NHS
University Hospitals Sussex
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Colour Vision Deficiency (colour blindness)

Orthoptic Department

Patient information

What is this information about?

This information is about colour vision deficiency, or colour blindness. It tells you about different kinds of colour vision deficiency, how it is caused and passed down through families, and what affect it can have on a person's life.

Why have I been given this information?

You have been given this information because you, a family member, or someone you are a carer for, has been diagnosed with colour vision deficiency.

Reading this information will help you to know what to expect from the condition.

What is colour vision deficiency?

Colour vision deficiency is also called 'colour blindness'.

Calling it 'colour blind' is not strictly correct as affected people are rarely blind to colour, but they are less sensitive to particular colours. They may have difficulty telling the difference between two different colours or between different shades of one colour. It affects approximately 8% of men and 1% of women.

There are 3 main types of colour vision deficiency:

Protanopia

No red sensitivity, so someone gets confused between red, green, brown and some purple shades.

Deuteranopia

No green sensitivity, so someone gets confused between red, green, blue and purple.

Tritanopia

No blue sensitivity so someone gets confused between blue and green. Yellow may also appear as grey or purple.

Why are there different types?

Colour vision deficiency happens when the light-sensitive cells in the retina (a light sensitive layer of tissue in the back of your eye) that interpret colour do not work properly.

These cells are called cones. There are 3 types which process the three primary colours: red, green and blue.

For normal colour vision, all three cone types must work correctly. When one of these types does not work properly, then the affected person will have problems with that colour.

Why are men more affected than women?

Faulty colour vision runs in the family and is carried on the X-chromosome. Men are born with one X and one Y chromosome. Women are born with two X chromosomes.

This means that women can sometimes overcome the faulty gene with their second normal X chromosome, but men do not have a second X chromosome to help compensate for the faulty gene.

The faulty gene is usually passed from maternal grandfather to grandson, through the mum as a carrier with one faulty X chromosome. Women will only have a colour vision deficiency if both X chromosomes carry similar faulty genes.

Why does colour vision deficiency matter?

Many people with a colour vision deficiency go through life with no trouble at all as it doesn't affect vision or general health.

However, there are certain careers that require good colour vision:

- Pilots
- Certain jobs in the armed forces
- The Fire Service

- Police
- Train drivers
- Electrical engineers
- Workers in paint, paper and textile manufacturing.

How is colour vision deficiency treated?

There is no cure but many people develop their own 'system' or learn to identify colours in other ways. Specially tinted glasses or contact lenses may help in telling the difference between certain colours but cannot restore normal colour vision.

Orthoptic Department telephone numbers

If you are booked or expecting a follow-up with the orthoptic team:

St Richard's Hospital Orthoptists	**01243 831499**
Southlands Hospital Orthoptists	**01273 446077**
Sussex Eye Hospital Orthoptists	**01273 664872**
Princess Royal Hospital Orthoptists	**01444 441881 Ext. 68305**

Useful information:

Squintclinic **www.squintclinic.com**

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Ref. number: 2214.1
Publication date: 04/2026 Review date: 04/2029

CPIG carer and patient information group approved