

## Anti-Aging Benefits of Vitamin D

A recent study published in the *American Journal of Clinical Nutrition* showed an association between longer telomeres in human blood cells and increased levels of vitamin D. Telomeres are caps on the ends of chromosomes that become shorter with each cell division. It follows that telomeres shorten with the aging process. Increased oxidative stress and inflammation can also contribute to telomere shortening. The recent findings suggest that vitamin D may play a part in slowing the aging process and the onset of age-related diseases.<sup>1</sup>

Researchers measured telomere length in more than 2,000 women. As expected, older participants had shorter telomeres; however, those who had higher levels of vitamin D had longer telomeres after adjustments were made for age and other factors. Study participants with the highest vitamin D levels (in the top one-third of the group) had telomeres that were 107 DNA base pairs longer than those participants in the lowest third. This increased length in telomeres is equivalent to a five-year difference in chronologic aging.

As part of their study, researchers also analyzed telomere lengths of the participants who took vitamin D supplements. They found that 700 of the participants already took vitamin D supplements and had longer telomeres than those who did not supplement with the vitamin.

Researchers theorize that inflammation and oxidative stress play roles in the aging process, and that vitamin D decreases the levels of compounds that may cause inflammation in the body. Researchers observed that it may be difficult for a person to change some habits that cause oxidative stress and inflammation, but that vitamin D concentrations “are easily modifiable through nutritional supplementation.”<sup>1</sup>

Researchers also concluded that “these results demonstrate for the first time that people who have higher levels of vitamin D may age more slowly than people with lower levels of vitamin D. This could help to explain how vitamin D has a protective effect on many aging-related diseases, such as heart disease and cancer. Further studies are required to confirm these findings.”<sup>1</sup>

Previous studies have also indicated that vitamin D is associated with increased longevity and decreased disease prevalence, but did not understand the vitamin’s role in prevention. One study concluded that “the intake of ordinary doses of vitamin D supplements seems to be associated with decreases in total mortality rates...Mechanisms by which vitamin D supplementation would decrease all-cause mortality are not clear.”<sup>2</sup> The recent research involving telomeres helps to clarify possible mechanisms of action of how vitamin D provides these benefits.

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<sup>1</sup> Richards, B. et al. “Higher Serum Vitamin D Concentrations are Associated with Longer Leukocyte Telomere Length in Women.” *American Journal of Clinical Nutrition* 2007;86:1420-1425.

<sup>2</sup> Autier, P and Gandini, S. “Vitamin D Supplementation and Total Mortality: A Meta-analysis of Randomized Controlled Trials.” *Archives of Internal Medicine* 2007;167:1730-1737.