



## Travelers' Health: Yellow Book

Health Information for International Travel, 2005-2006

Chapter 6 – Non-Infectious Risks During Travel

# Sunburn

## Description

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Sunlight, exposed skin, and time are all that are needed for sunburn. Sunlight consists of infrared, visible and ultraviolet light, and ultraviolet light consists of UVA, UVB and UVC rays. The UVA rays cause tanning and wrinkling, while UVB rays cause sunburn, aging, wrinkling, and skin cancer. UVC rays do not cause any health effects because they do not reach the earth's surface. Despite these hazards, sun exposure has benefits. UV radiation helps make vitamin D, a key factor for good calcium absorption. However, travelers should be aware of the risks of overexposure to these harmful UV rays.

## Occurrence

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Exposure to sunlight is influenced by geography, climate, and time of day and year. Countries near the equator and at higher elevation receive more UV rays. Sunlight exposure is highest during the summer and from 10:00 a.m. to 4:00 p.m. Outdoor activities, whether snow skiing or spending the day at the beach, can increase the chances of getting sunburned. Snow and light-colored sand reflect UV light and increase sunburn risks. In these situations, UV rays may reach exposed skin from above and below. Even on cloudy days UV radiation reaches the earth.

Many drugs increase sensitivity to sunlight and the risk of getting sunburn. Some common ones include thiazides, diuretics, tetracycline, doxycycline, sulfa antibiotics, and nonsteroidal anti-inflammatory drugs, such as ibuprofen.

## Clinical Presentation

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Unlike a thermal burn, sunburn is not immediately apparent. Symptoms usually start about 4 hours after sun exposure, worsen in 24-36 hours, and resolve in 3-5 days. In mild sunburn, the skin becomes red, warm, and tender. More serious burns are painful, and the skin becomes swollen and may blister. When a large area is burned, headache, fever, nausea, and fatigue may develop. The pain from sunburn is worse 6-48 hours after sun exposure. Skin peeling usually begins 3-8 days after exposure. Severe sunburns can be serious in babies, small children, and older adults. Years of overexposure to the sun may lead to premature wrinkling, aging of the skin, age spots, and skin cancer.

In addition to the skin, eyes can get burned from sun exposure. Sunburned eyes become red, dry, painful, and feel gritty. Chronic exposure to sunlight may cause pterygium (tissue growth that leads to blindness), cataracts, and perhaps macular degeneration, a leading cause of blindness.

## Prevention

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Several steps can be taken to reduce the risk for sunburn. Dermatologists recommend using a full-spectrum sunscreen that blocks or absorbs all UV rays. Sunscreen comes in creams, gels, lotions, and wax sticks. While the type of sunscreen is a matter of personal choice, travelers may want to choose a water-resistant product that will not be easily removed by sweating or swimming. Sunscreens should be used regularly, even on cloudy days, because most of the UV rays pass through the clouds. Sunscreens can be applied under makeup. Although some cosmetic products contain sunscreens, their sun protection factor (SPF) is usually not high enough to be very protective.

Effective sunscreens should have an SPF of at least 15. SPF refers to the amount of time that persons will be protected from a burn. An SPF of 15 will allow a person to stay out in the sun 15 times longer than they normally would be able to stay without burning. The SPF rating applies only to UVB radiation. While the SPF number represents the most protection under the best conditions, sunscreen performance is affected by wind, humidity, perspiration, and proper application. Sunscreens should be liberally applied (at least one ounce) at least 20 minutes before going out in the sun. Special attention should be given to covering the ears, scalp, lips, neck, tops of feet, and backs of hands. Sunscreens should be reapplied at least every 2 hours and after every time a person gets out of the water or perspires. Some sunscreens may also lose efficacy when applied with insect repellents, necessitating more frequent application when the two products are used together.

Another effective way to prevent sunburn is by wearing appropriate clothing. Dark clothing with a tight weave is more protective than light-colored, loosely woven clothing. High-SPF clothing has been developed to provide more protection for patients with photosensitive skin or a history of skin cancer. This type of clothing contains colorless compounds, fluorescent brighteners, or specially treated resins that absorb UV and often provides an SPF of 30 or higher. Travelers should also wear wide-brimmed hats and sunglasses with almost 100% UV protection and with side panels to prevent excessive sun exposure to the eyes.

The UV index, which indicates how much ultraviolet light exposure will occur, can be found in the weather section of most large daily newspapers, in some television weather forecasts, and on the Internet. The UV index ranges from 1 (low) to 11 or higher (extremely high). Travelers are advised to take extra precautions to prevent sunburn when the UV index is higher.

## Treatment

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There is no quick cure for minor sunburn. Symptomatic treatment can be initiated with aspirin, acetaminophen, or ibuprofen to relieve pain and headache and reduce fever. (Children and teenagers should generally not be given aspirin because of the danger of Reye syndrome.)

Drinking plenty of water helps to replace fluid losses. Cool baths or the gentle application of cool wet cloths on the burned area may also provide some comfort. Travelers with sunburns should avoid further exposure until the burn has resolved. Additional symptomatic relief can be achieved through the application of a topical moisturizing cream, aloe, or 1% hydrocortisone cream. A low-dose (0.5%-1%) hydrocortisone cream can be helpful in reducing the burning sensation and swelling and speeding up healing.

If blistering occurs, lightly bandage or cover the area with gauze to prevent infection. The blisters should not be broken, as this will slow the healing process and increase the risk of infection. When the blisters break and the skin peels, dried fragments may be removed and an antiseptic ointment or hydrocortisone cream may be applied.

Indications for medical attention include severe sunburns (covering >15% of the body), dehydration, high fever, or extreme pain.

## Bibliography

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