Optimum Sun Exposure Times for Vitamin D Status Correction in Saudi Arabia

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Abstract:

Abstract: Vitamin deficiency is considered to be a major public health problem in Saudi Arabia, especially during summer. The major source of vitamin D is sun exposure. In this study, we aimed to determine the optimum time for sun exposure in four different cities (North, South, West and East regions) in the Kingdom of Saudi Arabia. In the current study ampoules containing 7-dehydrocholesterol in ethanol were exposed to sunlight every hour starting from sunrise until sunset in June 2013. Results indicated that the geographical location and the time of the day have a major influence in vitamin D production. In summer, conversion of pre-vitamin D3 was observed to be elevated between 8:00-9:00 AM to 3:30-4:30 PM, with peak hours between 11:30 AM to 12:30 PM. Moreover in the east region (Dammam), conversion of pre-vitamin D3 showed significant reduction by around 50%. In conclusion, the optimum sun exposure time for vitamin D3 production in the north, south and west regions of Saudi Arabia during summer is from 8:30 AM to 10:30 AM, as well as 2:00 PM to 4:00 PM. Air pollution might be the cause for the decreased conversion of 7-dehydrocholesterol to pre-vitamin D3 in the east region. Conservatively, the optimum time for sun exposure therefore in Dammam city is from 8:30 AM to 10:00 AM, as well as 1:00 PM to 2:30 PM. Knowledge of the optimum sun exposure times during summer can be highly effective in preventing vitamin D deficiency in Saudi Arabia.

Keywords:

Vitamin D, Sunlight Exposure, Optimum Times, Saudi Arabia

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