

# Colour Blindness and Sport

## An Introductory Guide for Clubs

### What is colour blindness?

We see colour through 3 types of cone cells in our eyes, which absorb red, green or blue light. With colour blindness (colour vision deficiency, CVD) one type doesn't operate normally. Most types of colour blindness involve defects in red or green cones, meaning **many** colour combinations can be confusing.

### Why is it an issue in sport?

Almost 33 million people in Europe have some form of inherited CVD. Many are undiagnosed or unaware they have it. For people with no deficiency it can be hard to imagine the difficulties this can cause but everyday in sport we use signs, symbols, maps, we visit websites and use smartphones. All of these activities can be more challenging when the difference between colours isn't obvious.



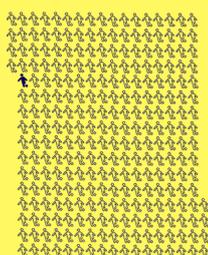
The shirts on the **top row** are shown in normal colour vision. Those in the **bottom row** are a colour blind simulation of the **top row**.

**Colour blindness is one of the world's most common inherited conditions. Statistically it affects...**

1 in 12 men



1 in 200 women



Approximately 300 million people



worldwide

Colour blindness is a particularly important issue in sport as colour is key to distinguishing between players and athletes and in seeing kit and equipment.

On a matchday, for example, CVD can affect up to 6% of people in a football stadium including:

- **Players**
- **Coaches**
- **Fans**
- **Staff e.g. stewards**
- **Media**
- **Emergency services**

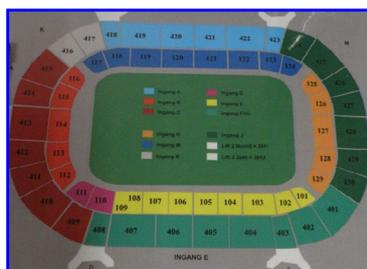
### What does this mean for Governing bodies and clubs?

Successfully addressing colour blindness challenges for clubs is about applying some basic principles to the way information is designed and presented. Be aware that:

- Information presented using colour alone may not be accessible for everyone, even for people with mild CVD
- Solutions are usually simple and common sense such as using text, symbols, shapes and patterns
- Players may be affected, statistically one in every male squad of 12 players or more

Accommodating colour blind people does not mean changing club colours – it simply means thinking carefully about how club colours are used.

Normal vision



Colour blind simulation





Normal vision

Colour blind simulation

- Use effects such as italics, bold, different font sizes or underlining when using colour to emphasise important information in text
- Check software/equipment doesn't rely on colour only to convey information, eg fire control panel
- Highlight emergency exits and equipment in colours which stand out to people with CVD.
- Provide training, especially for coaching and kit staff

### Colour blindness is an issue for everyone

The most obvious problem in sport is distinguishing between kits. This can be a red team playing a team in black, or between outfield and/or goalkeeping and match officials' kits. Colour blindness is a fundamental problem for some players and coaches right up to elite level.

Other problematic information includes systems such as seat pricing information provided in colour only, e.g. green, orange and red dots which can be indistinguishable, as shown in the above images where the red dot is indistinguishable in the simulation. So, whether you work in ticketing, stadium operations, communications, digital marketing or any other area of club operation, this is something you will need to consider.

### Other common problems include:

- Noticing emergency exit signage and locations of emergency equipment
- Understanding coloured wayfinding information
- Reading coloured information against coloured backgrounds, for example colour changes of navigation tabs in websites
- Distinguishing 'important' text highlighted by colour e.g. red text from black text
- Illegible information in training materials
- Software e.g. control room warning systems or turnstile information
- For colour blind players, seeing training equipment and distinguishing between training bib colours, understanding some tactical training information

### Some simple solutions

No colour scheme can be completely accessible, but your chosen colour scheme can be made more accessible by ensuring that you: Don't use colour only to highlight information

- Label stadium plans, etc, rather than relying on a colour-only key
- Consider shapes, patterns, symbols, etc. instead where labelling is inappropriate

### Why is this a hot topic?

Players and fans have begun to speak out and more fans across the world are watching television and using social media to voice their frustration. Solutions are available and organisations in all kinds of industries and education are addressing colour blindness. Several sports Governing Bodies have issued guidance including UEFA, World Rugby and the NFL.

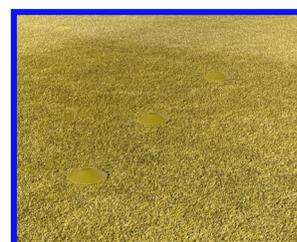
### There can also be a commercial impact:

- On merchandising, if people are unable to understand the colours of items either online or in your club shop they are unlikely to make a purchase
- On ticket sales, if online information to highlight seats or price structure is in colour only
- On your sponsors, if people are unable to read information on digital pitch-side hoardings, big screens or to see logos on kits, or if they receive negative backlash for sponsoring kit clash games
- For broadcasters where fans switch off TV coverage of inaccessible games/events.

Software and simulations can demonstrate the impacts meaning it's easier than ever before to make sure that information can be seen and understood by everyone.



Normal vision



Colour blind simulation



Normal vision



Colour blind simulation

For further information see the TACBIS factsheets, in particular Advice When Selecting Kit Colours, Supporting Colour Blind Fans, Players, Coaches, Venues and Marketing, Communications and Commercial Implications. Visit [www.colourblindawareness.org](http://www.colourblindawareness.org)