

Colour vision deficiency (colour blindness)

Orthoptic Team

Information for patients and carers

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Caring for you

What is colour vision deficiency (CVD)?

Colour vision deficiency (CVD), sometimes called colour blindness, means a person sees colours differently from most people.

People with CVD can find it difficult to tell certain colours apart. CVD is not caused by poor eyesight.

The main sign is struggling to tell the difference between colours.

Signs in children

Your child may:

- use unusual colours when drawing, such as purple leaves on trees
- find it hard to match colours or sort colours
- show little interest in colouring

Your child may smell food before eating. This is because they cannot rely on colour to judge it.

The effects of CVD can be different from person to person. Some people have only minor difficulties. Others may find identifying colours much harder.

CVD does not usually get worse over time.

Types of CVD

There are 3 main types of CVD.

Red deficiency (protan)

People may find it difficult to tell the difference between:

- reds
- oranges
- browns
- some darker colours

Dark red may look black.

Green deficiency (deutan)

This is the most common type of CVD.

People may find it difficult to tell the difference between:

- greens

- reds
- oranges
- browns

Blue deficiency (tritan)

This is rare.

People may find it difficult to tell the difference between:

- some blues
- some yellows

How is CVD diagnosed?

If you think your child may have CVD:

- arrange an eye test
- ask for a colour vision test

These tests can usually be carried out by a local optometrist.

Knowing which type of CVD your child has can help schools give the right support.

Can CVD affect learning?

Many school activities use colour to present information.

Children may miss important details if colour is the only way information is shown.

They may find it difficult to:

- read graphs and charts
- understand worksheets that are colour-coded
- use maps and diagrams
- access information on websites
- find coloured symbols or markers
- follow colour-coded instructions
- choose or find colours correctly

CVD can also affect things outside the classroom, such as:

- checking if food is cooked
- spotting ripe fruit and veg
- taking part in sport
- knowing team colours
- finding coloured cones and markers
- seeing balls clearly on grass

Problems are more likely when:

- websites have poor colour contrast
- learning software relies on coloured symbols

Many children find ways to hide their CVD, which means it can go unnoticed.

How can CVD affect my child in school?

In primary school

Children may:

- choose unusual colours in drawings
- find colour matching difficult
- struggle with colour-based games
- find traffic-light systems confusing
- copy other children when picking colours
- find it difficult to sort out coloured objects

In high school

CVD may affect subjects that often use colour, including:

- science
- geography
- maths
- computer studies
- art and design
- cooking
- PE and sport

How can I help my child?

Tell your child's school which type of CVD they have.

Ask teachers to:

- use labels, symbols and patterns as well as colour
- give support during practical tasks
- use strong colour contrast on notices and whiteboards
- check worksheets are accessible
- make sure websites and digital resources are accessible
- urge your child to ask for help when colour becomes difficult
- label all coloured pencils, paints and pens

Ask teachers to avoid:

- giving instructions based only on colour

- using traffic-light systems without written labels
- Using red and green colour together where possible

You should also speak with the school's special educational needs coordinator (SENCO).

Some children worry about being teased or treated differently.

The SENCO can:

- help staff learn about your child's CVD
- support teachers to make learning easier
- deal with teasing or bullying quickly
- review learning materials
- seek specialist advice if needed
- support exam arrangement
- help your child move from primary to secondary school

School exams

It is important that the school tells the exam board about your child's CVD.

Extra time on its own will not help children with colour problems.

Future careers

Most careers are open to people with CVD.

However, some jobs have colour vision requirements for safety reasons, including:

- pilot
- train driver
- electrician

Your child can ask for careers advice about jobs that have colour vision requirements.

Key messages

- CVD is common.
- Many children hide their CVD.
- It can affect learning and everyday activities.
- Small changes at school can make a big difference.
- Tell the school about your child's CVD so your child gets the right support.
- Most careers are open to people with CVD, although some jobs have colour vision requirements.