body from harmful substances (called [antigens](#)), such as bacteria or viruses. It can distinguish between normal, healthy cells and unhealthy cells by recognizing a variety of "danger" signals and responding to address a threat, when necessary. If an immune response cannot be activated when there is a need, problems like an infection may occur. On the other hand, when an immune response is activated without a real threat or is not turned off once the danger passes, different problems arise, such as allergic reactions and autoimmune diseases (like MS). Inflammation is an immune response that occurs when tissues are injured. The damaged tissue releases chemicals that cause blood vessels to leak fluid into them, causing swelling. This helps isolate the foreign substance and prevent its spread throughout the body.

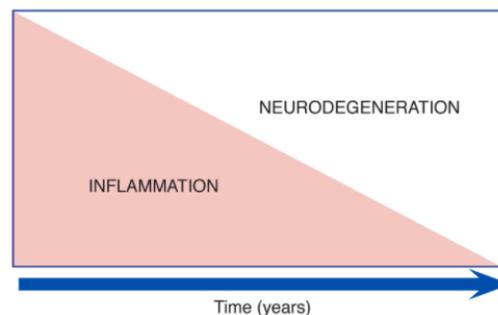


MS is a condition in which the immune system attacks the nerves in the brain and spinal cord, causing [demyelination](#). Approximately 85 percent of people living with the disease are initially diagnosed with relapsing remitting MS (RRMS), in which they experience flares in their symptoms (new or existing), lasting anywhere from a few days to a few months. Afterward, symptoms improve or resolve completely for periods of months or years. Over time, RRMS may progress to secondary progressive MS, in which an individual may experience a slow, steady progression of symptoms – with or without



relapses. If relapses do occur, they usually do not fully remit. Approximately 15 percent of the MS population is diagnosed with primary-progressive MS, where individuals experience a steady worsening of symptoms from the start, and do not have periodic relapses and remissions.

The MS disease process is a complicated one and it evolves over time. An immune response occurs in which the body's own white blood cells attack the nerves in the brain and spinal cord, causing inflammation. This, in turn, damages the protective covering surrounding the nerves (demyelination). [Nerve degeneration](#) may also occur, which is the breakdown or death of nerve cells. The body attempts to repair the damaged myelin ([remyelination](#)), however this process is often incomplete, which results in scarring within the central nervous system at the sites of damage ([glial scar](#) formation). [Research](#) shows the efficiency of remyelination naturally declines as part of the aging process. As a result, the ability to repair damaged nerves decreases, eventually reaching a point where it is too slow to prevent nerve degeneration (which is when MS enters the progressive phase). In RRMS (early in the disease process), inflammation is typically the primary driver of the disease process. Over time, in progressive forms of the disease, the disease involves increasingly less inflammation and more neurodegeneration.



The immune system functions less effectively as a person gets older, which is a complex process called [immunosenescence](#). As a result, elderly individuals are often more at risk for infections and have a decreased response to vaccinations. A number of environmental

and lifestyle factors have been shown to affect this rate of decline. For example, [research](#) suggests the amount of exercise an individual gets influences their immune function over time. Another typical aspect of aging is the development of a chronic, low level of systemic inflammation, often referred to as [inflammaging](#). There is evidence these abnormal immune responses lead to the development of many conditions, such as [cardiovascular disease](#), [cancer](#) and a worsened disease course in [MS](#). Everyone living with MS experiences disability progression at varying rates. A [recent review](#) suggests levels of iron increase in the brain and spinal cord as one gets older and this causes oxidative stress and cell death (which contributes to neurodegeneration and the formation of lesions). The reviewers concluded the processes of immunosenescence and inflammaging contribute to unhealthy aging and disease progression.



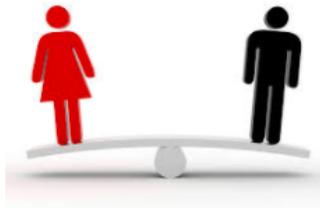
As mentioned in our [June 2020 newsletter](#), there is evidence the number of relapses a person with MS may experience decreases with age. [Recent research](#) suggests young adults show higher levels of MS disease activity. Exploring this phenomenon further, a [2008 study](#) followed 2,477 RRMS subjects for an average of 20 years from the onset of their MS symptoms. Results showed relapse rate decreased by 17 percent every 5 years. Subjects who were older at disease onset experienced a more rapid decline in relapse rate. More than three quarters of subjects experienced a 5-year relapse-free period during the RRMS phase. Interestingly, women and those whose first MS symptoms were sensory in nature had higher relapse rates.

People with MS, and in general, are more likely to develop other health conditions as they get older. As discussed in our [July 2019 newsletter](#), there is evidence that these other health conditions, also called comorbidities, play a significant role in MS disease progression over time. For example, [research](#) suggests people with MS and vascular comorbidities such as hypertension, diabetes and hyperlipidemia are more likely to experience ambulatory disability sooner compared to those without these comorbidities. Results show these risk factors are associated with decreased brain volume, as well as an increased number of lesions. [Researchers](#) at the University at Buffalo also found cardiovascular risk factors are associated with an increased number of lesions and more advanced brain atrophy. An additional issue with



comorbidities relates to treatment of them. Attempts to treat the multiple conditions a person with MS may experience with various combinations of medications often results in “polypharmacy” (taking more than 5 prescriptions at a time). A [2014 study](#) shows that taking so many different medications is associated with increased fatigue and memory/cognitive problems.

A [recent study](#) of 57 people with MS found individuals may get better at dealing with the disease over time. The research team divided participants into three different age ranges: 35 to 44, 45 to 54 and 55 to 65. Participants completed several tests to measure their quality of life and depression levels. Results showed significant differences in depression and quality of life between each group. The oldest people had the lowest levels of depression and higher levels of well-being. It’s important to note that more research is needed in larger populations to confirm these results and to clarify the reasons for these outcomes.



A [2017 study](#) suggests that men and women may experience aging with MS differently. Canadian researchers surveyed 743 people with MS older than 55 who have been living with MS for more than 20 years (577 were women and 166 were men). Participants were asked to rate their health and answer questions about other factors that might influence how they cope with

living with MS. Older men with MS had a lower perception of their health, coped less well with setbacks, had lower participation in household activities (such as housework and home/car maintenance), participated less in social activities outside of the home and had a poorer diet. Older women reported higher levels of anxiety, whereas older men reported higher levels of depression. These results suggest that men cope less well with aging with MS. The researchers propose this may be due to the differences in the traditional roles of men and women. Although women were just as likely as men to retire early due to MS, older women continued to participate in household work and social opportunities more often than older men; these activities help to reduce the impact of depression on perceived health and quality of life. Subjects with higher levels of depression had a lower perception of their health, regardless of gender (stressing the importance of treating this symptom).

