

# Odd-Eyed Cats (Heterochromia)

 [www.cat-world.com.au/odd-eyed-cats-heterochromia.html](http://www.cat-world.com.au/odd-eyed-cats-heterochromia.html)

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## At a glance:

- Medically known as *heterochromia*, odd eyes are a condition in which the one iris (the coloured part of the eye) is different to the other iris. For example one eye is blue and the other is green. It may be inherited, congenital or acquired.
- There are three forms, complete, central or sectoral. Complete heterochromia is the most common form.
- Heterochromia is harmless and requires no medical care.



**About:**

Also known as **dichroic eyes**, **heterochromia iridis** (hetero = different, chromia = colours, iridis = iris), is a condition in which cats have odd-coloured eyes. One will be blue, the other may be green, copper or brown. Heterochromia can be inherited, congenital or acquired.

- **Inherited heterochromia**, it is mostly found in epistatic white cats (*epistatic* means the cat is genetically another colour, such as black or grey, but it is hidden by the **white masking gene**) or in bi-colour cats, due to the **white spotting gene**.
- **Congenital heterochromia** may be due to mosaicism in which two distinct populations of cells arise from one fertilised egg, or chimerism in which two zygotes merge early on in the development stage. This possibly explains heterochromia in solid coloured cats who don't carry the white spotting gene.
- **Acquired heterochromia** may be due to uveitis, certain medications, iris tumours and trauma.

## Back to epistatic white cats:

People commonly associate white animals with albinism, and in many cases this is true, but with cats, true albinism is quite rare and when it does occur, the eyes will be very pale blue or pink. A form of albinism does occur in pointed cats that is most commonly associated with Siamese cats. It is also found in other breeds and even mixed-breed (domestics).

Most white cats with odd or coloured eyes are white due to the white masking gene (W) a dominant gene, which is why it is represented with an uppercase W. Recessive are shown in lower case w, which symbolises **non-white**. This gene masks the effect of all other colour genes. It is this gene which is also responsible for deafness in some white cats with blue eyes. Remember that cats have two sets of genes, one from their mother and one from their father. Three combinations can occur:

- **WW** – White cat
- **Ww** – White cat (the dominant white W overrides the recessive w)
- **ww** – Coloured cat

It is also possible for a cat to be white due to the **white spotting gene**, which presents in varying grades from 1-10. The higher the grade, the more white, and in some cases only a tiny patch containing only a few coloured hairs may be present.

## Coat and eye colour determination:

**Melanin** is a complex polymer found in the hair, skin and eyes, it is responsible for determining your cat's coat and eye colour. Its role is to protect the skin and eyes from UV radiation.

The amount of melanin in the iris determines the colour of the eye. Cats with blue irises have the least amount of melanin and brown eyed cats have the most. All kittens are born with blue eyes, but for those whose eyes change colour, melanocytes begin to produce melanin in the eye from 6-7 weeks of age when light hitting the eyes triggers this event. As melanin concentration builds up, the eyes begin to change colour. Cats who are epistatic white or cats with the white spotting gene, melanin is prevented from forming in the iris. Epistatic white cats with one blue eye may also be deaf on that side too as this particular gene can cause degeneration of the inner ear.

## Types of heterochromia:

Heterochromia iridis comes in three forms, complete, central and sectoral.

**Complete heterochromia:** One eye is blue, the other eye is a different colour (green, yellow, copper).

**Central heterochromia:** Two colours are present in one eye, usually there is a ring or halo surrounding the pupil with another colour on the outer portion of the iris. This type of heterochromia is rare in cats.

**Sectoral heterochromia:** Two colours are present in one eye, with one portion being blue, and the other a darker colour.

### **David Bowie's odd eyes:**

David Bowie had one eye darker than the other. Many believe he had heterochromia, however, his different eyes are due to a condition called **anisocoria**. This condition occurs when one of the pupils remains permanently dilated (large). David Bowie's anisocoria was caused by a fight he had with a friend as a teenager. The fixed pupil gave him the appearance of one blue eye and one darker coloured eye.





Image courtesy [Martin Cathrae](#), Flickr



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### **Breeds of cat who can have odd eyes:**

- [Persian](#)
- [Bambino](#)
- [Exotic](#)
- [Oriental](#)
- [British Shorthair](#)
- [Scottish Fold](#)
- [Turkish Angora](#)
- [Devon Rex](#)
- [Cornish Rex](#)
- [Sphynx](#)
- [Munchkin](#)

Before I finish this article, I would like to mention dark spots which can sometimes appear in your cat's eyes,

which are known as *iris freckles*, *iris hyperpigmentation* or *iris melanosis*. They are similar to moles that people get. Always check brown spots with your veterinarian as in some cases they can become cancerous over time or more commonly, lead to glaucoma.

