# Sunscreen use may lead to vitamin D deficiency

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(HealthDay) -- Using the amount and sun protection factor (SPF) of sunscreen recommended by the World Health Organization (WHO) is associated with little or no vitamin D production, suggesting that regular sunscreen use may lead to vitamin D deficiency, according to research published online April 18 in the *British Journal of Dermatology*.

Annesofie Faurschou, M.D., Ph.D., of Bispebjerg Hospital in Copenhagen, Denmark, and colleagues conducted a study involving 37 healthy volunteers with fair skin to measure serum vitamin D (25-hydroxyvitamin $D_3$) levels before and after exposure to ultraviolet B (UVB) radiation following sunscreen application. Sunscreen with an SPF of 8 was applied on approximately 25 percent of body area at a concentration (thickness) of 0, 0.5, 1, 1.5, or 2 mg/cm². A fixed dose of UVB of three standard erythema doses was given 20 minutes after sunscreen application every two to three days, for a total of 4 cycles.

The researchers found that thinner sunscreen layers were associated with higher vitamin D serum levels after UVB exposure. However, vitamin D levels did not significantly rise after UVB exposure in those treated with the thickest layer of sunscreen (2 mg/cm²), which is the level recommended by the WHO.

"In this study, we demonstrated that the vitamin D serum level increases in an exponential manner with decreasing thickness of sunscreen layer in response to UVB exposure. To our knowledge, this relation has not previously been described," the authors write. "Our results suggest that sunscreen use according to the current recommendations by the WHO may be re-evaluated."

**More information:** Abstract
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