

File under: UV damage repair by UV induced vitamin D

*This study shows the ambiguity of the sun.
It shows that damage caused by Sun exposure is tackled by sun induced vitamin D.*

*This seems to stress the need to moderate any sun or UV exposure to limit damage and allow vitamin D to do its good work.
This as is pointed out in the Euro Norm for sun beds.*

Vitamin D and Death by Sunshine

Katie M. Dixon , Wannit Tongkao-On , Vanessa B. Sequeira , Sally E. Carter
Eric J. Song , Mark S. Rybchyn , Clare Gordon-Thomson and Rebecca S. Mason
Discipline of Physiology, Bosch Institute, School of Medical Sciences, University of Sydney,

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Abstract: Exposure to sunlight is the major cause of skin cancer. Ultraviolet radiation (UV) from the sun causes damage to DNA by direct absorption and can cause skin cell death.

UV also causes production of reactive oxygen species that may interact with DNA to indirectly cause oxidative DNA damage. UV increases accumulation of p53 in skin cells, which upregulates repair genes but promotes death of irreparably damaged cells.

A benefit of sunlight is vitamin D, which is formed following exposure of 7-dehydrocholesterol in skin cells to UV.

The relatively inert vitamin D is metabolized to various biologically active compounds, including 1,25-dihydroxyvitamin D₃.

Therapeutic use of vitamin D compounds has proven beneficial in several cancer types, but more recently these compounds have been shown to prevent UV-induced cell death and DNA damage in human skin cells.

Here, we discuss the effects of vitamin D compounds in skin cells that have been exposed to UV.

Specifically, we examine the various signalling pathways involved in the vitamin D-induced protection of skin cells from UV.

And

it seems likely that the reduction in UV-induced apoptosis by vitamin D compounds is mainly a result of the reductions in UV-induced DNA damage observed in the presence of vitamin D compounds.

This, together with reduced UV-immunosuppression, almost certainly underlies the observed reduction in skin carcinogenesis when vitamin D metabolites are used topically after UV irradiation.

Therefore, there is a potential role for vitamin D compounds as preventative agents for skin cancer.