

TMS TRENDS

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DEPRESSION AND THE AGING PROCESS

Although stress is widely known as a detrimental force on the body, one of its less well-known effects is the wear on our cells through decreasing telomere length.

Apart from being one of the body's primary means of protection for our chromosomes, telomeres and their shortening are also strongly associated with the aging process. Although natural shortening is nothing to cause alarm, premature diminishment due to stress or stress-related illnesses such as depression may be a cause for concern.

In a study published in *Biological Psychiatry*, researchers studied the relationship between telomere length and major depressive disorder. Through studying both healthy individuals and those with major depression, researchers determined that the depressed individuals had significantly shortened telomeres relative to the non-depressed group. Additionally, individuals with shorter telomeres in the healthy and depressed groups also had decreased levels of cortisol, a stress-release hormone.

Although the implications of these findings are not yet fully realized, telomere length may be a key component in determining future treatments for depression.

SLEEP, THE SILENT HEALER

Six hours, eight hours—it is widely debated how much sleep constitutes “enough” sleep. But just why is getting enough rest so important? In a study published in *Science*, researchers may have found evidence to support the oft-touted necessity of catching enough Z's. When we sleep, our brain “opens the floodgates,” so to speak; CSF, or cerebrospinal fluid, released at a slow trickle during waking hours, floods our brain cells and carries away the waste products generated by the day's brain activity. Dr. Maiken Nedergaard, one of the study's authors, likens the process to a dishwasher cycle.

This new study may provide insight into not only the benefits of sleep, but also the dangers of sleep deprivation. The waste products that are carried away by CSF in our sleep are potentially toxic if not cleared away. One such waste product is beta amyloid, which many are familiar with in the pathology of Alzheimer's. Given enough build-up, beta amyloid forms plaques toxic to brain cells.

Convinced? Beyond justifying our brain's need for adequate sleep to properly function, this study may also point to the importance of sleep and CSF in future Alzheimer's research.

