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# Eye Cancer Causes, Risk Factors, and Prevention

## Risk Factors

A risk factor is anything that affects your chance of getting a disease such as cancer. Learn more about the risk factors for eye cancer.

- [Risk Factors for Eye Cancer](#)
- [What Causes Eye Cancer?](#)

## Prevention

There is no way to completely prevent eye cancer, but there may be things you can do that might lower your risk.

- [Can Eye Cancer Be Prevented?](#)

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# Risk Factors for Eye Cancer

A risk factor is anything that increases your chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

But having a known risk factor, or even several risk factors, does not mean that you will

get the disease. And many people who get the disease may have few or no known risk factors.

## Race/ethnicity

The risk of eye melanoma is much higher in whites than in African Americans, Hispanics or Asian Americans.

## Eye color

People with light colored eyes are somewhat more likely to develop uveal melanoma of the eye than are people with darker eye and skin color.

## Age and gender

Eye melanomas can occur at any age, but the risk goes up as people get older. Eye melanoma is slightly more common in men than in women.

## Certain inherited conditions

People with *dysplastic nevus syndrome*, who have many abnormal moles on the skin, are at increased risk of skin melanoma. They also seem to have a higher risk of developing melanoma of the eye.

People with abnormal brown spots on the uvea (known as *oculodermal melanocytosis* or *nevus of Ota*) also have an increased risk of developing uveal eye melanoma.

*BAP1 cancer syndrome* is a rare inherited condition in which family members are at increased risk for uveal eye melanoma, as well as [melanoma of the skin](#),<sup>1</sup> [malignant mesothelioma](#)<sup>2</sup>, [kidney cancer](#)<sup>3</sup> and others. This condition is caused by an inherited mutation (change) in the *BAP1* gene and tends to form aggressive cancers that appear at younger ages.

## Moles

Different types of moles (nevi) in the eye or on the skin have been associated with an increased risk of uveal eye melanoma. In the eye, these include choroidal, giant choroidal, and iris nevi; on the skin, atypical nevi, common nevi of the skin, and freckles. An eye condition, known as primary acquired melanosis (PAM), where the melanocytes

in the eye grow too much, is a risk factor for conjunctival melanoma.

## Family history

Uveal eye melanomas can run in some families, but this is very rare and the genetic reasons for this are still being investigated.

## Unproven risk factors

**Sun exposure:** Too much exposure to sunlight (or sunlamps), a known risk factor for melanoma of the skin, has also been proposed as a possible risk factor for uveal or conjunctival melanoma of the eye, but studies so far have shown mixed results. More research is needed to answer this question.

**Certain occupations:** Some studies have suggested that welders may have a higher risk of uveal eye melanoma (of the choroid and ciliary body), but more studies are being done.

**Skin melanoma:** Some patients with uveal eye melanoma have a history of melanoma of the skin, but it is still not known if having skin melanoma increases your risk of eye melanoma.

## Hyperlinks

1. [www.cancer.org/cancer/melanoma-skin-cancer.html](http://www.cancer.org/cancer/melanoma-skin-cancer.html)
2. [www.cancer.org/cancer/malignant-mesothelioma.html](http://www.cancer.org/cancer/malignant-mesothelioma.html)
3. [www.cancer.org/cancer/kidney-cancer.html](http://www.cancer.org/cancer/kidney-cancer.html)

## References

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## What Causes Eye Cancer?

The exact cause of most eye cancers is not known. But scientists have found that the disease is linked with some other conditions, which are described in [Risk Factors for](#)

**Eye Cancer.** A great deal of research is being done to learn more about the causes.

Scientists are learning how certain changes in the DNA inside cells can cause the cells to become cancer. DNA is the chemical in each of our cells that makes up our *genes*, the instructions for how our cells function. We usually look like our parents because they are the source of our DNA. But DNA can also influence our risk for developing certain diseases, such as some kinds of cancer.

Some genes control when our cells grow, divide into new cells, and die.

- Genes that help cells grow, divide, or stay alive are called *oncogenes*.
- Genes that slow down cell division or cause cells to die at the right time are called *tumor suppressor genes*.

Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

Some people with cancer have DNA changes they inherited from a parent that increase their risk for the disease. For example, some people inherit a mutation (change) in the *BAP1* tumor suppressor gene, which raises their risk of eye melanoma and some other cancers. When the *BAP1* gene is mutated, it doesn't work normally, which can allow cells with this change to grow out of control.

Most DNA changes linked to cancer are acquired during a person's life rather than inherited before birth. For example, about half of uveal eye melanomas have changes in either of 2 related oncogenes, *GNA11* or *GNAQ*.

Scientists are studying these and other DNA changes to learn more about them and how they might lead to eye cancer. But it is still not exactly clear what causes these changes to occur in some people and not others.

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## Can Eye Cancer Be Prevented?

We do not yet know [what causes most eye cancers](#), so it is not yet possible to prevent them.

We know there is a link between sunlight and melanomas of the skin, and there are [things you can do](#)<sup>1</sup> that might reduce your risk of these cancers, including limiting your exposure to intense sunlight, covering up with protective hats and clothing, and using sunscreen.

The American Cancer Society also recommends wearing UV-protected sunglasses when outside in strong sunlight. Wrap-around sunglasses with 99% to 100% UVA and UVB absorption provide the best protection for the eyes and the surrounding skin. This might help reduce the risk of developing cancers of the skin around the eyes. The link between sunlight and eye melanomas is not proven, but some doctors think that sunglasses might also reduce eye melanoma risk.

### Hyperlinks

1. [www.cancer.org/cancer/skin-cancer/prevention-and-early-detection.html](http://www.cancer.org/cancer/skin-cancer/prevention-and-early-detection.html)

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Grisanti S, Tura A. Uveal Melanoma. In Scott JF, Gerstenblith MR, eds. *Noncutaneous Melanoma* [Internet]. Brisbane (AU): Codon Publications; 2018 Mar. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK506988/> doi: 10.15586/codon.noncutaneousmelanoma.2018.

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