

Getting enough vitamin D? You need far less sun than you might think

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The summer weather has surprised us and made getting your daily dose of vitamin D that much easier. But the sunny weather always prompts questions about how to enjoy it safely.

Most people know there's a balance to be struck when it comes to spending time out in the sun. Its UV rays that are the main cause of skin cancer, but we also need some sunshine to generate vitamin D.

Although the number of children getting [rickets](#) from low vitamin D levels is still relatively small, in recent years it has [increased slightly](#), suggesting some people may not be spending enough time outside. But skin cancer is also on the increase, for example almost 16,000 people are diagnosed with melanoma every year.

The amount of sun you need to generate enough vitamin D varies depending on your skin. But it has been unclear how long people might need to spend in the sun to generate enough vitamin D while minimising their skin cancer risk.

That's where research from Professor Lesley Rhodes, at the University of Manchester, comes in.

Is there a safe level of sun exposure?

In an in-depth [Cancer Research UK-funded study](#), Rhodes and her team looked at the impact of exposing 39 people of different skin types to low levels of UV. Would that be enough to generate vitamin D? And will this cause DNA damage in their cells that could lead to skin cancer?

Unlike previous studies, Rhodes gave participants UV doses related to their burning risk.

As the dose of UV increased towards their individual burning level, there was an increase in both vitamin D levels and DNA damage seen in skin samples. For all skin types these factors seem to be completely intertwined.

What about different skin types?

One motivation for Rhodes is understanding more about difference between skin types. "Quite a lot of information has been gathered on white-skinned people, but there's been very little for people with darker skin. We needed to firm up our knowledge by looking at the major benefit and the major harm of sunlight at the same time in each person."

Interestingly, the findings differed by skin type when the researchers looked at the lower layer of the skin, where damage is most dangerous. For darker skin types DNA damage wasn't detected at this lower level, it was mostly at the surface. In lighter skin types DNA damage was found throughout the layers, meaning there was more potentially dangerous damage lower down.

"This was a really novel discovery, that the darker the skin colour the closer the DNA damage was to the surface" says Rhodes.

Regardless of dose or skin type, the DNA damage was no longer present 48 hours later. Our bodies can deal with some level of DNA damage and the level of damage in the study seemed to be low enough to be cleared shortly after. Although this is reassuring, the study can't rule out the possibility that damage like this could go on to cause problems. And Rhodes is keen to study this more in the future.

What does this mean for people?

The findings suggest there's DNA damage happening before skin burns and that it may be more likely to lead to problems in lighter skin types than darker ones. Larger studies will be needed to confirm those results.

"People with darker skin can be encouraged to expose their skin to the

sun, without burning, to get vitamin D with very low risk of skin cancer," says Rhodes. "However, for people with lighter skin who are easy burners we've shown even very low doses of UV radiation, down to one fifth of their sunburn threshold, can unfortunately damage the cells in lower layers of the skin."

There may not be a totally safe level of exposure to the sun when it comes to DNA [damage](#) and skin cancer risk, but we also need some sunshine to make vitamin D. Rhodes' next question was how long do we need to spend in the sun to make enough?

Minutes not hours

"We wanted to define a fairly straight-forward formula for how much sunlight people would need in the UK to get enough vitamin D," says Rhodes. "People are always asking 'how much?', but it's not quite as simple as just talking about minutes, you also need to look at what area of skin you need to expose and at what time of day."

To do this, she teamed up with Professor Ann Webb, a physicist with expertise in the atmosphere and sunlight. Together, they modelled the level needed by the end of summer for most people to have enough vitamin D throughout winter, when the sun isn't strong enough for us to make vitamin D in the UK.

They estimated that [9 minutes of lunchtime sunlight each day](#) would be enough for Caucasians to stay above the 'deficient' category of vitamin D level throughout the year. This figure assumes that people would be in shorts and t-shirts for June to August, while only having their hands and faces exposed from March to June and for September.

Our bodies start to break down vitamin D when we're generating a lot of it so you can't do a week all in one go. Little and often does seem to be

the key.

With the same conditions, even people with darker brown skin that hardly ever burns and easily tans – such as people of South Asian origin –and [may only need 25 minutes](#).

Not a prescription

The studies were based on several specific assumptions. For example, they considered exposure to sun in the UK without sunscreen, accounting for UK weather and no travel abroad. But they can help to give us a broad idea. As Rhodes says: "Some assumptions have to be made but we tried to look at something that was realistic. After this 9 minutes is when sun protection becomes key."

But if you're concerned about your vitamin D levels, or your family's, you may only need to find a few minutes outside at lunchtime each day. Like almost everything else in our daily lives, it won't be completely risk-free, but it should give a healthy balance.

"People often think it's a balance between getting enough vitamin D and avoiding [skin cancer](#)," says Rhodes. "But our feeling is that quite often people may be justifying too much time in the sun in order to get their vitamin D. So it's important to give people the information."

Provided by Cancer Research UK

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