

## **Antioxidants in Sunscreens: Not ready for Prime Time!**

Vitamins, supplements, and “age defying” skin creams touting antioxidant ingredients all vie for consumer’s attention. However, there is little scientific evidence to document a benefit from these agents. Surely fruits and vegetables are essential to overall health and provide important benefits for proper functioning, but there are no controlled studies utilizing antioxidants which prove their ability to alter cell aging and damage.

The most popular use of topical antioxidants is to provide anti aging or rejuvenating effects in skin creams and lotions. While some lab studies suggest that topically applied antioxidants may have these benefits, there is very little published research documenting that these ingredients, or specific products that contain them, actually have these effects. In fact, there is a great deal of skepticism regarding the ability of most commercial products to provide sufficient concentrations of active ingredients to provide improvement or significant effect.

Another developing area is interest in antioxidants for sun protection. The primary action of these chemicals in sunscreens would be to prevent or quickly repair stress induced from the sun after exposure.

Vitamin C, E, and A alone or in combination all show some benefit in reducing redness and inflammation associated with sun exposure. However, differences between controls and experimental subjects are not always significant. Likely explanations include the rapid degradation of vitamin E by sun light, Vitamin C’s instability and the difficulty of formulating mixed compounds.

### **Bottom Line:**

Just because a manufacturer incorporates vitamins C and E into a product does not mean the products contains appreciable amounts of active ingredient. Data so far suggests that their effects may not be all that significant. Future directions will include looking to different forms of these antioxidants that are more stable.

The cornerstone of sun protection remains sun avoidance and regular use of commercial broad spectrum sunscreens. It is clear that the addition of antioxidants does not produce a “super sunscreen” or advanced protection.

## **Sunscreens: What We Need To Know**

Confusion persists when it comes to SPF and the best advice for sun avoidance.

## SPF

While both UVA and UVB radiation are associated with skin cancer risk, the sun protection factor scale, or SPF, used to rate sunscreen formulations, only measures protection against the effects of UVB and does not take into account UVA at all. We now understand that protection from both ultraviolet wavelengths, which make up the majority of sunlight, is vital for appropriate protection.

A common belief is that the SPF number reflects a time factor-the higher the number the more time one can spend outdoors without burning. However, an increase in SPF value is not proportionate to the increase in protection. A product with SPF 30 does not block twice the amount of UVB as a product with SPF 15. This is not accurate and ignores the unique properties of sunscreen ingredients.

The ingredient with the widest protection in the US is micronized zinc oxide. At a concentration of 3.5% or more, zinc oxide confers excellent broad spectrum protection. Titanium dioxide is also a broad spectrum sunscreen which does not extend as far into the UVA range as zinc. However, it is an excellent product. Parsol 1789 (avobenzone) is another popular ingredient in sunscreens although it is degraded with exposure to sunlight. Finally, look for one of the “cinnamate” chemicals in your sunscreen: this provides the UVB protection.

In 2007, the newest ingredient in sunscreens was approved by the FDA: Mexoryl (ecamsule). Manufactured abroad, it is a wide spectrum agent probably surpassing zinc oxide in efficacy. However, it is expensive and probably best used for high risk individuals.

What about water resistant sunscreens? A product with this label means that the SPF is still functional after exposure to water for 40 minutes (or more). However, a water resistant labeled product is measured after air drying. In reality, most people towel off and this action removes at least some of the sunscreen. It is best to re-apply sunscreen after getting out of the water independent of the label.

## Beyond Sunscreens

Apply sunscreen at least 15 minutes before exposure. Try to avoid midday sun and do not use UV tanning lamps for a base tan. Clothing, including broad brimmed hats, can be protective but UVA can penetrate many fabrics. There are specially woven and treated fabrics available that reflect both UVA and UVB. Finally, artificial spray and lotion tanning (dye) is becoming very popular and considered safe. However, these offer no photoprotection and should not be used as a “pretan.” Read the label of your sunscreen to ensure its efficacy and certainly, purchase new products every season.