

June 2020 Newsletter



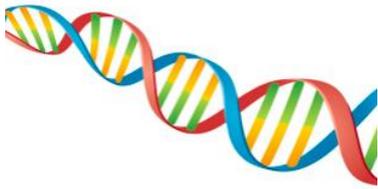
Aging Gracefully With MS

According to a [recent study](#), approximately 90% of people with MS now in their twenties may live into their seventies and a quarter of people currently living with MS are mature adults over 65 years old. As a result, more individuals with MS face coping with normal age-related changes in their health and life while having to manage symptoms and disability related to the disease.



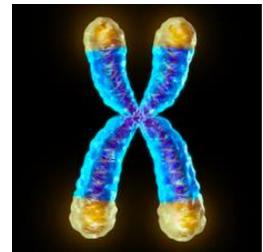
Differentiating between the effects of MS and age-related changes can be difficult, since many of its symptoms, including fatigue, pain, depression, cognitive changes, visual disturbances, difficulties going to the bathroom and with mobility, are common in normal aging. The risk of developing other health conditions (called comorbidities) also increases as a person gets older, whether they have MS or not. Common examples of comorbidities include heart disease, diabetes, and arthritis. The potential impact of comorbidities for people with MS is discussed in our [July 2019 newsletter](#). For the best outcome, individuals with MS and their healthcare providers must be vigilant and ensure that all comorbidities are appropriately treated in the course of comprehensive care.

According to the [somatic mutation theory of aging](#), how a person ages is determined by genetics. The body's cells are continually reproducing throughout an individual's lifetime. Each time a cell divides, there is a chance that some of the genes will be copied incorrectly (called a mutation). In addition, exposures to toxins, such as the chemicals in cigarette smoke, may cause mutations. The body can correct or destroy some, but not all of these abnormalities. As a person ages, the mutated cells eventually copy themselves and accumulate and this may cause problems in the body's functioning.



The information in DNA (or genetic code) is stored in four chemical [bases](#) (adenine, guanine, cytosine and thymine), which pair together to form DNA's ladder-like structure. [Telomeres](#) are sections of DNA that protect the ends of chromosomes by forming a cap, much like the plastic tip on shoelaces. They consist of the same short sequence of bases repeated over and over again. Telomeres [shorten](#) in the process of aging in cells. When cells divide, their DNA is replicated and each time this occurs the chromosomes are shortened by approximately 25 to 200 bases. However, because the ends are protected by telomeres, the only part of the chromosome that is lost is the telomere, and the central DNA is left undamaged. When the telomere becomes too short, the chromosome can no longer be replicated (and the cell dies).

[Research](#) shows the shortening of telomeres is associated with normal aging and related diseases. The rate of erosion is determined by genetics as well as the cumulative effect of other factors throughout an individual's life. For example, [oxidative stress](#) is one of the factors that contributes to the loss of base pairs when a cell divides. The amount of oxidative stress in the body is thought to be affected by lifestyle factors such as diet, smoking, and stress.



[Chinese researchers](#) looked at oxidative stress and its effect on telomere length in 59 subjects with MS compared to an equal number of control subjects (study participants without MS). The MS subjects were divided into three groups (benign, secondary progressive, and primary progressive MS). They found higher levels of biomarkers for oxidative stress in MS subjects compared to controls. Mean telomere length was significantly shorter in the primary progressive MS group, whereas no shortening was found between controls and the other MS subjects. These data suggest oxidative stress and telomere shortening are associated with the most severe stage of MS. Shortened telomere

length has also been associated with [cardiovascular disease](#), [Alzheimer's Disease](#), and other [autoimmune diseases](#), such as lupus and rheumatoid arthritis.



Chronological
Age

It's important to note there are two types of aging – chronological aging and biological aging. An individual's [chronological age](#) is the amount of time that has passed from their birth to a given date (the primary way most people define their age). [Biological age](#), on the other hand, is more than just a measure of time passed. It is an indication of how the aging process has impacted the body (how old a person seems). Biological age takes into consideration other factors like genetics, lifestyle, nutrition, as well as health conditions an individual may have. These two ages may be different in any given individual. Chronological age always increases at a set rate as time passes. However, lifestyle choices can either increase or decrease a person's biological age. One [study](#) looked at a group of people, all of whom were 38 years old. Results showed their biological ages ranged from 28 to 61. Many factors contributed to this variability, such as genetics and habits (for example, whether or not an individual exercised, ate a healthy diet, or smoked). The distinction between the two types of aging is relevant in MS. A [recent study](#) looked at whether biological aging (as measured by telomere length) is associated with clinical disability and brain volume loss in people with MS. Data suggest shorter telomere length is associated with disability independent of chronological age, suggesting that biological aging may contribute to MS disease progression.



Biological
Age

A number of factors have been shown to help individuals with MS age gracefully. [Canadian researchers](#) studied this subject from the perspectives of 683 older people living with the disease. Results show social connections, such as relationships with family, friends, and even pets, as well as volunteerism are the most commonly reported positive influence, followed by a good attitude and outlook. Lifestyle choices and habits (healthy eating, exercise, adequate sleep, weight management) are also important, as well as having access to high quality health care. In addition, data show spirituality and religion, independence, and finances play a part in aging gracefully with MS.



While no one can escape the effects of aging, a number of things can help ease the process, whether an individual is diagnosed with MS or not. It's especially important for people with MS to take care of themselves and make healthy lifestyle choices throughout their lifetime. Maximizing one's physical, mental, and spiritual health can go a long way toward living the best life possible with MS. In addition, recognizing the potential impact of MS in old age and planning ahead for future needs may offer those living with the disease peace of mind and a feeling of control. ACP remains committed to finding a cure for MS so that, one day, people living with the disease no longer have to worry about its confounding effects in their elder years.

