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Citation for published version (APA):

Rhodes, L., Farrar, M., Kift, R., Felton, S., Osman, J., Berry, J., Cashman, K., & Webb, A. (2016). *Sunlight and vitamin D: Evidence behind messages for dermatology patients and the public*. Poster session presented at Skin Deep - 20 Years of Research , London, United Kingdom.

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Sunlight and Vitamin D: Evidence behind Messages for Dermatology Patients and the Public

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Cutaneous vitamin D synthesis following sunlight exposure is the main source of this nutrient, which is essential for musculoskeletal health and associated with reduced incidence of a range of systemic disorders. However, excessive sunlight exposure is the major external cause of the majority of skin cancers. Recommendations on sunlight-vitamin D are largely based on assumptions made from small studies performed under non-realistic conditions of skin site, area and UVR emission, while the special situation of dermatology patients is not fully appreciated. Low vitamin D status is prevalent in winter at northerly latitudes; hence patient groups require study against a healthy comparator. Photosensitive patients in particular reduce sun exposure to avoid triggering their symptoms and on medical advice to photoprotect. We performed a longitudinal prospective study examining seasonal vitamin D status in patients with moderate-severe photo-dermatoses (n = 53) and healthy people (n = 109) at the same latitude, assessing behavioural and demographic contributors. Photosensitive patients showed a seasonal 25(OH)D pattern, but insufficient (<50 nmol/l) and deficient (<25 nmol/l) status in summer in 47% and 9% patients resp., increasing to 73% and 32% in winter. Mean values were lower than in healthy volunteers by 18-25% across the year (P < 0.05). Oral vitamin D intake was low (mean <3 µg/day), and both supplementation and summer surface area exposed predicted 25(OH)D, with 1 µg/day increment in supplement elevating summer and winter 25(OH)D by 5% and 9%, resp. (both P < 0.001). Without supplement, photosensitive patients are at high risk of year-round low vitamin D status, contrasting with seasonal lows in healthy adults, with potentially enhanced risk of adverse health impact. It is widely stated that exposure of limited skin areas (hands and face) avoids vitamin D deficiency, but this has never been directly tested and little is documented of the impact of skin surface area exposed on vitamin D production. We therefore performed a study (n = 40, using lamp emission close to sunlight) to determine impact of wearing a range of clothing coverage, down to just exposure of hands and face, on vitamin D status following low level simulated summer sunlight exposures. Data presently under collection will be compared with our other datasets employing an identical low level exposure protocol but with subjects casually dressed to expose a greater skin area, for presentation at this conference. This study addresses an important knowledge gap in the Influence of clothing style and skin area exposure on vitamin D status, and specifically determines the impact of exposing the minimal skin surface area of hands and face. Findings provide underpinning information to assist national guidance on sunlight exposure and vitamin D acquisition. This talk will examine strategies to achieve target vitamin D status with particular consideration to the 2016 recommendations of NICE and DoH

Published: *Br J Dermatol* 2016;175 (Supp 2):60