

Can Your Diet Help Prevent Skin Cancer?



Growing evidence shows that foods high in certain nutrients may indeed help — and certainly can't hurt.

You see your dermatologist twice a year for a full-body skin exam. You wear a wide-brimmed hat and sunglasses outside and stay under an umbrella at the beach or pool. You always use a broad-spectrum SPF 15 or higher sunscreen outdoors and reapply at least every two hours. You avoid tanning beds like the plague.

After all those precautions, is there anything more you can do to avoid skin cancer? You may think the answer is no. However, one other key strategy you can use is simply to eat as healthy as you can.

Nonmelanoma skin cancers (NMSC), including basal cell and squamous cell carcinoma (BCC and SCC), are the most common cancers in America. Some 5.4 million cases of NMSC are treated in more than 3 million people every year, but recent research shows that specific dietary changes may be one way to bring those numbers down.

Sun Damage Busters

The primary cause of skin cancer is ultraviolet (UV) rays from the sun or tanning machines. About 90 percent of nonmelanoma skin cancers and 86 percent of melanomas are associated with solar UV. More than 419,000 cases of skin cancer in the U.S. each year are linked to indoor tanning.

UV exposure wreaks a lot of its havoc on the skin by generating free radicals. These unstable, nasty little oxygen molecules produce inflammation and damage cell function and your skin's DNA. This DNA damage can cause changes in your genes called mutations that lead to skin cancer.

Studies have shown that antioxidants, including vitamins and other nutrients, may help fight off free radicals and prevent the damage they do that can cause skin cancer. A 2002 study in the *Journal of Investigative Dermatology* found that UV exposure greases the wheels for skin damage partly by depleting antioxidants in the body. So, it makes sense that replacing these protective substances could bolster the weakened defenses.

After years of debate about whether antioxidants could indeed spell the difference between someone developing or not developing skin cancer, recent research has tipped the scales in their favor. More dermatologists than ever now advise patients to feast on foods high in these nutrients. Many also suggest applying topical products containing them, including sunscreens.

While both foods and supplements can aid in disease prevention, most nutritionists stress foods since the *interaction* between different foods makes them most effective. Taking individual vitamin supplements may not work the same way, and high doses may be toxic. Vitamins C, E, and A, zinc, selenium, beta carotene (carotenoids), omega-3 fatty acids, lycopene, and polyphenols are among the antioxidants dermatologists recommend including in your diet to help prevent skin cancer. You can find them in many everyday nourishing whole foods.



Diets high in beta carotene-rich fruits and vegetables, such as carrots, may reduce some cancers' risk. Beta carotene also boosts the immune system's ability to fight disease.

Get Your Antioxidants Here!

While virtually all experts agree that eating foods rich in these compounds are good for your overall health, the evidence that they specifically help prevent skin cancer is stronger for some nutrients than others. The good news is that they also protect against other cancers and conditions, ranging from diabetes to heart disease. So dig in!

Beta Carotene

This nutrient can give you certain health benefits by converting to vitamin A in the body. While supplements have not proven to help prevent skin cancer, diets high in beta carotene-rich fruits and vegetables may reduce some cancers' risk. Beta carotene also boosts the immune system's ability to fight disease.

Where to find it: Look for orange-colored vegetables and fruits, including carrots, squash, sweet potatoes, cantaloupe, apricots, and mangoes.

Lycopene

The same red pigment in lycopene that helps protect the tomato against sun damage may also help protect your skin against sun damage. A 2010 study in the *British Journal of Dermatology* that tracked patients regularly eating tomato paste against a control group that didn't found that, after 10 weeks, the lycopene eaters were 40 percent less likely to be sunburned. Several reports have linked lycopene to a lower risk of various cancers.

Where to find it: This red-pigmented antioxidant is in tomatoes, watermelon, guava, papaya, apricots, pink grapefruit, blood oranges, and other foods.

Omega-3 Fatty Acids

These nutrients inhibit COX-2, a chemical that promotes skin cancer progression. They are also thought to reduce inflammation. Several cancers, including skin cancer, have been strongly linked to chronic inflammation.

Where to find it: Fatty fish such as salmon, sardines, mackerel, herring, and albacore tuna are chock full of omega-3s. Walnuts and flaxseed are good vegetarian sources.

Polyphenols in Tea

Studies have shown that drinking green or black tea can help prevent skin cancer. But the evidence for green tea is stronger, with numerous studies pointing to its benefits. The polyphenols in green tea are plant chemicals with powerful antioxidant, anti-inflammatory, and tumor-inhibiting properties. They have been found to repair DNA in UV-exposed skin, reducing cell damage. In the lab, green tea either consumed or applied directly to the skin has helped prevent UV-triggered skin cancer by absorbing UV damage

and scavenging free radicals. A recent study concluded that tea's polyphenols might significantly reduce your skin cancer risk if you drink four to six freshly brewed cups a day.

Where to find it: In freshly brewed green or black tea.

Selenium

A recent central review of 16 studies involving more than 144,000 people reported that those with a higher intake of selenium have a 31 percent lower risk of cancer at any site and a 40 percent lower risk of cancer deaths.

Where to find it: Just one to two Brazil nuts a day provide all the selenium you need. Meats such as chicken and grass-fed beef are also rich in this mineral.

Vitamin C

Long ago, scientists discovered that some properties of vitamin C make it toxic to cancer cells. While no one has turned up convincing evidence that it prevents skin cancer or cuts skin cancer deaths, general studies have linked higher blood levels of the vitamin with a lower overall risk of cancer deaths.

Where to find it: Get your C from oranges, lemons, limes, strawberries, raspberries, and certain vegetables, including leafy greens, broccoli, and bell peppers.

Vitamin D

The best-proven benefits of vitamin D are bone-building and immune-boosting. Still, a 2011 study from the National Women's Health Initiative found that women with a history of nonmelanoma skin cancer who took low levels (400 international units, or IU) of vitamin D plus calcium supplements reduced their melanoma risk. There have been similar findings with breast, colon, and rectal cancer. The skin produces vitamin D in response to sun exposure. But since unprotected sun exposure causes skin damage, you should use food and supplements to get the daily allowance of 600 IU recommended by the Institute of Medicine and The Skin Cancer Foundation for the average person between ages 1 and 70. (400 IU are recommended for infants under age 1 and 800 IU are recommended for those over age 70.) Look for vitamin D3, the most effective form of the vitamin.

Where to find it: If you can stomach the taste, one tablespoonful of cod liver oil has more than twice the recommended daily allowance of vitamin D. Fatty fish such as salmon,

mackerel, and tuna are excellent sources as well. Common foods such as milk and orange juice are often fortified with it. And you can get small amounts in egg yolks, beef liver, and cheese.

Vitamin E

In the diet, this vitamin has many abilities that could make it an effective skin cancer preventive. A proven antioxidant helps prevent damage from free radicals, absorbs energy from UV light, has potent anti-inflammatory effects, and improves skin and veins' ability to act as protective barriers. Vitamin E supplements may lead to side effects, such as bruising and bleeding problems.

Where to find it: Rich sources of vitamin E include almonds and other nuts, sunflower and other seeds, spinach, soybeans, and wheat germ.

Zinc

It helps keep the immune system functioning efficiently to fight cancer and other diseases. It also helps activate certain antioxidants in the body. A small 2017 study of men in *The American Journal of Clinical Nutrition* found that just a modest increase in dietary zinc helped replenish antioxidants and restore immune functions in the body. It increased the level of proteins involved in DNA repair and reduced the kind of DNA damage that can lead to cancers.

Where to find it: You can find high amounts of zinc in beef and lamb, shellfish, and legumes such as hummus, chickpeas, lentils, and black beans.

Supplements That May Help

Though, in most instances, nutritionists prefer you to get your nutrients from foods rather than supplements, two antioxidant supplements have recently produced impressive evidence as skin cancer fighters.

Nicotinamide (also known as niacinamide) is a form of vitamin B3. Several studies by Diona Damian, MD, and colleagues in Australia have catapulted nicotinamide into the public consciousness, sparking a run on vitamin supplement shelves. Her studies have revealed that nicotinamide reduces the rate of new skin precancers, basal cell carcinomas, and squamous cell

carcinomas by 23 percent in patients with a history of these lesions. She has also done early research suggesting that nicotinamide may provide similar benefits to melanoma patients.

When UV damages the skin, DNA repair enzymes in the skin launch into repairing the damage but never fix it. The remaining damage can lead to skin aging and skin cancers. However, both oral and topical nicotinamide replenish energy supplies in the skin that these repairs deplete. In this way, they bolster the immune system's ability to fix the damage. Also, UV radiation itself suppresses the immune system, and nicotinamide reduces this suppression.

However, Dr. Damian sounds a note of caution: "So far, there is no evidence for the efficacy or appropriateness of oral nicotinamide in the broader population," she says. But for high-risk patients, she notes, such as those who have had multiple skin cancers or people who have significantly suppressed immune systems, such as transplant recipients, "They are a new opportunity for skin cancer prevention." Whether in multivitamin combinations or as solo supplements, she says, they are "safe, affordable and widely available."

While the research has only used supplements, nicotinamide is also naturally present in small quantities in yeast, lean meats, fish, nuts, and legumes. (It is now also incorporated in many topical agents, including sunscreens and cosmetic products.)

Polypodium leucotomos: This antioxidant, which comes from a fern, is the key ingredient in several products and perhaps the most prominent example of so-called "edible sunscreens" on the market today. Studies have shown that it helps prevent UVA- and UVB-induced toxicity and DNA damage and reduces free radicals, potentially cancer-causing oxygen molecules caused by UV exposure. A recent study showed that 240 mg of the supplement twice daily suppressed sunburn, and it has been found to extend the time outdoors before your skin starts to tan. It is also an anti-inflammatory and increases a molecule known to suppress tumors. Furthermore, convincing research shows that it works against a UV-sensitivity disorder called polymorphous light eruption and the UV-induced pigment disorder melasma. In Central and South America, it is used in traditional medicine.

Last word: It's important to remember that while these antioxidant supplements may enhance the effects of your sunscreen and other forms of sun protection, they can't replace them. Any "edible sunscreen" product that promises complete protection (or an SPF over 15, the minimum adequate SPF) is selling you a bill of goods. The main thing is to keep your skin shielded from direct sunlight by seeking shade outdoors and wearing wide-brimmed hats, UV-filtering sunglasses, and other sun-protective clothing along with sunscreen.

The More the Merrier

Just as nutrients provide more benefits when combined naturally in foods, foods offer more services than other foods. The more varied and colorful the array of foods you eat, the more weapons you amass in your anticancer army. Hearty, nutritious, multifaceted meals can

help your body fend off damage and disease with waves of powerful antioxidants, immune boosters, and anti-inflammatories.

One great power regimen combining a wealth of anticancer nutrients is the famed Mediterranean diet, a plant-based diet rich in active, potent antioxidants and anti-inflammatories. A mélange of the traditional diets of people living around the Mediterranean features nutritionally rich foods such as cruciferous and green leafy vegetables, tomatoes, citrus fruit, fresh herbs, fish high in omega-3 fatty acids, wine, and olive oil. In a study of more than 600 people in Italy, those sticking with the diet cut their melanoma incidence in half compared with those not on a diet.

So, now that you've seen what these super nutrients and power foods can do, it's up to you to incorporate them into your daily diet. That shouldn't be a chore since they are as delicious as they are nutritious. The road to health and well-being starts with your taste buds!