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**Choose Your Sunscreen Wisely**

**By Natalie Katsman**

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Choose Your Sunscreen Wisely  
by Natalie Katsman  
<http://www.natural-aid.com>

Going through isles of sun care products, you probably noticed that many offer "Complete UVA/UVB protection". Why do you need to be protected from both, and what is the difference between the two?

UVA and UVB are two types of ultraviolet rays that change physical and chemical condition of the skin. They produce different effects, but at the same time enhance each other's action.

UVB rays are the burning rays that cause immediate skin reaction – redness and swelling that you see within hours of sun exposure. As you look at yourself in the mirror, you are not likely to think of your sun kissed skin in these terms. It definitely looks better now that there is a glow to it and wrinkles seem to be less visible. But the look is deceiving. The glow is caused by increased blood flow to the skin as a rescue response to repair the damage, and wrinkles are

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less visible because your skin has just suffered an injury and is puffed.

UVB rays are responsible for skin cancer and cataract.

UVA rays stimulate production of melanin, the skin pigment. Melanin is formed in deeper skin layers and reaches the surface in two–three days. This is when you see that you got tan. Unfortunately, there is little to be proud about, as tanning is what your body does to protect itself from the sun. It is a reaction to potentially dangerous conditions that you expose yourself to.

If you are trying to avoid freckles, age spots, pregnancy mask or any other type of skin discoloration, UVA rays are your first enemy. It is important to remember that while glass windows block UVB rays, they do nothing to shield you from UVA rays.

UVA rays were thought to be less damaging, and common belief was that safe tanning was possible: you block UVB and enjoy the bronzing effect of UVA rays. Wrong! Recent research proves that UVA rays may be even more dangerous than UVB. They reach deeper into the skin layers and contribute to photoaging and development of melanoma, a very dangerous type of skin cancer.

Photoaging is aging of the skin caused by sunlight. Collagen, a large protein, is the main skin building block. 90% of the skin mass is collagen which contributes to skin's firmness, strength and elasticity. Skin has the ability to renew collagen fibers: grow new ones and dissolve those that are damaged. UV rays interfere with these chemical reactions and suppress collagen production while stimulating collagen destruction. In our 20's, collagen production slows down, and eventually all that the skin is left with is damaged collagen, which is not as flexible and cannot perform its original functions. The skin loses its elasticity and forms wrinkles.

Sooner or later, wrinkles happen to everyone due to natural skin aging and gravity. However, without proper sun protection, skin ages a lot faster, and unfortunately, the damage is irreversible.

There are two types of protection used in skin care products: physical and chemical, where physical block reflects sun rays,

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and chemical absorbs them, similar to melanin, before they can do any harm.

Physical sun screens include zinc oxide and titanium oxide, with zinc oxide (aka Z-Cote) being more powerful. Now creams with Z-Cote are available in wearable form, when they do not look like white paste, but spread into an invisible barrier that reflects both UVB and UVA sun rays.

Most powerful UVB screen is PABA, but it is not perfect for everyone as it often can cause an allergic reaction. Other chemical screens are:

- Cinnamates absorb UVB.
- Benzophenones absorb UVA.
- Anthranilates absorb UVA and UVB.

Usually, your sunscreen product will contain several protective ingredients, as combining them provides better shield, according to research.

FDA requires each batch of sunscreen products to go through SPF testing to ensure the effectiveness of the product. At this time, sun protection factor applies to UVB rays only as more research is necessary to determine the standards for UVA protection.

As a rule, SPF number translates into the amount of time one can safely be in the sun without burning. If you are an individual with fair skin and burn in 10 minutes if unprotected, SPF 15 will allow you to stay in the sun 15 times longer (150 minutes). If your skin is dark and you burn in 30 minutes, the same product will protect you for 450 minutes.

This formula is very approximate and does not provide for real life conditions: wind, humidity, season, your location, etc. Humidity and wind, for example, maximize the power of sun rays, and your SPF 15 lotion may offer much less protection when used on a breezy day or near water. Proximity to the equator and elevation should not be forgotten: the closer you are to the sun, the stronger its effect.

Reapplying your SPF often provides better protection than purchasing a product with a higher SPF number. SPF protection does not actually increase proportionately with an SPF number.

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Under lab conditions, SPF 2 equals 50% absorption of burning UVB rays, SPF of 15 indicates 93%, and SPF 30 and higher – 97% absorption.

As you see, some sunrays will still reach your skin, even if you use lotion with a high SPF number. To shield these remaining rays, use other means of sun protection: clothes, hats, umbrellas and shades. Please remember that many surfaces – snow, sand, water, concrete – reflect sun rays, so don't be surprised if you got tan or burn even though you spent most of your beach day under umbrella.

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Natalie Katsman is a co-founder of <http://www.natural-aid.com>, where you can find fine quality aloe vera products for beauty and well-being and subscribe to HealthySkin Newsletter filled with beauty tips, recipes and information on herbal healing, skin care and cosmetic chemistry.

### **Sunscreen Selection Advice**

**By John Morris**

The sun releases many kinds of radiation, each with a wavelength band that is specified. As soon as UVR reach the skin, it is readily absorbed by the skin molecules that intermingle more intensely with a specific wavelength. This act may result in damaging the skin proteins, lipids and cellular DNA, eventually leading to skin cancer. Ultraviolet radiation is broken into three types of wavelengths:

– UV–A: The longest wavelength is not absorbed by the ozone. It deeply penetrates the skin. – UV–B: It is blocked partially by the ozone layer and is accountable for sunburns. – UV–C: This is entirely absorbed by the atmosphere; it can only be encountered from artificial radiation sources.

#### 1. Sunscreen

Sunscreens can absorb or redirect these harmful rays before they can interact with the skin. A sunscreen product will typically contain a combination of chemical and moisturizing ingredients. Certain ingredients are much better in blocking UVB while others block UVA. Chemical sunscreen ingredients PABA esters, cinnamates, para-aminobenzoic acid (PABA), benzophenones, salicylates, octocrylene and dibenzoyl-methane. Titanium dioxide and zinc oxide are physical blockers and board spectrum which block both UVB and UVA.

#### 2. What is SPF?

Stands for Sun Protection Factor. The number is determined and established by the degree of light that stimulate and encourages redness in skins that are sunscreen-protected, divided by the degree of light that encourages redness in skins that are not protected is the SPF. It is simply a measure of protection

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from UVB which ranges from 1 to 45 or above. A sunscreen product having an SPF of 15 will filter 92 percent of the UVB. Or, a sunscreen product having an SPF of 15 will defer the beginning of a sunburn in an individual who would burn in 10 minutes to burn in 150 minutes. The SPF 15 sunscreen can allow an individual to remain in the sun 15 times longer.

### 3. Sunscreen Application And Selection:

- Before buying a sunscreen product, read the label and be sure that it will filter and absorb both UVA and UVB.
- Check also the products level of protection. SPF 15, or 30, depending on how long you usually stay out in the sun.
- Keep in mind that inexpensive brands are just as effective as the expensive brands.
- Check the expiration date. An expired product will lose its potency thereby will not perform its role. This could lead to serious sun burn.
- Choose a product too, that is labeled broad spectrum, to give your skin complete protection from UVB, UVA and UVC.
- Remember that lighter skin will burn more quickly than darker skin. Therefore light skinned individuals needs higher SPF.
- The product should comply and abide with the standard AS/NZS2604 to support their claims and declaration for SPF, water resistance and broad spectrum. This should be in their label.
- Check the products formulation. It must be non allergenic so it is safe to use on sensitive skin and on the face as well as nonacnegenic so as not to clog the pores.
- Insist on a product that is PABA free, containing no irritating chemicals and is safe to use on the face.
- A water proof sunscreen is best.
- Read the label and make sure that aside from sun protection, it also contains essential skin moisturizers to nourish your skin at the same time.
- Before applying a sunscreen, the skin should be clean and dry so that it can be well absorbed.
- Apply a liberal amount of sunscreen all over the body and pay special attention to the face, nose, ears, cheeks, and scalp as these are areas that are prone to sun burn.
- Reapply often, when perspiring heavily or after swimming. It is best to apply it fifteen minutes before you go out in the sun.

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- Even on cloudy days, there is still a need for sunscreen application.
- Even with a sunscreen, avoid the sun during the hottest hours of the day starting at ten in the morning until four in the afternoon.
- Reflectors like zinc cream that reflects UV rays off the skin, should only be applied on small areas of the skin as they tend to limit perspiration.

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