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DEPRESSION IS ASSOCIATED WITH DECREASED 25-HYDROXYVITAMIN-D AND INCREASED PARATHYROID HORMONE LEVELS IN OLD AGE

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About 13 percent of older individuals have symptoms of depression, and other researchers have speculated that vitamin D may be linked to depression. Underlying causes of vitamin D deficiency such as less sun exposure as a result of decreased outdoor activity, different housing or clothing habits and decreased vitamin intake may be secondary to depression, but depression may also be the consequence of poor vitamin D status. Moreover, poor vitamin D status causes an increase in serum parathyroid hormone levels. Overactive parathyroid glands are frequently accompanied by symptoms of depression that disappear after treatment of the condition. We recently measured blood levels of vitamin D and parathyroid hormone and assessed symptoms of depression among 1,282 community residents age 65 to 95 and found a strong decrease in vitamin D level and increase in parathyroid hormone level (Hoogendijk et al., Arch Gen Psychiat 2008;65(5):508-512). This finding may be important to patients because both low blood vitamin D levels and high parathyroid hormone levels can be treated with higher dietary intake of vitamin D or calcium and increased sunlight exposure. Moreover light treatment has been used successfully to treat seasonal affective disorder. Taking these two lines of studies together, sunlight may have an antidepressant effect via the eye-biological clock tract and via the skin-vitamin D-tract. Interestingly, the biological clock is located in the hypothalamus, where vitamin D receptor is most abundant.