

Study highlights shortcomings of moisturisers with sun protection

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SPF 30 sunscreen (left) SPF 30 Moisturiser (right). Credit: University of Liverpool

New University of Liverpool research, presented at the British Association of Dermatologists' Annual Meeting in Edinburgh (3rd-5th July 2018), shows moisturisers with sun protection factor (SPF) provide less sun protection than the equivalent strength sunscreen in real-world

scenarios, and people are more likely to miss areas of their face when using them.

Prolonged or excessive exposure to sunlight causes skin damage in the form of sunburn, premature ageing and increased risk of skin cancers. For these reasons there is a broad push to use SPF containing creams or sprays to protect ourselves from the worst of this damage. Traditionally these sunscreens have been specially designed formulations, however, more recently, daily moisturisers, makeups and a variety of other skin care products have started to include sun protective elements. Despite the popularity of these products their effectiveness has not been rigorously tested.

Using a specially modified camera that only sees UV light the researchers from the University's Department of Eye and Vision Science, led by Dr Kevin Hamill and Mr Austin McCormick, assessed how effectively people apply [sunscreen](#) and [sun protection](#) factor (SPF) containing moisturiser to their face. When an area of skin is successfully covered, the product absorbs the UV light and this area appears black in the photos – the lighter the area the less successful the absorption.

Moisturiser not applied as thickly

Over two separate visits, 60 people (14 men and 46 women aged 18-57) were asked to apply sun [protection](#), in the first visit SPF30 sunscreen, and in the second moisturiser with SPF30. Pictures were then taken with the modified camera to see how effectively people applied the two products.

Analysis of the photos showed that when applying moisturiser people missed 16 per cent of their face on average, whereas when applying sunscreen this dropped to 11 per cent. When just the high-risk eyelid areas were analysed sunscreen users missed 14 per cent compared with

21 per cent with moisturiser. The eyelid area is a common site for skin cancers.

In addition to this, the study suggests that people do not apply the moisturiser as thickly as sunscreen, and therefore do not receive the full benefits of the SPF. The photos of people using the moisturiser are noticeably less dark on average, this indicates that the product is absorbing less UV light.

On average men were significantly better at applying the products than women, other groups that proved better at it were people with darker skin tones and older participants.

Participants were asked to rate their perceived ability to apply the products before and after viewing the images. For sunscreen, perceived ability dropped from 90 per cent positive to 42 per cent, and moisturiser from 85 per cent to 38 per cent, indicating that participants were not aware of their failure to achieve adequate coverage.

Overall protection

Mr Austin McCormick, Consultant Ophthalmic and Oculoplastic Surgeon, and one of the researchers, said: "One of the things I particularly enjoyed about this research is that it's very visual and fairly easy for people to understand. The darker the image, the more sun protection people are getting.

"We expected the moisturiser to perform worse than the sunscreen on overall protection, as it seemed intuitive that people apply moisturiser quite thinly on the whole. While we were correct in this, the research did throw up some unexpected surprises. We thought that people would miss more of their face with the sunscreen, as we've all had that stinging sensation when you accidentally rub some in your eye and we expected

that this would lead people to be conservative and avoid the eyes. Actually, people missed more of their face when using the moisturiser.

"Although moisturiser with SPF does provide sun protection, our research suggests that it's not on the same level as sunscreen. We would not recommend it as a like-for-like replacement for your sun protection needs."

Real world situations

Matthew Gass of the British Association of Dermatologists, said:

"Unfortunately, moisturiser with SPF just doesn't perform particularly well in real world situations compared to sunscreen. Although it may say factor 30 on the box, this study is just further evidence that lab testing conditions for these products don't reflect how they are used.

"Another important thing to take away from this research is that people often miss areas of their face when applying sun protection, a good way to prevent this from becoming an issue is to wear sunglasses and reapply sunscreen regularly. This should help protect the bits you miss from being exposed to excessive sun."

"When products are tested for their SPF, they are tested at a density of 2 mg per cm². SPF used in moisturisers is tested the same way as sunscreens, so an SPF 15 moisturiser should provide an SPF of 15, however, as this study demonstrates, they are likely to be applied a lot more thinly than sunscreen, and less uniformly. Applying less SPF will reduce the protection to a higher degree than is proportionate – for example, only applying half the required amount can actually reduce the protection by as much as two-thirds.

"It is also worth noting that moisturisers containing an SPF may not contain any UVA protection and as a result will not protect against UV

ageing, and are less likely to be rub-resistant and water resistant."

More information: For more information, see
lancet.com/series/aging-moisturisers/

Provided by University of Liverpool

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