

Sunscreen Use

Making sense of sunscreen and tanning products

The skin is the largest and most visible organ of the entire human body and is vital for protecting and regulating the body.¹ Skin has many functions:

- It controls and regulates body temperature.
- It protects against injury.
- It prevents infection as the first line of defense against the possible invasion of bacteria and other germs.^{2,3}

Your skin is more than a simple wrapping or covering; it is a complex organ that can become susceptible to disease. Skin is a window to the body's internal world and can help doctors and dermatologists diagnose and treat medical problems related to it.²



Unfortunately, our societal image of healthy skin is often problematic...leaving this vital organ under-protected.

- Some believe that getting a "base tan" (getting some sun before expected, prolonged sun exposure) can prevent damaging effects.⁴
- Others believe that the sun protection factor (SPF) listed on sunscreen products allows them to stay out in the sun even longer than they might have planned.^{5,6}
- Individuals who have darker colored skin or who tan easily often feel sunscreen is unnecessary.

Skin is an organ that needs to be kept healthy from both the inside and the outside. While drinking water is essential for keeping skin hydrated,⁷ protecting skin from the sun's harmful ultraviolet rays is essential in the prevention of:

- [premature aging](#) effects and other skin damage,
- [cataracts](#) and other eye problems,
- [immune suppression](#), and
- [skin cancer](#).

Ultraviolet Radiation

UVB & UVA

It is important to understand how two types of ultraviolet (UV) light rays from the sun affect our bodies:

- Ultraviolet B (UVB) rays are the short wavelength bands of light that affect the outer layer of skin and are responsible for [sunburning](#) of the skin.
- Ultraviolet A (UVA) rays are long wavelength bands of light that penetrate more deeply and can weaken the skin's inner connective tissue. While UVA rays are less likely to cause burning, they are more likely to contribute to skin cancer and immune system damage.⁸

Tanning beds or other indoor tanning devices are **not** a safe alternative to natural sunlight. They emit ultraviolet rays, which can result in the same harmful effects as natural sunlight. Although most newer indoor tanning devices no longer emit UVB, they do emit UVA,⁸ sometimes at levels 10–15 percent higher than that of natural sunlight.⁹ For more on tanning beds, see [Let's Talk about Tanning](#).

UV Index

When you are planning to be outdoors, it can be helpful to look at the UV index to decide when you will have the least exposure to damaging UV rays. The UV Index was developed by the National Weather Service and the Environmental Protection Agency. It provides a forecast of the expected risk of overexposure to UV rays and indicates the degree of caution you

should take when working, playing, or exercising outdoors.

The UV Index predicts exposure levels on a 0–10+ scale, where 0 indicates a low risk of overexposure and 10+ means a very high risk of overexposure. Calculated on a next-day basis for dozens of cities across the U.S., the UV Index takes into account clouds and other local conditions that affect the amount of UV radiation reaching the ground.¹⁰ Take special care to protect yourself and your family from the sun's UV rays when the UV index predicts exposure levels of 5–10+.¹¹

To see the UV Index for your area, go to one of the following National Weather Service sites, or contact your local weather service: http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/uv_current.shtml or <http://iwin.nws.noaa.gov/iwin/us/ultraviolet.html>.

Protecting Your Skin with Sunscreen

Preventing the sun's harmful effects

One of the most important things you can do for your skin is to wear sunscreen.⁷ Everyone, regardless of skin type or color, needs to protect their skin.² Even if your skin does not burn from the sun's rays, your skin is still damaged by ultraviolet radiation exposure. And even on cloudy days, 80 percent of the sun's ultraviolet rays pass through the clouds.⁵

Damage from sun exposure is cumulative throughout your life.¹ That means you won't see the effects of sun damage immediately—it builds up over time. Sunburn may not show up for a full 24 hours after sun exposure,¹² while other signs of skin damage may not appear for years. "Skin damage from sunlight builds up with continued

exposure, whether sunburn occurs or not."¹³ **Note:** Some **medications** make the skin more sensitive to the sun's rays, so check the packaging and talk with your doctor about avoiding too much sun exposure. Getting a little sun is important for **vitamin D** absorption, but overdoing it can lead to skin damage.

Whether young or old, sunscreen is essential for sun-damage prevention. "If you're an adult, it's not too late to smooth on sunscreen and don a wide-brimmed hat. You really do need to protect yourself,"⁴ as well as your children. In fact, "although nothing can completely undo sun damage, the skin sometimes can repair itself."¹⁴ "Sunscreens used on a regular basis actually allow some repair of damaged skin."¹²

Sunscreen Application

Who, when, and how much

If you plan to spend even 20 minutes outdoors on any given day, you should apply sunscreen.⁵ Sunscreen should always be applied to dry skin 15–30 minutes before going outdoors¹² to allow it to absorb into the skin. **Note:** **Sunless tanning products** often do not contain sunscreen, but you can purchase makeup with suncreening ingredients; just make sure they have an SPF of 15 or higher.

When you're done applying your own sunscreen, apply it on your kids. Children's skin is delicate and needs protection, and they need time outdoors being active.⁴ You don't have to keep your kids indoors, but you do need to apply sunscreen and try to keep them out of the sun during peak UV exposure hours (10 a.m. to 4 p.m.) when possible. Always be careful not to get sunscreen into the eyes during application, as this can cause irritation.

The only exception to wearing sunscreen is for children under 6



months of age. **Do not use sunscreen on children under 6 months of age.** Sunscreen can irritate an infant's skin.¹⁵ When outdoors, try to keep children under 6 months of age in the shade, out of direct sunlight. Place them in light-weight, long sleeve shirts and pants to cover their skin, while avoiding overheating. Cover their heads with a wide-brimmed hat, and use infant sunglasses with 99–100 percent UV protection because an infant's developing eyes are particularly vulnerable to sunlight.¹⁵

Sunscreen Application

How Much? How Often?

One of the biggest mistakes we make when it comes to sunscreen use is that we don't use enough. To get the maximum protection from sunscreen, one ounce—one large handful or enough to fill a shot glass—is the amount needed to properly cover the exposed areas of the body.^{12, 15}

Use sunscreen liberally, uniformly, and thickly to cover all exposed areas.¹⁶ Pay special attention to covering the face, ears, neck, etc. so as not to miss a spot. A missed area can mean a patchy area of painful sunburn. Also, be sure to use a lip balm with sunscreen SPF 15 or higher to avoid damage to the lips.¹²

Another crucial step in correct sunscreen use is reapplication. Sunscreen should be reapplied at least every 2 hours. If activities involve water or heavy perspiration, a water-resistant sunscreen is recommended. These sunscreens stay on the skin longer,

even if they get wet.^{1,17} In testing procedures, “water-resistant” sunscreen retains its SPF after 40 minutes of sweating/perspiring or water activity; “very water-resistant” sunscreen retains its SPF after 80 minutes (1½ hours) of sweating/perspiring or water activity.¹⁷ You will still need to re-apply sunscreen every 2 hours or more often if you towel dry or rub off the sunscreen in any way.¹²

Choosing the Right Sunscreen: Form

Choosing by personal preference and need

There are several factors to consider when choosing the sunscreen product that is right for you. Sunscreen comes in creams, gels, lotions, ointments, sprays, and wax sticks. These forms are all fine and can be chosen based on personal preference. You may want to consider the following information when making your sunscreen selection:

- Lotions tend to be less irritating to children,¹⁶ but there are spray on and squeeze bottle options that are both fine.
- Alcohol-based sunscreen products should be avoided on children because they can cause irritation.¹⁶

- Choose products that are PABA-free and contain the ingredient titanium dioxide and/or zinc oxide for children and individuals with sensitive skin. Titanium dioxide and zinc oxide physically deflect rather than chemically absorb ultraviolet radiation; therefore, they do not cause allergic reactions.^{18, 19, 20}
- Creams may work better on the face since gels can sting around the eyes.
- Lighter textured choices may work better for those prone to acne (just remember to apply a thick enough layer to protect yourself).¹⁹
- Lip balms with sunscreen rated SPF 15 or higher are an important and necessary form of protection for the lips.

Choosing the Right Sunscreen: SPF

Sun protection factor for UVB protection

One choice that is important to understand for your protection and that of your family is the sun protection factor rating on the product. SPF is the ingredient that protects you from UVB radiation only – the rays responsible for most sunburn. Sunscreens are classified by the strength of their

SPF.¹² SPF ratings can range from minimal (2–11 SPF), to moderate (12–29 SPF), to high (30+ SPF).¹⁷



“The SPF number gives you some idea of how long you can stay in the sun without burning.”¹⁵ The SPF rating is calculated by comparing the amount of time needed to produce a sunburn on sunscreen-protected skin to the amount of time needed to cause a sunburn on unprotected skin. For example, if a sunscreen is rated SPF 2 and a person who would normally turn red after 10 minutes of exposure in the sun uses it, then it would take 20 minutes of exposure for the skin to turn red. A sunscreen with an SPF of 15 would allow that person to multiply that initial burning time by 15, which means it would take 15 times longer to burn, or 150 minutes (about 2½ hours).¹² This number, however, is imperfect, since other factors such as perspiration, humidity, rubbing or toweling off, etc. can all reduce the actual SPF value, and thus, reduce the sunscreen’s effectiveness.

It is also important to note that SPF ratings do not actually increase proportionately. In other words, an SPF of 30 is not double the protection of an SPF of 15. In fact, an SPF 30 deflects 97 percent of the sun’s UVB rays; SPF 15 deflects 93 percent of the sun’s UVB rays, and SPF 2 deflects 50 percent of the sun’s UVB rays.¹² SPF ratings over 30 have not been shown to provide greater protection from the sun’s harmful UV rays than those containing SPF 30.²⁰

Can I Use the Sunscreen I Bought Last Summer?

Unless indicated by an expiration date on the product, the U.S. Food and Drug Administration requires that all sunscreens be stable at their original strength for at least three years.¹² While you can use the bottle of sunscreen you bought last year, if you are using the appropriate amount, a bottle of sunscreen should not last you very long.¹² To store sunscreen:

- Keep it out of the reach of children.
- Store it away from extreme temperatures (e.g., heat/direct sunlight or freezing temperatures), which can shorten the expiration date or shelf life of sunscreen.¹⁰ Do not refrigerate.
- Do not keep outdated sunscreen products. Dispose of these products where they are out of the reach of children.¹⁶

Ideally, all individuals, regardless of skin tone or color, should select a sunscreen with SPF 15 or higher. For children and individuals with very sun-sensitive skin, SPF 30 may be warranted.

Choosing the Right Sunscreen: UVA protection

Chemical and physical ingredients

It is very important to find a sunscreen that offers UVA protection in addition to UVB protection. You may see the sunscreen product labeled with the term “broad spectrum” to indicate that it protects against UVA and UVB rays. Sunscreens—even those with the same SPF rating—can have different ingredients or different combinations of ingredients.¹⁵ To be sure the sunscreen protects against UVA radiation, check for any of the following common ingredients:

- benzophenones,
- oxybenzone,
- sulisobenzone,
- titanium dioxide,
- zinc oxide, and
- avobenzone (also known as Parsol 1789).¹²

For a complete listing of all 16 possible active ingredients, see FDA’s [Sunscreen Drug Products for over-the-Counter Human Use](#).

Consider Your Environment

Altitude and reflective surfaces

The sun’s reflective powers are great.¹² That’s why it is especially important to consider reflective surfaces, such as sand, snow, ice, and water when considering

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your choices for sun protection. Ultraviolet rays bounce off these reflective surfaces and can burn your skin as severely as direct sunlight. For example, a wide-brimmed hat may shield your head from direct sunlight, but it won’t protect your face or neck from the UV rays that reflect off the sand, water, ice, or snow.²¹

If you think that sunscreen is just for hot, sunny summer days—think again. A skier, on an average day, receives three times the UV exposure necessary for sunburn.²² The sun’s rays reflect 17 percent on sand and 80 percent on snow. Remember that 80 percent of the sun’s UV rays pass through the clouds,¹² so don’t just reserve your sunscreen for sunny summer days.

Also note, if you are going on a mountainous summer vacation, don’t forget to pack the sunscreen. “Ultraviolet intensities at altitudes of 8,000 to 11,000 feet have been shown to be 60-80 percent higher than at sea level for the same latitude.”²²

If you’re thinking about a sunscreen that combines with insect repellent to ward off those bugs – think again. [Sunscreens combined with insect repellent](#) should be avoided since DEET should not be reapplied as often as sunscreen.

So, remember to put sunscreen on at the beginning of each day if

you plan to be outside for at least 20 minutes, and don’t forget to reapply it at least every 2 hours... but you’ll only need your insect repellent once for up to eight hours of protection.

Remember...

If you plan to be outside for 20 minutes or more, protect your skin and that of your family members with a “broad-spectrum” sunscreen of SPF 15 or higher—preferably water resistant—and reapply it every 2 hours or as needed. Apply it liberally to cover the exposed areas of skin. Follow [additional protective measures as well](#), including:

- Seek shade.
- Avoid the sun from 10 a.m. – 4 p.m.
- Wear a wide-brimmed hat.
- Wear close fitting, wrap-around sunglasses with 99–100 percent UV protection.
- Wear protective clothing.
- Make yourself aware of your environment including the UV index, reflective surfaces, and altitude.
- Avoid tanning beds.
- Consider the risks associated with using [sunless tanning products](#) as well as the variations in color, streaking, and staining that may occur.

By choosing and using sunscreen appropriately and often, along with these [other protective measures](#), you can reduce or avoid the sun’s potential damaging effects and enjoy your time outdoors.

To view the references used in this newsletter, go to:
<http://fcs.tamu.edu/health/healthhints/2008/sep/ref.php>

The Sun's Harmful Effects

Protecting the skin from the sun's harmful ultraviolet rays is essential in the prevention of:

- premature aging,
- cataracts,
- immune suppression, and
- skin cancer.

Premature aging and skin damage

The sun's rays can cause premature aging of the skin, including:

- premature wrinkling (due to reduced skin elasticity caused by sunlight¹),
- thickening and or developing a leathery texture to the skin, and
- brown skin spots.

Precancerous skin growths known as actinic keratoses (raised, reddish, rough-textured growths often found on the face, neck, hands, and forearms) may also develop.²

Cataracts and other eye problems



Cataracts are a type of eye damage in which loss of transparency in the lens of the eye clouds the vision.² Studies show that too much exposure to ultraviolet rays can damage the retina. Overexposure can burn the cornea, and repeated exposure over many years can change the structure of the lens so that it begins to cloud, forming a cataract.³ Other kinds

of eye damage may include pterygium (tissue growth that can block vision), skin cancer around the eyes, and degeneration of the macula (the part of the retina where visual perception is most acute).²

Immune suppression

The immune system is the bodily system that protects against and fights disease or infection. Scientists have found that overexposure to ultraviolet radiation may suppress proper functioning of the body's immune system and the skin's natural defenses. All people, regardless of color, might be vulnerable to immune suppression effects.²

Skin cancer

There are three common types of skin cancer that can develop. In fact, the incidence of skin cancer in America is epidemic; 1 in 5 Americans will develop skin cancer in their lifetime, and 1 American dies of this disease every hour.

- Melanoma is the most serious form of skin cancer and one of the fastest-growing types of cancer in the U.S.



- Basal cell carcinomas are the most common type of skin cancer, usually appearing as small, fleshy bumps or nodules on the head and neck, but they can occur in other areas. This type of cancerous tumor can penetrate the bone and cause considerable damage.



- Squamous cell carcinomas may appear as nodules or red scaly patches. This cancer can develop into large masses (unlike basal cell) and can spread to other parts of the body (much less common in basal cell).



Nonmelanoma skin cancers (basal cell and squamous cell) are less deadly than melanoma, but left untreated they can spread and cause disfigurement and serious health problems.²

Sources:

1. Lewis, C. (2003). Sunning for science: The effects of common substances on sun-exposed skin. Retrieved May 20, 2005. From <http://www.cfsan.fda.gov/~dms/fdacsun2.html>.
2. United States Environmental Protection Agency (2004). Health effects of overexposure to the sun. Retrieved May 20, 2005. From <http://www.epa.gov/sunwise/uvandhealth.html>.
3. Federal Trade Commission (1997). Indoor tanning. Retrieved May 20, 2005. From <http://www.ftc.gov/bcp/conline/pubs/health/indootan.htm>.

Treating Sunburn

Rather than treating sunburn, the best action is to take steps to prevent sunburn...such as wearing sunscreens (SPF 15+), staying out of the sun between the peak hours of 10 a.m. – 4 p.m., and wearing clothing and 100 percent UV protective sunglasses to protect your skin and eyes. If a sunburn is not avoided, however, caring for it at home (and seeking medical help when necessary) can help relieve symptoms:

- Drink plenty of water, and watch for signs of dehydration, especially in babies and children (signs: dry, sticky mouth; dark, yellow urine and not much of it; having no energy, or acting fussy or edgy).
- Take a cool bath or use a wet cloth to sooth the skin.
- Take acetaminophen (e.g., Tylenol) or Ibuprophen (e.g., Advil) for pain or mild fever. **Note:** Though

aspirin may help, it should not be given to anyone 20 years old or younger due to risks of a condition called Reye's Syndrome.

- Use a moisturizing lotion to help with itching. **Note:** There is nothing you can do to prevent peeling – it's just part of the healing process after a sunburn.
- Do not break blisters.
- Seek medical help if the sunburn covers a large portion of the body with blisters, high fever is present, there is extreme pain, or home treatment does not seem to work after a few days.

Source:

1. Kemper, D.W. (2006). Healthwise Handbook: A Self-Care Guide for You and Your Family (17th ed.). Boise, ID, pp 55-56.



Medication & the Sun Not always a good mix

Many commonly used medications can make your skin more sensitive to the sun's rays. You may need to avoid sun exposure as much as possible or be meticulous about using sunscreen and [other protective measures](#). If you are taking medication – even over-the-counter medication – ask your doctor or pharmacist if the medication will make your skin sun sensitive. Some medications that may cause increased sun sensitivity include:



- antibiotics, such as tetracycline;
- birth control pills;
- antihistamines;
- anti-hypertensive (blood pressure) medications;
- antidepressants; and
- pain relievers, such as ibuprofen and naprosyn.^{1,2}

Some herbal products, such as bergamot oil used to flavor Earl Grey tea, can cause increased sun sensitivity. Talk with your doctor or pharmacist about the herbal products you use in addition to medications.

Sources:

1. Pallarito, K. (2004). Shielding your skin from the summer sun. Retrieved May 16, 2005. From <http://www.healthfinder.gov/news/newsstory.asp?docid=520318>.
2. Federal Trade Commission (2001). Sunscreens and sun-protective clothing. Retrieved May 20, 2005. From <http://www.ftc.gov/bcp/conline/pubs/health/sun.htm>.



What about Vitamin D? Vitamin D, the sun, & sunscreen

“It has been estimated that at least 50 percent of older adults worldwide have low vitamin D levels, and the problem is also thought to affect substantial numbers of younger people. Possible reasons include decreased outdoor activities, air pollution and, as people age, a decline in the skin’s ability to produce vitamin D from ultraviolet rays....”¹

Adequate vitamin D status is known to be important for optimal calcium absorption, and it can reduce the risk for bone loss.² Recent research has suggested that having adequate vitamin D may also be helpful in the prevention of some types of cancers³ and heart disease.¹ Can you use sunscreen and still get enough sunshine to produce vitamin D? “Some doctors believe overuse of sunscreen lotions has contributed, and say just 10 to 15 minutes daily in the sun without sunscreen is safe and enough to ensure adequate vitamin D, although there’s no consensus on that.”¹ “No one is suggesting that people fry on a beach. But many scientists believe that *safe sun* — 15 minutes or so a few times a week without sunscreen — is not only possible but helpful to health.”³

Vitamin D is known as the “sunshine vitamin” because the skin makes it from ultraviolet rays. There are also food sources of vitamin D, but these contain smaller amounts of vitamin D.¹ What are the best food sources of Vitamin D? Fatty fish is the primary natural food source. Next are vitamin D-fortified foods, such as: milk and some brands of margarine, ready-to-eat breakfast cereal, enriched rice and pasta, and fruit juices and other fortified drinks—all varying in the amounts of vitamin D contained. For example, one cup of vitamin D-fortified milk provides 100 international units (IU) of vitamin D; 1 cup of vitamin D-fortified orange juice provides 100 IU; and 3 ounces of canned tuna provides 200 IU of vitamin D.^{1,2}

“The Institute of Medicine’s current vitamin D recommendations are 200 units daily for children and adults up to age 50, and 400 to 600 units for older adults. But some doctors believe these amounts

are too low and recommend taking supplements.”¹ Still, there is no consensus on how much vitamin D is the right amount to prevent disease. Like most supplements, too much can do harm. “Too much of the pill variety can cause a dangerous buildup of calcium in the body.”³

According to the [United States Dietary Guidelines](#) recommendations, older adults, people with dark skin, and people exposed to insufficient sunlight are at greater risk of vitamin D deficiency and may need much more (i.e., 1,000 IU) vitamin D from vitamin D-fortified foods and/or vitamin D supplements.²

Consult your physician to see if your Vitamin D intake is adequate. Eat extra vitamin D from vitamin D-fortified foods, and talk with your doctor about using vitamin D supplements if needed.

It is important not to take this information to the extreme. You need to protect your skin and that of your children from damage caused by UVA and UVB radiation. Most people get enough vitamin D by simply walking outdoors from the office to their car or to the grocery store front. It is important for researchers to come to a consensus on how much vitamin D is important for disease prevention...in the meantime, choose to eat vitamin D-fortified foods, and use sunscreen if you plan to be outdoors for 20 minutes or more.



Sources:

1. CNN – Associated Press (2008). Lack of vitamin D linked to deaths [on-line]. Retrieved July 11, 2008. From <http://www.cnn.com/2008/HEALTH/conditions/06/23/vitamin.d.deaths.ap/>.
2. United States Department of Agriculture (2008). Dietary guidelines for Americans: Chapter 2 adequate nutrients within calorie needs [on-line]. Retrieved July 28, 2008. From <http://www.health.gov/DietaryGuidelines/dga2005/document/html/chapter2.htm>.
3. USA Today –Associated Press (2005). Vitamin D research may have doctors prescribing sunshine [on-line]. Retrieved July 11, 2008. From http://www.usatoday.com/news/nation/2005-05-21-doctors-sunshine-good_x.htm.

Sunless Tanning Products Not without risk

“Some think turning light skin darker gives off an aura of good health. But a suntan actually signals skin damage.”¹ Still, many strive for a tanned appearance as the summer sun rises...others want to maintain this appearance even through the winter months. Thus, many are turning to sunless tanning products. Before you make this choice, you should know the associated risks.

There are three main types of sunless tanning products being marketed today; two of the three are unapproved by the U.S. Food and Drug Administration (FDA) and, therefore, are not deemed safe for your use:

- Tanning accelerators – unapproved by FDA
- Tanning pills – unapproved by FDA
- DHA (dihydroxyacetone) sprays and lotions – approved by the FDA, if used correctly.

Tanning Accelerators



Tanning accelerators are products marketed with claims that it speeds up the skin's melanin production.² The skin

produces a pigment called melanin when exposed to the sun to try to protect itself from burning.¹ Tanning accelerators generally supply doses of tyrosine (an amino acid) or its derivatives, sometimes in combination with other substances. The FDA, however, has stated that the marketing claims that these products speed up melanin production have not been substantiated in scientific literature.² “The agency notes that any product purporting to ‘accelerate the tanning process’ or ‘stimulate the production of melanin’ is claiming to affect the structure and function of the body and therefore

is a drug. The agency is not aware of any data demonstrating that tyrosine or its derivatives are effective in stimulating the production of melanin. Thus, any product containing tyrosine or its derivatives and claiming to accelerate the tanning process is an unapproved new drug.”²

Tanning Pills

There are no pills approved for tanning uses by the FDA.³ “Pills that contain large doses of canthaxanthin are sometimes marketed as ‘tanning pills.’ Although FDA has approved canthaxanthin for use as a color additive in foods, where it is used in small amounts, its use as a tanning agent is not approved. Imported tanning pills containing canthaxanthin are subject to import detention as products containing non-permitted color additives.

When a person ingests canthaxanthin in large quantities, the substance is deposited in various parts of the body, including the skin, where it imparts a color ranging from orange to brownish. Tanning pills have been associated with side effects, particularly a condition called ‘canthaxanthin retinopathy,’ the formation of yellow deposits in the retina of the eye.”⁴ According to the American Academy of Dermatology, canthaxanthin has also been reported to cause liver injury and a severe itching condition called urticaria.³

DHA Sprays & Lotions

Dihydroxyacetone (DHA)-containing sunless tanning products have been approved by the FDA for use as a tanner since 1977 and have typically been used in over-the-counter (OTC) lotions and creams.¹ DHA is the only color additive currently approved by the FDA for this purpose. DHA interacts with the dead surface cells in the outermost layer of the skin to darken skin color.¹ Its use is restricted to external application, which means that it shouldn't be sprayed in or on the mouth, eyes, or nose.¹

There are several types of DHA-containing sunless tanning products marketed as sunless tanners,

self-tanners, tanning extenders, or bronzers. These products can be difficult to apply, and the chemicals may react differently on various areas of your body, resulting in uneven coloring.

The term 'bronzer' refers to a variety of products used to achieve a temporary tanned appearance. Some are applied topically to stain the skin temporarily. Usually, soap and water will remove them. They may streak after application and, when wet, some may stain clothing.

Among other products marketed as bronzers are tinted moisturizers and brush-on powders. These also produce a temporary effect, similar to other types of makeup. Still others are combination products that also contain DHA.⁴

During the last few years, some companies have offered a sunless option that involves spraying customers in a tanning booth with the color additive DHA.¹

DHA should not be inhaled, ingested, or used in such a way that the eyes and eye area are exposed to it because the risks, if any, are unknown. For consumers who choose to get DHA spray in tanning booths, the FDA recommends protective measures for the eyes, nose, and mucous membranes.¹

When using DHA-containing products as an all-over spray or mist in a commercial spray "tanning" booth, it may be difficult to avoid exposure in a manner for which DHA is approved, including the area of the eyes, lips, or mucous membrane, or even internally. Consequently, FDA advises asking the following questions when considering commercial facilities where DHA is applied by spraying or misting:

- Are consumers protected from exposure in the entire area of the eyes, in addition to the eyes themselves?
- Are consumers protected from exposure on the lips and all parts of the body covered by mucous membrane?
- Are consumers protected from internal exposure caused by inhaling or ingesting the product?

If the answer to any of these questions is "no," the consumer is not protected from the unapproved use of this color additive. Consumers should request measures to protect their eyes and mucous membranes and prevent inhalation.⁵

Warning

Even if you choose to use an approved sunless tanning product, most do not contain sunscreen, which is still necessary to prevent excessive damage from the sun's rays, or they only contain a small amount (e.g., SPF 4).⁶

FDA regulations require all tanning products that do not contain sunscreen to have the following warning statement on the label:

Warning— This product does not contain a sunscreen and does not protect against sunburn. Repeated exposure of unprotected skin while tanning may increase the risk of skin aging, skin cancer, and other harmful effects to the skin even if you do not burn.

Tanning products that do not contain sunscreens and do not protect against the harmful effects of UV light are regulated as cosmetics. FDA requires this warning statement so that consumers are fully informed that such products do not provide protection from the sun.⁷

Sources:

1. Meadows, M. (2003). Don't be in the dark about tanning. Retrieved May 20, 2005. From http://www.fda.gov/fdac/features/2003/603_tan.html.
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7. Thompson, L. (2003). Trying to look sunsational? Complexity persists in using sunscreen. Retrieved May 20, 2005. From <http://www.cfsan.fda.gov/~dms/fdacsun.html>.

Sunscreens Combined with Insect Repellent?

Say no

Be cautious in considering products that combine ingredients, such as insect repellent and sunscreen. Because sunscreen needs to be applied liberally and often, it is better to use a separate sunscreen followed by a light application of insect repellent.¹ The ingredient DEET (N, N-diethyl-meta-toluamide) is found in most insect repellents and should not be applied more than is necessary. DEET should also be washed off once insect exposure is no longer a concern for the day.

DEET, unlike sunscreen ingredients, is not water soluble and will last up to 8 hours. "Repeated application may increase potential toxic effects of DEET."² Researchers have also reported that "the rate of DEET absorption into the skin skyrockets when DEET-based repellents are mixed with oxybenzone, a common ingredient in sunscreens. When DEET and oxybenzone are mixed, DEET absorption into the skin increases to 30.2 percent from the normal 9.6 percent."³

So, choose separate sunscreen and insect repellents that fit the needs of your family, and avoid combined insect repellent and sunscreen products for your safety. For information on how to choose an appropriate insect repellent for your family, see the Texas AgriLife Extension Service's [Insect Repellent](#).

Sources:

1. Mayo Clinic (2005). Mosquito bites. Retrieved May 17, 2005. From <http://www.mayoclinic.com/health/mosquito-bites/DS01075>.
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Sunscreen Alone Is Not Enough Other protective measures

Though sunscreen offers some protection, it does not block out all ultraviolet rays.¹ For prevention of skin cancer and damage, sunscreen alone is imperfect.² Sunscreen needs to be combined with other protective measures, which include:

- Avoid the sun, or seek shade from 10 a.m. to 4 p.m. when the sun's rays are strongest. Even on a cloudy day, up to 80 percent of the sun's rays can get through.³ Practice the "shadow rule" – seek shade when your shadow is shorter than you are tall.
- Wear a wide-brimmed hat (preferably with a 3-inch wide brim) to protect your head and face and protective clothing to cover the rest of your body.³ Choose a tightly woven canvas hat rather than a straw hat with holes that let sunlight through.⁴ If wearing a baseball cap, be sure to protect the neck with sunscreen or a piece of tightly woven fabric draped down the back of the neck. The less light you see through a fabric when held up to the light, the more protective it is. Thus, tightly woven fabrics work best for all areas of the body. The best fabric choices to block out the sun are denim, 100 percent polyester, shiny polyester blends, and satin finish silk.



Weave isn't the only factor, however; darker-colored fabrics actually absorb UV rays and provide better protection than white or light-colored fabrics. Dry clothing provides better protection than wet. Long-sleeved shirts with high collars and long pants or skirts provide maximum coverage to the skin.¹



You can also purchase fabrics treated specifically for sun protection; see the manufacturer's label for a Ultraviolet Protection Factor (UPF) rating.

The higher the UPF, the higher the protection from the sun's UV rays. The UPF indicates how much of the sun's UV radiation is absorbed by the fabric. For example, UPF 20 indicates the fabric only allows 1/20th of the sun's UV radiation to pass through it, reducing your skin's UV radiation exposure by 20 times where it is protected by the fabric. UPF ratings should range from UPF 16–50+. Fabrics with a UPF of 15 or less should not be labeled as sun-protective. Note that sun-protective clothing may lose its effectiveness if it is too tight, stretched out, damp or wet, or has been washed or worn repeatedly.⁵

- Wear sunglasses with 99–100 percent UV protection to protect your eyes.³ The UV protection is a chemical treatment placed on the lenses. Do not assume that a darker lens means more UV protection. Any colored lens can have UV protection or not. Check the sunglasses' label to be sure it says 99 percent or 100 percent UV protection. Also, choose sunglasses that fit close to the face and wrap-around frames that help block sunlight from all angles.¹
- Avoid artificial tanning methods such as sunlamps, tanning beds, [tanning pills](#), and [tanning makeup](#).⁴



- Check your skin regularly for signs of skin cancer.³

For more information see: [Safer Sunning in Seven Steps](#) and [The Darker Side of Tanning](#).

Sources:

1. Mayo Clinic (2005). Sun protection quiz. Retrieved May 17, 2005. From <http://www.mayoclinic.com/invoke.cfm?objectId=CB3FC3F6-160D-4B23-82A840660ADF17C5>.
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