



## Heartland Dermatology

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Diseases of the Skin  
Phototherapy  
Mohs Micrographic Surgery for  
difficult or recurrent skin cancers  
Laser Surgery  
Sclerotherapy  
Collagen  
Botox  
Liposculpture

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# Skin Cancer Prevention

by V. Angeloni MD

## Photoprotection

The most important thing one can do to decrease the likelihood of skin cancer is to avoid ultraviolet rays. The easiest way to accomplish this is to avoid sun exposure between the hours of 10 AM and about 4 PM. If weather and temperature permits, keeping your exposed skin covered with clothing can also be useful. Note that the ultraviolet light-blocking abilities of clothing are variable. A very loosely woven fabric is of little protection and a wet t-shirt is practically transparent. There are several companies which now produce very tightly woven fabrics which have an SPF 30 (Solumbra, others). Although the shirts may be fairly expensive (about \$70), they will pay for themselves in savings from not having to use as much sunscreen! (if you are applying sunscreen correctly, that is).

Sunscreens are also very important in protecting against overexposure to ultraviolet rays. For people who are darker complected and burn infrequently, you should use at least an SPF 15 sunscreen. If you are fair and usually burn, use at least a SPF 24 or 30. Sunscreens should be applied about 20 minutes before going outside to allow maximal bonding to the skin.

Most people put on inadequate amounts of sunscreen. If you have a 4 oz bottle of sunscreen that has been around more than one summer, you are in this group! When studies are done to determine the SPF of a sunscreen, a measured amount of sunscreen is applied to the skin. To achieve the SPF on the bottle, you must use the same measured amount as was used in the study to determine that SPF number. If you are using an SPF 15 sunscreen and you are putting on one third of the recommended amount, you will get about one third of the recommended protection (or an SPF of about 5). The proper amount to use to cover your face is 1 teaspoon. For the arm, you need 1 to 2 teaspoons, depending on the size of your arm. To cover the average adult body from head to toe, you need 1 ounce. The typical bottle of sunscreen is about 4 oz, so if you are going out in your speedo, it should only last about 4 applications. Most waterproof sunscreens need to be reapplied about every 90 minutes while you are outside. Some will last 4-6 hours but there are only a few of these

There are several common "myths" about commercial tanning booths. These booths feature ultraviolet A rays which do not tend to cause a sunburn. Here are some answers to common questions:

*Is it true that I can't get burned in a commercial tanning booth?* NO. You



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can be on certain medications which make it very likely that you will get a severe sunburn like reaction when exposed to these rays. Some people with "allergies to sun" can also get rashes from these rays.

*Is it true that tanning booths will not increase your chances of skin cancer?*  
NO - studies strongly suggest a relationship between exposure to UVB with skin cancer. Studies also suggest that UVA (in sunlight and in tanning booths) is a co-carcinogen. In addition, these rays penetrate more deeply into the skin, causing deeper damage to collagen and elastic fibers. This will result in increased wrinkles and looking older than your actual age down the road, when you are 30 or 40.

*Does a commercial tanning booth give me a good base tan so I won't burn when I go to Florida for vacation?* NO - even the darkest tan from a commercial booth only gives you an SPF of 4 or 5. If you normally burn after 20 minutes, you will burn in Florida after being on the beach only an hour and a half.

One thing to keep in mind with the commercial tanning industry is that in most states, this is not a regulated practice (this will change soon, hopefully). Operators may not have the knowledge or experience to properly inform you of the dangers and risks of these booths. People who always burn and *never* tan, have been told by irresponsible operators that they can use the booths. They will not tan in commercial booths either. The tanning industry also has "hired guns" who appear on TV and say that there is no convincing evidence that UVA causes skin cancer. This is much like the tobacco industry claiming that there was no evidence to support the idea that smoking caused cancer, despite many studies which actually did imply this relationship. Let's not be "fooled" again.

Lastly, one can achieve a tanned look without sun exposure or commercial tanning. Self tanning lotions and creams are much better now than they were several years ago. However, they do not provide any sun protection - you still still need sunscreen if you are outside and exposed!

### Diet

There are several dietary measures that may reduce your chances for skin cancer. Most of the studies, however, have been concerned with non-melanoma skin cancers like basal cell carcinoma and squamous cell carcinoma. You cannot extrapolate the results of these studies to include melanoma! Many of these measures will not only benefit your skin, but can also help reduce cardiac risk factors, such as cholesterol levels.

The typical American diet is composed of about 36% fat. Studies have suggested that decreasing fat intake to a level of 20% can be helpful in



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reducing the number of precancerous skin lesions that develop. Reducing the precancerous lesions should also reduce the levels of squamous cell carcinoma as well. The only problem with this is that it is very difficult to maintain a diet of only 20% of daily calories from fat. If you eat at a typical fast food establishment, you've pretty much blown it for the day. (maybe the week!) It would also be wise to increase your consumption of oils such as olive oil, decreasing the amount of saturated fat in your diet.

Vitamins can also play a role in skin cancer rates according to some studies. It is believed that vitamins with anti-oxidant properties are most useful in this respect. These are mainly vitamins A, C, and E.

Vitamin C at a level of 500mg/d is recommended. This can be achieved without resorting to vitamin supplements. Increasing consumption of citrus, fruits and vegetables could easily achieve this dosage of vitamin C. In addition, you would be increasing the fiber in your diet, and hopefully would be decreasing your intake of fatty foods, since fiber will tend to make you feel more "full".

Vitamin A can be helpful at dosages of 25,000 units per day. This can also be achieved easily through dietary intake. You only need to eat 1.5 carrots or 1 sweet potato to hit this mark. By eating foodstuffs which contain vitamin A, you also will derive added benefits from the  $\beta$ -carotene and lycopene they contain. Vitamin A is one of those vitamins which can be toxic to your liver in very high doses, so do not exceed recommended doses thinking that "more is better".

Vitamin E should be taken in the form of a vitamin supplement. The reason a supplement is recommended is that it is difficult to achieve the 400mg per day dose level by eating foods. You would have to eat about 800 calories worth of almonds to get 20mg of vitamin E. This will not help our efforts to maintain that lower fat intake! So pop a vitamin E capsule daily. If you are taking coumadin (warfarin), there is the danger of increased bleeding tendency when vitamin E and coumadin are taken together. Discuss this with your physician before adding vitamin E if you are taking coumadin. Also, if you take Iron or oral contraceptive pills, you should not take the vitamin E capsule at the same time as those pills. It will interfere with absorption and function of these medications.

The last dietary measure is to increase one's intake of selenium, a trace mineral in the diet. You should be taking about 200mg per day. This can be achieved through the consumption of green vegetables, however, the selenium content varies with the growing location. Vegetables grow on the eastern US are low in selenium since the soil there is low



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in selenium. In these areas, you may need to take a supplement. This is another case where “more is not better”. At levels of 300-400mg per day, selenium toxicity may occur which can cause a metallic taste in the mouth, garlic breath, dark brittle fingernails, irritability and hair loss. *Update: more recent studies failed to demonstrate prevention of skin cancer from dietary intake of selenium, however, it may be useful in preventing other types of cancers such as lung, colon, and prostate.*

### Preventative Maintenance

Lastly, if you are suspicious that you might have a skin cancer, see your dermatologist or primary care physician as soon as possible. Risk factors for skin cancer include, fair skin (burn easily), blue eyes, family history of skin cancer, history of blistering sunburns, and numerous moles. If you have had precancerous lesions (actinic keratoses) or skin cancers already, you should be examined at least once a year to watch for recurrences of previously treated lesions or the development of new lesions. If you aren't sure what to look for, see the patient information brochure section or check out the links section of the website.

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