

All-over tan is a myth, study finds

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A consistent all-over tan may be impossible to achieve because some body areas are much more resistant to tanning than others, a study has found.

Researchers - funded by the Medical Research Council (MRC) - at the University of Edinburgh say the results explain why some holidaymakers find it so hard to achieve an even tan all over their body.

The findings, published in the journal *Experimental Dermatology*, show that the buttock is much more resistant to sunshine but surprisingly when it does go red it tans less well than other areas.

It was also found that people with no freckles tanned more easily than those without freckling.

The study represents the first time that the depth of a person's tan, and not just [skin](#) redness, has been quantified.

Scientists carried out the study to try and solve the puzzle of why different types of [skin cancer](#) tend to be found in different parts of the body, given that they are all caused by exposure to sunshine.

The team aimed to identify whether this is linked to variations in the way different parts of the body develop a tan.

The team analysed the skin of 100 volunteers, who were exposed to six doses of UVB on two areas of their body - their back and their buttock.

The volunteers were given an injection to minimise the rush of blood that naturally occurs after the skin is exposed to sunlight within the first 24 hours.

Researchers say this redness is often confused with the start of tanning, but in fact is the skin's signal that it has been damaged.

After seven days, the volunteers' skin was analysed to find what colour remained after the redness had died down.

This colour - recognised as a suntan - comes from the skin's production of [melanin](#), a defence that blocks the skin absorbing too much harmful UVB radiation.

Jonathan Rees, Professor of Dermatology at the University of Edinburgh, who led the study said: "One of the real puzzles about [melanoma](#) is why the numbers of tumours differ so much depending on [body](#) site. Our work shows that in one sense we are all made up of different units of skin, which respond differently to sunshine, and which all may afford different degrees of protection against the harmful effects of sunshine."

Provided by University of Edinburgh

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