

SCIENTIFIC INFORMATION STEROGYL

Low vitamin D status despite abundant sun exposure

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Contexte and Objective

Lack of sun exposure is widely accepted as the primary cause of epidemic low vitamin D status world-wide. However, some individuals with seemingly adequate UV exposure have been reported to have low serum 25-hydroxyvitamin D [25(OH)D] concentration, results that might have been confounded by imprecision of the assays used.

The aim was to document the 25(OH)D status of healthy individuals with habitually high sun exposure.

Settings

This study was conducted in a convenience sample of adults in Honolulu, Hawaii (latitude 21 degrees).

Participants

The study population consisted of 93 adults (30 women and 63 men) with a mean (sem) age and body mass index of 24.0 yr (0.7) and 23.6 kg/m² (0.4), respectively. Their self-reported sun exposure was 28.9 (1.5) h/wk, yielding a calculated sun exposure index of 11.1 (0.7).

Main outcome measures

Serum 25(OH)D concentration was measured using a precise HPLC assay. Low vitamin D status was defined as a circulating 25(OH)D concentration less than 30 ng/ml.

Results

Mean serum 25(OH)D concentration was 31.6 ng/ml. Using a cutpoint of 30 ng/ml, 51% of this population had low vitamin D status. The highest 25(OH)D concentration was 62 ng/ml.

Conclusions

These data suggest that variable responsiveness to UVB radiation is evident among individuals, causing some to have low vitamin D status despite abundant sun exposure. In addition, because the maximal 25(OH)D concentration produced by natural UV exposure appears to be approximately 60 ng/ml, it seems prudent to use this value as an upper limit when prescribing vitamin D supplementation.

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