SPF – sun protection fact(or) fantasy?

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In the current issue of the journal, Lademann *et al.* and Szepietowski *et al.* present data on quantifying the amount of sunscreen that people apply at the beach. In a real world setting, their studies provide further confirmatory evidence of what is already well known, which is that consumers apply much less sunscreen than the 2 mg/cm^2 agreed by manufacturers in the laboratory procedure to determine the Sun Protection Factor (SPF)[1] (Fig. 1). This mismatch has led many commentators into the trap of believing that consumers use inadequate amounts of sunscreen for protection. The reality is the reverse. People use the quantity they feel comfortable with and in this sense are using the 'correct' amount; it is the labelled SPFs that are misleading. As Lademann's study found, 78% of the volunteers did not like the feeling of sunscreens on the skin and only used them so that they didn't sunburn. Consequently educating consumers to apply a quantity that they feel is too much simply will not work.

So what can be done to close the gap? In addition to the trend for higher SPFs that we have seen over recent years,[2] there have been publications of guides concerning dosage.[3,4] The best means of obtaining compliance with any sort of (medical) intervention is for patients to be as fully informed as possible about the problem, and for them to understand what both the doctor and they themselves are trying to achieve.

Given the reluctance to apply the 'official' quantity of sunscreen, it would seem sensible to present the public with a simple, informative guide that gives them a better understanding of the level of protection (or lack or protection) that they are achieving from their sunscreen. Using a combination of the *Rule of Nines*[5] (Fig. 2) and a variation on the *Fingertip Unit*,[6] we proposed[3] a simple scheme to encourage greater application of sunscreen than is currently the case.

With the rule of nines, the body's surface area is divided into 11 areas, each representing roughly 9% of the total. Sunscreen can be applied to each of these areas at a dose of 2 mg/cm^2 if two strips of sunscreen are squeezed out onto both the index and middle fingers from the palmar crease to the fingertips. '*Giving it two fingers*' means applying two fingers of sunscreen to each area (Fig. 3). This will provide a dose of the product that approximates to that used during the laboratory determination of the

Figure 1 Sunscreen use in the real world.

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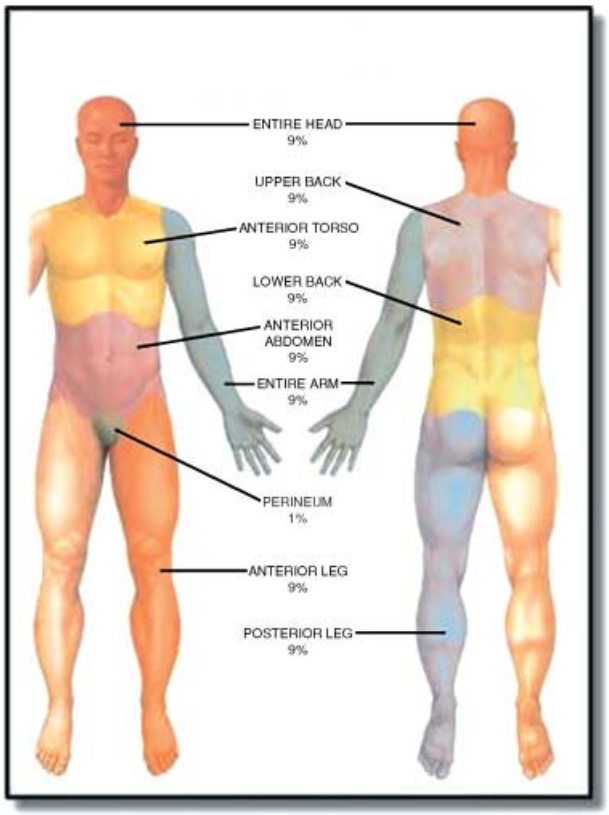

Figure 2 The rule of nines.

sun protection factor. Such a dosage guide is a means of ensuring that users are protected according to their expectations. As is pointed out above, users are unlikely to be willing to cover themselves or their families with such a copious layer of sunscreen and would prefer to apply half this amount. We have suggested a less daunting proposition: '*Giving it the finger – twice*' means applying one finger of sunscreen (with the corollary that the resultant protection will be somewhat less than half of the SPF protection claimed on the product)[7] and, within half and hour, reapplying one more finger's worth (in order to achieve optimal protection[8]) (Fig. 4).

It is to be hoped that with greater consumer awareness of the gap between expectation and realization of sunscreen SPFs,[9,10] the effective SPFs of currently applied products will move closer to the labelled SPF. There is now much data, including that presented in the papers by Lademann *et al*., and Szepietouski *et al*., to suggest that SPF numbers, as quoted on sunscreen products, belong more in the realm of fantasy than fact. Is it not finally time to consider alternative forms of labelling the performance of sunscreen products, perhaps with a more qualitative measure, as proposed[9] in 2000? Or should manufacturers consider a revision of the SPF testing procedure to reflect more *representative* levels of application and actual levels of SPF – a move from an *in-vivo* assay to a process that is *in-vivo veritas*?

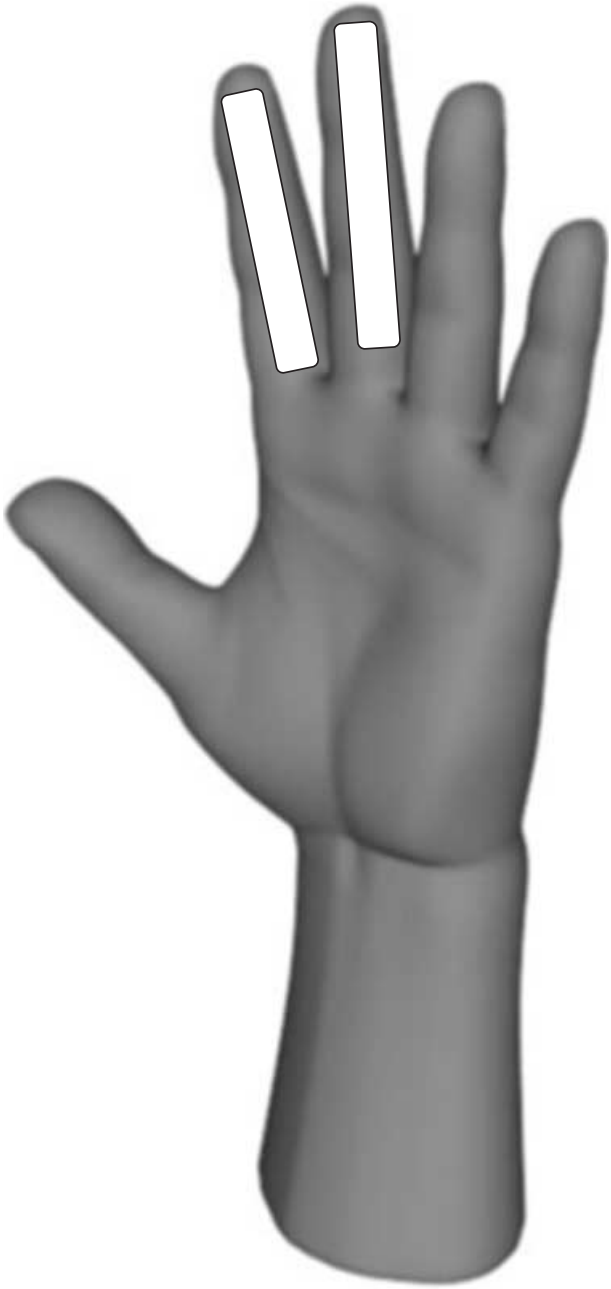

Figure 3 Sunscreen, 'Giving it two fingers'.

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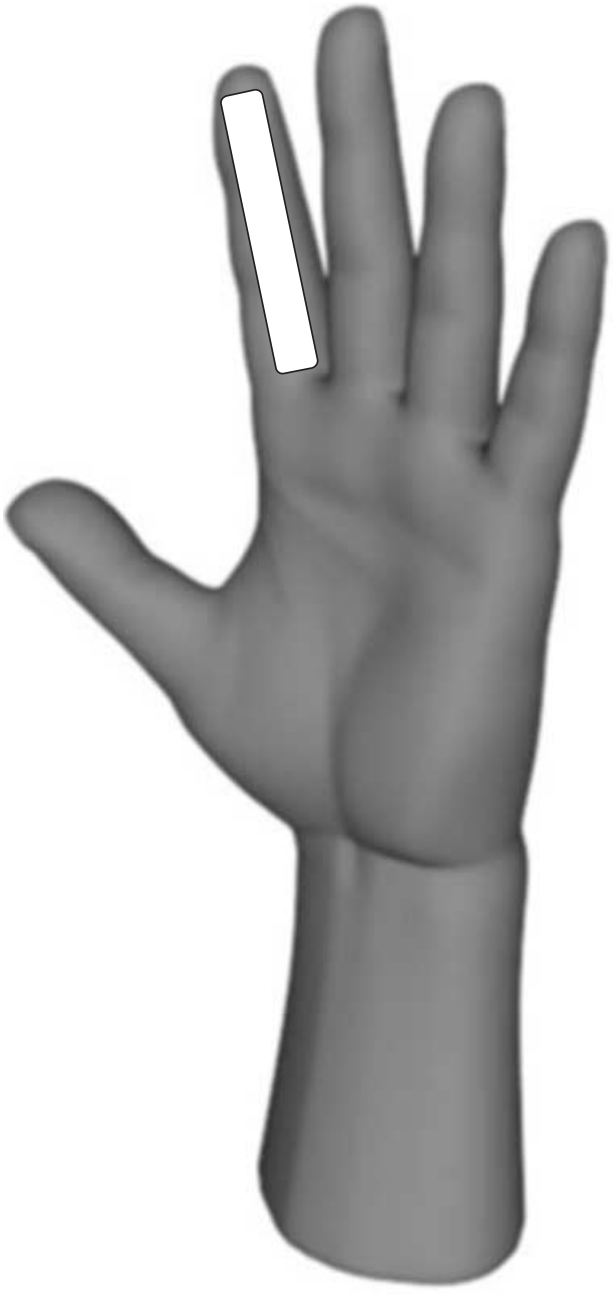

Figure 4 Sunscreen, 'Giving it the finger – twice'.

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