Dear Alice,

Recently I bought a sun protection cream from a health food store. The cream claims to provide sun protection (it's labeled SPF 15) by a plant complex made of PABA, willow bark extract, myrtle and myrtus leaf extract. It says that myrtle and myrtus leaf help protect from both UVA and UVB.

My questions are as follows:

1) Can this PABA complex provide the sun protection it claims (SPF 15 for both UVA and UVB rays)? The reason I am asking this is because until now I had only heard of sun protection by titanium dioxide or chemicals like octyl mexaoxycinnamate (did I get it right?). So I am curious to find out.

2) I notice a slight burning sensation in my eyes after I apply the product on my face. Is it true that PABA is a common irritant? (Since I notice many products proudly claiming PABA-free I wonder if it's really not good for you.)

Please help. I hope this question falls within your realm of expertise. After all, you are the 'know it all' around here, aren't you?

Thank you,

'Burning' to find out

Answer

Dear 'Burning' to find out,

There are plenty of creams, lotions, and sprays out there designed to keep your skin from sizzling in the sun, but knowing a bit more about their ingredients can help you decipher whether or not their claims are to be believed. Different products tout protection against ultraviolet rays (UV) including UVA, UVB, or UVC, and list a plethora of ingredients, making it complicated to determine which sunscreen will provide the best protection. You're on the right track, 'Burning' to find out, PABA (para-aminobenzoic acid) was one of the first chemical sunscreens to hit the market, but it's rarely used nowadays because it tends to cause skin irritation (as you've experienced), it may stain clothing, and isn't very water-resistant. As far as the other ingredients in the product you purchased, although they have medicinal uses,
there is little to no evidence suggesting that willow bark or myrtus leaf extract (which comes from the same plant as myrtle) provide protection from the sun.

Sunscreens come in various forms—physical, chemical, and broad-spectrum. The macromolecules in physical sunscreens protect skin by deflecting both UVA and UVB rays. Although their thick, white cream leaves users looking ghost-like, physical filters are the most gentle on skin. The only physical filter currently in use is titanium dioxide. Chemical filters, like PABA, work by absorbing or reflecting UVB rays; however, as you've experienced, they tend to irritate the skin more. But don't fret?there are plenty of other products to try! Other chemical filters include:

- Salicylic acid derivatives are less irritating and more water resistant, but not very protective.
- P-methoxycinnamic acid derivatives, which have higher absorption rates, don't usually cause irritation, but may lead to some other sensitivities down the road.
- Camphor derivatives, which are common in Europe, have high absorption rates and rarely cause irritation.

When it comes to optimal skin protection, it's recommended that folks use a broad-spectrum sunscreen. This type of protection from the sun is made up of a combination of filters designed to provide greater protection against both UVA and UVB rays. These usually include ingredients such as benzophenones and phenylbenzotriazole sulfonic acid.

If you find that all of this information is a lot to soak in, you're not alone. Understanding sunscreen ingredients and what type of protection they provide can be complicated?and the U.S. Food and Drug Administration (FDA) agrees. In December 2012, the FDA updated its regulations regarding sunscreen labeling to provide more accurate information to consumers.

Additionally, in 2014, Congress enacted the Sunscreen Innovation Act requiring the FDA to review new sunscreen ingredients and to re-review past approved components. They are in the process of reinvestigating ingredients previously listed as "generally recognized as safe" and looking for new ones with more evidence based review processes?so expect new ingredients to pop-up in sunscreen over the next few years. For help picking a new one and for general sun-safety tips, check out the Environmental Working Group's Sunscreen Guide.2

Hope this shines some light on the intricacies of sunscreen!

Alice!
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