

Colour Blindness (colour vision deficiency) and Sport

Introduction

Colour blindness (colour vision deficiency) is the world's most common genetic condition but it is also very misunderstood. Worldwide, about 320 million people have some form of colour blindness. Men are 16 times more likely to be colour blind than women. In fact 1 in 12 of European men (31 million) have defective colour vision.



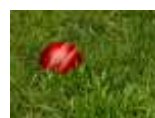
In the UK almost 3 million people are colour blind, enough to fill the 90,000-seat stadium at Wembley more than 30 times over! In a capacity Wembley stadium event there will be approximately 5,500 colour blind spectators. The seats blocked out in white in this image demonstrate how much of the stadium they would occupy if they all sat together.

What is Colour Blindness?

There are different types and severities of colour blindness. The most common types affect 1 in 12 men (1 in 200 women) and are red/green deficiencies. People can have different severities of colour blindness ranging from mild to severe conditions. If someone is red/green colour blind they can confuse any colours which contain some red or green, such as orange. The common myth that people with colour blindness only have trouble seeing a difference between red and green is simply not true.

The images in this document show normal colour vision on the left, severe (red or green) deficiency on the right. Many more colours than just reds and greens can be confused. Other common colour confusions include blues with purples and deep pinks; greens with greys/pinks/oranges/yellows/browns; and reds with black.

Problems in seeing the different colours of objects can be made worse depending upon the colour of the surface they are viewed against and the type of lighting present. An orange hockey ball can be very difficult to see on green Astroturf and a red cricket ball or a pink football can disappear against the colour of grass.



Colour Blindness and Sport

Colour blindness can have a negative effect on sports men and women and spectators of all ages. Problems can be caused by:-

- Poor kit/bib colour combinations of opposing teams
- Poor choice of kit colour compared with background surface - field, track, pitch etc
- Colour of ball, training cones, nets, poles, flags etc. against colour of playing surface
- Type of lighting – i.e. outdoor v artificial light
- Club colour schemes/websites or websites for purchasing tickets e.g. a club website where black text is used on a red background or a ticketing website where red is used to denote unavailable seating and green is used to denote available seating.
- TV coverage – long distance camera angles, inaccessible graphics e.g. cricket wagon wheels

- Venues - way-finding, colour of seating, match day programmes with colour-coded venue maps etc.
- Line markings - both indoor and outdoor surfaces e.g. red/orange/green/black lines on indoor surfaces, particularly where lines for more than one sport are marked in different colours within the same space.

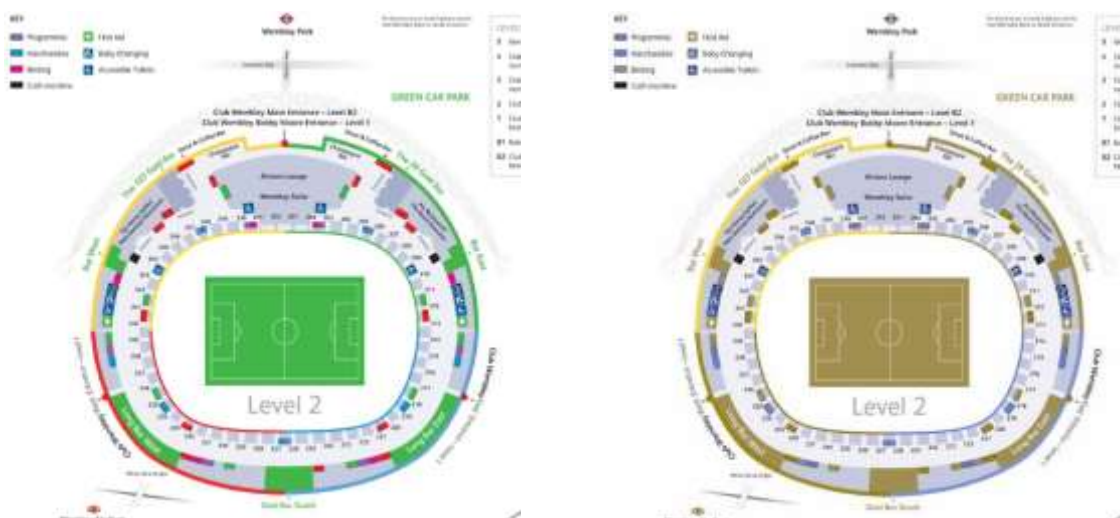
Some examples are:-

Kit clash – relevant to most sports but particularly football and rugby where kits of opposing teams can be indistinguishable in close-up and visibility problems compounded by distance shots in TV coverage. Problem combinations include red v green/orange; blue v purple/maroon; red v black (including striped kits); yellow v orange; bright green v yellow/orange; bright pink v blue; mid green v grey/silver.



Colour coded venue maps

Poor colour contrasting used for way-finding or venue maps, in match-day programmes can render information inaccessible.



Conclusion

Colour blindness is a very common condition which can have a serious impact upon the ability of affected individuals to compete in a variety of different sports at all levels. Sometimes this can be dangerous for players, for example in the case of orange hockey balls on green Astroturf.

A spectator's ability to engage with sport is also frequently impacted negatively. Continuing to ignore colour vision deficiency in sport in all disciplines and at all levels is discriminatory. More work needs to be done with sporting governing bodies to educate them about colour blindness and how to address it. More information and advice can be found at www.colourblindawareness.org