

Keep slapping on that sunscreen and ignore toxic claims

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It's safe to slap on the sunscreen this summer – in repeated doses – despite what you have read about the potential toxicity of sunscreens.

A new study led by the University of Queensland (UQ) and University of South Australia (UniSA) provides the first direct evidence that zinc oxide [nanoparticles](#) used in [sunscreen](#) neither penetrate the [skin](#) nor cause cellular [toxicity](#) after repeated applications.

The [research](#), published this week in the *Journal of Investigative Dermatology*, refutes widespread claims among some public advocacy groups – and a growing belief among [consumers](#) – about the safety of nanoparticulate-based sunscreens.

UQ and UniSA lead investigator, Professor Michael Roberts, says the myth about sunscreen toxicity took hold after previous animal studies found much higher skin absorption of zinc-containing sunscreens than in human studies.

"There were concerns that these zinc oxide nanoparticles could be absorbed into the epidermis, with toxic consequences, including DNA damage," Professor Roberts says.

The toxicity link was picked up by consumers, sparking fears that Australians could reduce their sunscreen use, echoed by a Cancer Council 2017 National Sun Protection Survey showing a drop in the number of people who believed it was safe to use sunscreens every day.

Professor Roberts and his co-researchers in Brisbane, Adelaide, Perth and Germany studied the safety of repeated applications of zinc oxide nanoparticles applied to five volunteers aged 20-30 years.

Volunteers applied the ZnO nanoparticles every hour for six hours on five consecutive days.

"Using superior imaging methods, we established that the nanoparticles remained within the superficial layers of the skin and did not cause any

cellular damage," Professor Roberts says.

"We hope that these findings help improve consumer confidence in these products and in turn lead to better sun protection. The terrible consequences of skin cancer and skin damage caused by prolonged sun exposure are much greater than any toxicity posed by approved sunscreens."

More information: Yousuf H. Mohammed et al. Support for the Safe Use of Zinc Oxide Nanoparticle Sunscreens: Lack of Skin Penetration or Cellular Toxicity after Repeated Application in Volunteers, *Journal of Investigative Dermatology* (2018). [DOI: 10.1016/j.jid.2018.08.024](https://doi.org/10.1016/j.jid.2018.08.024)

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