

COLOUR BLINDNESS AND FOOTBALL – AN INTRODUCTORY GUIDE FOR CLUBS

WHAT IS COLOUR BLINDNESS?

We see colour through three types of cone cells in our eyes, which absorb red, green and blue light. With 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 FOR FOOTBALL?

Almost 3 million people in the UK have some form of inherited CVD. Many are undiagnosed and unaware they have it. For people with no deficiency it can be hard to imagine the difficulties this can cause, but every day we use signs, symbols, maps, visit websites and use smartphones. All of these activities can be more challenging when the difference between colours isn't obvious.

Colour blindness is a particularly important issue in football, as colour is so key to a club's brand and kit.

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

- Players
- Fans
- Staff (including stewards)
- Media
- Emergency services

WHAT DOES IT MEAN FOR CLUBS?

Dealing with colour blindness simply means applying some basic principles to the way you present and design your information and your space. Be aware that:

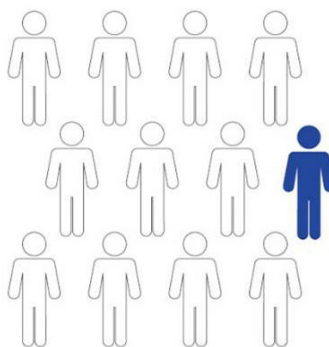
- Information presented using colour alone may not be accessible for everyone, even for people with mild CVD
- Solutions are usually simple and common sense such as using text, symbols, shapes and patterns.
- It doesn't mean changing your club colours - It simply means thinking about how you use them.

IT'S AN ISSUE FOR EVERYONE

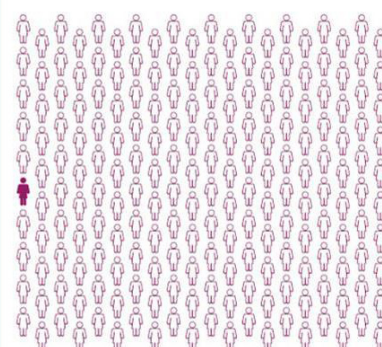
The most obvious problem in football is distinguishing between kits. This can be a red team playing a team in black, or problems between goalkeeping, outfield and match officials' kits. It is a fundamental problem for some players and the Premier League is working to address the issues.

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

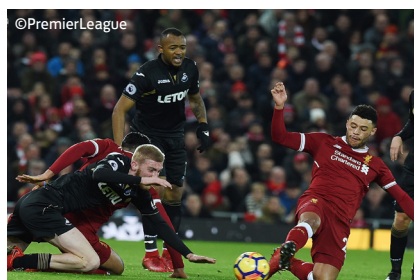
1 IN 12 MEN



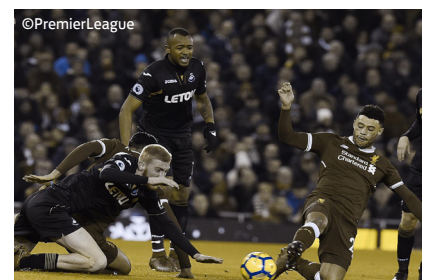
1 IN 200 WOMEN



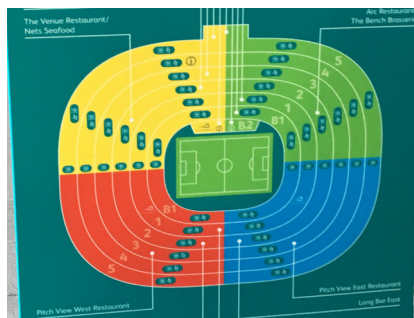
That's approximately 300 million people worldwide.



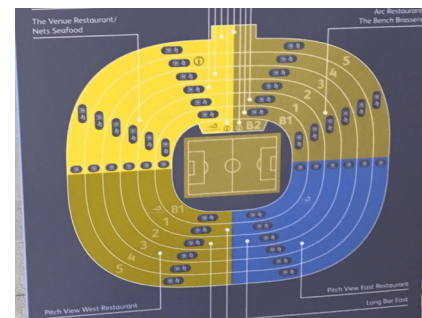
1a: Normal colour vision



1b: Simulated CVD



2a: Normal colour vision



2b: Simulated CVD

Katy Moran, 27, who recently retired as Aston Villa Ladies captain to begin a career in coaching, is colour blind and sometimes has to stare at players' socks to work out who's who - including when she's on the pitch herself.

We played Millwall last season... You're concentrating on trying to work out who's who. If I was playing [Millwall] my reactions would be so much slower, because I can't work out quickly enough if it's my player who's about to get the ball, or if I should step in.

It's not just kits though. Colour-coded online ticketing information systems such as season ticket price plans or 'available', 'short supply' and 'unavailable' tickets provided in colour only, e.g. green, orange and red dots can be unreadable. Emergency exits can be hard to see, as can different coloured sections of stadium plans. 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 be thinking about.

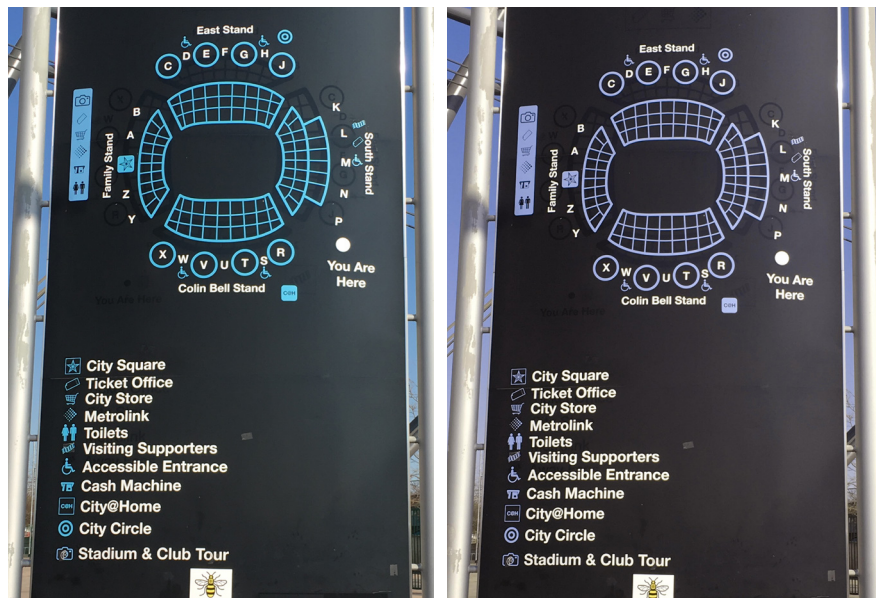
OTHER COMMON PROBLEMS INCLUDE:

- Emergency exits and locations of emergency equipment
- Distinguishing coloured wayfinding information
- Reading coloured text against background colours, e.g. pink against blue
- Distinguishing 'important' text highlighted by colour, e.g. red text from black text
- Training materials
- Software e.g. control room warning systems or gate information

SOME SIMPLE SOLUTIONS

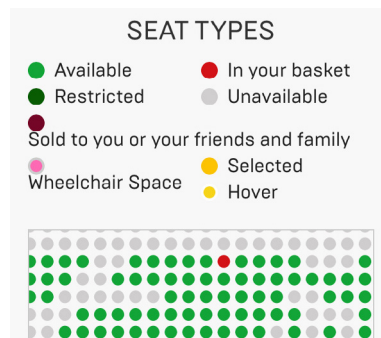
No colour scheme can be completely accessible, but your chosen colour scheme can be made more accessible by ensuring that you:

- 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
- Clearly define boundaries between different sections by outlining with a strongly contrasting colour such as white or black
- Use effects such as italics, bold, different font sizes or underlining when using colour to emphasise important information in text
- Check links and hover effects have good contrast
- Calculate colour contrast ratios using software such as Colour Contrast Analyser, Snook and Juicy Studio
- Use Colour blindness simulation software to see if your designs are accessible, e.g. Color Oracle
- Check software doesn't rely on colour only to convey information
- Highlight emergency exits and equipment in colours which stand out to people with CVD, e.g. yellow



Normal colour vision

Simulated CVD - good practice



Normal colour vision



CVD simulation – inaccessible information

WHY ARE WE TALKING ABOUT IT NOW?

Players and fans have begun to speak out and more and more fans across the world are watching television and using social media to voice their frustration. Solutions have been devised and organisations in every sphere of business life are addressing colour blindness. Some Metro maps are adapted for colour blind people, for example.

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 pitchside hoardings or big screens

Software and simulations can demonstrate the impact of colour difficulties. So it's easier than ever before to make sure that information can be seen and understood by everyone.

Further information

For more information see <http://www.colourblindawareness.org/colour-blindness-and-sport> and The Sports Ground Safety Authority's Guide to Safety at Sports Grounds 'Green Guide' – 6th Edition, in particular Annex C <https://sgsa.org.uk/wp-content/uploads/2018/10/Annex-C-Guidance-on-colour-vision-deficiency.pdf>