



NORMAL VISION

TACKLING COLOUR BLINDNESS IN SPORT

BEST PRACTICES HANDBOOK

COLOUR BLIND SIMULATION



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[TACBIS.EU](https://tacbis.eu)

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1. PREFACE

This handbook was collectively developed as part of the Erasmus+ Collaborative Partnerships project, Tackling Colour Blindness in Sport (TACBIS) including partners: Colour Blind Awareness, Oxford Brookes University, Randers FC and the National Football Associations of Iceland, Romania, and Portugal and the European Football for Development Network. The handbook will cover extensive research and mapping of all the best practices found surrounding the topic of Colour blindness in Sport. 3 different best practice methods have been selected as the best practices according to the criteria of relevance and impact. This best practice mapping was undertaken to provide a strong foundation and learning for TACBIS partners to collaboratively work on a new sports-based methodology designed specifically to create awareness around health.

ERASMUS + SPORT

Tackling Colour Blindness in Sport

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained there in.

This Handbook was conducted by Colour Blind Awareness, Oxford Brookes University, Randers FC, the National Football Associations of Iceland, Romania, and Portugal and European Football for Development Network.

2. INTRODUCTION

Colour Blindness – A Common Inherited Condition

Colour blindness, or colour vision deficiency, is a condition that affects a significant portion of the population. While much research has been conducted on colour blindness, there is still much to be learned about this condition. This literature review summarizes the current state of knowledge on colour blindness, including its causes, types, and impact on daily life.

The main cause of colour blindness is an inherited genetic defect that affects the cone cells in the retina, which are responsible for detecting colour (National Eye Institute, 2021). Colour blindness can also be caused by injury or damage to the eye, exposure to certain chemicals, or the aging process (National Eye Institute, 2021).

There are three main types of colour blindness: red-green colour blindness, blue-yellow colour blindness, and total colour blindness (National Eye Institute, 2021). Red-green colour blindness is the most common type of colour blindness, affecting around 99% of colour blind individuals (National Eye Institute, 2021).

Individuals with red-green colour blindness have difficulty distinguishing between red and green hues. Blue-yellow colour blindness is less common, affecting around 1% of the population (National Eye Institute, 2021). Individuals with blue-yellow colour blindness have difficulty distinguishing between blue and yellow hues. Total colour blindness is a rare condition where an individual sees the world in shades of gray (National Eye Institute, 2021).

In terms of the impact of colour blindness on daily life, research has shown that individuals with colour blindness may face significant challenges in various aspects of life, including education, employment, and daily activities (Bach, 2013). Assistive technologies, such as colour correction lenses or special software, can help individuals with colour blindness overcome some of these barriers (Bach, 2013).

In conclusion, colour blindness is a condition that affects a significant portion of the population and can present significant challenges in daily life. Further research is needed to fully understand the causes, types, and impact of colour blindness and to develop effective strategies for addressing the barriers faced by individuals with colour blindness.



Causes and Types of Colour Blindness

Colour blindness, also known as colour vision deficiency, is a condition in which an individual has difficulty distinguishing certain colours. There are several causes and types of colour blindness, each with its own unique characteristics.

The main cause of colour blindness is an inherited genetic defect that affects the cone cells in the retina, which are responsible for detecting colour (National Eye Institute, 2021). Colour blindness can also be caused by injury or damage to the eye, exposure to certain chemicals, or the aging process (National Eye Institute, 2021).

There are three main types of colour blindness: red-green colour blindness, blue-yellow colour blindness, and total colour blindness. Red-green colour blindness is the most common type of colour blindness, affecting around 99% of colour blind individuals (National Eye Institute, 2021). Individuals with red-green colour blindness have difficulty distinguishing between red and green hues. Blue-yellow colour blindness is less common, affecting around 1% of the population (National Eye Institute, 2021). Individuals with blue-yellow colour blindness have difficulty distinguishing between blue and yellow hues. Total colour blindness is a rare condition where an individual sees the world in shades of gray (National Eye Institute, 2021).

In conclusion, colour blindness is a condition that affects the ability of an individual to distinguish certain colours. It is caused by a genetic defect or other factors such as injury, exposure to chemicals, or the aging process. There are three main types of colour blindness: red-green colour blindness, blue-yellow colour blind-

Removing Barriers

Colour blindness, or colour vision deficiency, can present significant barriers to individuals in various aspects of life, including education, employment, and daily activities. The removal of these barriers is essential for improving the quality of life for individuals with colour blindness.

One way to remove these barriers is through the use of assistive technologies, such as colour correction lenses or special software that can help individuals with colour blindness distinguish colours more effectively (Bach, 2013). Additionally, the use of high-contrast colour schemes and clear labeling can help individuals with colour blindness navigate various environments, such as websites or public transportation systems (Bach,

2013).

Another way to remove barriers for individuals with colour blindness is through education and awareness-raising. Educating employers, teachers, and the general public about colour blindness and the challenges faced by individuals with this condition can help reduce stigma and promote inclusivity (Bach, 2013).

In conclusion, there are various ways to remove the barriers faced by individuals with colour blindness, including the use of assistive technologies, clear labeling and high-contrast colour schemes, and education and awareness-raising.

REMOVING BARRIERS



Colour blind Simulation

Normal Vision



3. TACKLING COLOUR BLINDNESS IN SPORT

Colour blindness is one of the world's most common inherited conditions, affecting an estimated 300+ million people worldwide. To address and raise awareness on this issue, EFDN developed the “Tackling Colour Blindness In Sport (TACBIS)” programme which will start in January 2020.

Together with our programme partners Colour Blind Awareness, Oxford Brookes University, Randers FC and the National Football Associations of Iceland, Romania, and Portugal, EFDN will investigate the prevalence of colour blindness in football (fans and players), identify barriers to progression for colour blind players and coping mechanisms employed by colour blind players. Together with our project partners we aim to raise awareness for colour blindness in sport and society and promote surroundings that are colour blind friendly.

EFDN will start an awareness campaign amongst clubs to prevent kit clashes for colour blind people and share the gathered knowledge and practical solutions in a new EFDN Practitioners Guide. We encourage all our member clubs to take first steps like, for example, to make changes on the website to improve the accessibility for colour blind people.

The issue of colour blindness in sport is much bigger than kit clashes since it concerns not only spectators but also players, coaches and various other stakeholders. Problems related to colour blindness are not

limited to elite sport, as many barriers are also present in grassroots sport. Not taking colour blindness into account can have an impact on the performance of a player or spoil the enjoyment of watching live sports.

It also has commercial implications where colour blind people turn their backs on their favourite sport in frustration – when they are unable to purchase tickets and merchandise independently or can't see sponsors' logos or advertising information. Colour blind people are not an insignificant minority. Colour blindness affects approximately 40 million people with colour blindness within the UEFA confederation area and over 300 million people worldwide are affected. In addition to the enjoyment of the match whether as a player or spectator, there are also safety issues to consider. In case of a security alert in a stadium, all spectators must be able to easily spot safety information.

The negative consequences of ignoring colour blindness don't only arise for individuals but also for clubs, associations and leagues as players affected by the condition cannot access the game properly.

Fortunately, there are organisations and resources available that provide opportunities for assisting and including those with colour blindness in sport with simple measures that, most of the time, only need a little goodwill and forward planning.

4. MAPPING BEST PRACTICES

The TACBIS project manager undertook extensive research and analysis to identify organisations, projects, and methodologies throughout Europe that use sport to promote the importance of colour blind awareness in sport.

The project manager of TACBIS undertook the following activities:

- Online desk internet research.
- Consultation via phone and email with organisations connected to TACBIS partners (e.g. football clubs, foundations, NGOs, community organisations).

5. BEST PRACTICES

Colour Blindness Accessibility Audits - for stadia

United Kingdom

Until this project was developed no organisations offered a facility for stadiums to be assessed for accessibility for people with colour blindness, despite 6% of spectators at live football events being colour blind.

This project, with the support of UEFA, allowed Colour Blind Awareness to work with UEFA host venue operators and other stakeholders to develop a comprehensive audit package for venue operators.

Approximately 6% of a football crowd will be colour blind to some degree. At a capacity match at Wembley stadium in London, for example, there will be around 5,500 spectators, 80 stewards and a further 75+ staff working in the stadium who are colour blind.

Objective:

The objective of the project was to raise awareness of the issues facing colour blind fans and employees amongst stadium managers, clubs, national associations (for football) and competition organisers and across other sports e.g. rugby and to create a structure to enable stadiums to be comprehensively audited



whilst at the same time providing advice and recommendations on how improvements can be made.

Methodology:

Colour Blind Awareness worked with UEFA's competition host venues and UEFA events teams, together with other stakeholders including the Centre for Access to Football in Europe and Healthy Stadia, to create a report to benchmark the suitability of existing stadium facilities for people with colour blindness, highlighting areas of good practice and making recommendations where improvements are necessary.

The UEFA reports were created with a dual purpose, firstly as a blueprint for improvements for the UEFA events teams to work to with the Local Organising Structure for the event itself and secondly, as a legacy document for host venue operators and clubs occupying the stadia.

Expanding its work with the English FA, Colour Blind Awareness introduced the concept of a stadium colour blindness accessibility audit for stadium operators to highlight long-overlooked issues faced by both visitors and stadium staff. The project was initially planned to commence with a comprehensive audit of Wembley Stadium for The FA, but instead began in condensed format for UEFA as an appendix to the CAFE access appraisals for the 2018 Europa League/Champions League/Super Cup finals.

The project has subsequently expanded to include audits of all UEFA host venues, including all of the EURO 2020 host venues and to allow discussions with other sports governing bodies. Other organisations have also commissioned their own audits from Colour Blind Awareness outside of the UEFA umbrella – e.g. Wembley stadium.

Stakeholder & Partners:

UEFA, The (English) FA, Centre for Access to Football in Europe, Healthy Stadia

Outcomes & Impact:

By the commencement of the TACBIS project in January 2020, Colour Blind Awareness had successfully audited and reported on 23 European stadiums.

Colour Blind Awareness was also invited to become an official Observer to the Council of Europe Standing Committee of the European Convention on Spectator Violence (T-RV) and as a result contributed to the review of the Annexures to the European Convention On Spectator Violence Events And In Particular At Football Matches, adding and amending text to ensure the 2019 updates take account of the needs of colour blind people within stadium security, safety and service policies and provisions (see link below).

Colour Blind Awareness was also invited to contribute to the Sports Ground Safety Authority 'Green' Guide to Safety at Sports Grounds, in particular the development of a specific appendix on colour blindness (Appendix C).



Colour Blindness In Football infographic animation

Colour Blind Awareness CIC

United Kingdom

Colour Blindness in Football Infographic animation is a project to raise awareness of the implications of colour blindness for football. The (English) FA, supported by UEFA commissioned Colour Blind Awareness and The Media Group to create an infographic to be shared on social media. The infographic was aimed at the general public as well as those who are directly involved in football either as participants or in supporting roles.

To raise the awareness of the implications of colour blindness for football by reaching to a large audience by means of social media. To achieve this the infographic had to be designed to be engaging and very easy for people to share.

Methodology:

Two versions of the infographic were created – a short version for social media and a slightly longer version to be used as an educational tool. In addition, it was essential that the infographic could be adapted for use in different languages with options to add both audio files and subtitles to change languages.

Colour Blind Awareness worked closely with the production company The Media Group to create an animated infographic. The Media Group created the initial designs but Colour Blind Awareness had detailed technical input to ensure (i) an authentic representation of colour blindness in the simulated 'colour blind vision' extracts and (ii) colour blind people were easily able to understand all of the information being conveyed.

In the animation, Wembley Stadium is presented in the form of an 'eye' to attract attention and to demonstrate the basic facts in a way that an audience with no prior knowledge of colour blindness would find it easy to relate to. The creative visuals used demonstrate how colour vision problems arising in the eye can directly affect enjoyment of football for millions of people.

Funding was provided via UEFA to The FA as part of the UEFA HatTrick funding programme.

The completed animation was promoted on social media channels on Colour Blind Awareness Day 2018 by UEFA, The FA and Colour Blind Awareness and widely shared by other organisations across the UEFA Confederation area.

Stakeholders:

UEFA, The (English) FA, The Media Group, Colour Blind Awareness

Outcomes & Impact:

The animated infographic was published on social media feeds on Colour Blind Awareness Day (6th September) 2018, generating 450,000+ impressions and 45,000+ follow-up posts on the English FA social media accounts alone (see Website section below).

The animation has proven to be an invaluable resource in underlining important messages about colour blindness in football and can be used in numerous ways, including in training sessions, presentations and social media posts.

In addition, the video has subsequently been adapted for use by the TACBIS project.



The FA/UEFA Colour Blindness In Football Guidance Document



This simulated image shows how some Euro 2016 kits can appear to people with colour blindness



The FA/UEFA Colour Blindness In Football Guidance Document

Colour Blind Awareness CIC

United Kingdom

Until this project was created there was no formal guidance on colour blindness and its impacts in any sports, despite the fact that most sports rely heavily on colour and that the condition affects one in 12 males and one in 200 females on average worldwide.

Working in partnership with UEFA and the English FA, Colour Blind Awareness created the first guidance document for football aimed at all those involved in the sport whether as direct participants or in other supporting roles. The guidance document provides an overview of how colour blindness can affect many aspects of football and covers issues for fans, players, coaches, employees, stadium operators and other stakeholders.

The completed document employs a substantial number of images from different football scenarios which

are also simulated into ‘colour blind vision’ to enable issues to be understood at a glance by those not personally affected with colour blindness. The guidance is available in 8 languages.

The overriding objective of the project was to create a tool to raise awareness of the implications of colour blindness in football for anyone involved in the sport. In particular it was intended for all of UEFA’s national football associations and to provide initial guidance on how to support those affected.

The main aims were to create a resource for those with the ability to effect change, whether in European competition or at grass roots, could begin to take steps to ensure

- colour-blind fans are able to clearly distinguish between competing teams, outfield players, goal-keepers and match officials in football matches at all levels of the game
- all colour-blind players and coaches can distinguish equipment and tactical and technical information to the same extent as non-colour-blind people
- information, signage and equipment at stadiums are easy for colour-blind people to make out, especially in the event of an emergency

Methodology:

The guidance was designed to engage people working at all levels of the game by including simulated images to demonstrate how people with severe colour-blindness might experience everyday football situations, together with personal impact stories from colour blind people from across the football family.

UEFA, The FA and Colour Blind Awareness promoted the Guidance across their websites and social media channels to ensure maximum impact and all three organisations continue to use the guidance document as an educational tool across different aspects of football to influence change. The document was specifically designed as introductory guidance, to cover as many issues and challenges as possible, with the intention that stakeholders could use it as a stepping-stone to develop specific factsheets/guidance for specialist top-

ics. For example, the Premier League/English Football League/the FA and Colour Blind Awareness were able to build on the content to develop several factsheets designed specifically for clubs in the English League and UEFA Coach Education used it as the base document to create a specific factsheet for coach educators. The original document was created in English and then translated into 7 further languages.

Stakeholders:

UEFA, The (English) FA, Colour Blind Awareness

Outcomes & Impact:

The creation and distribution of the first comprehensive guidance on colour blindness in football. This document has also been a useful tool in persuading other sports to develop their own guidance e.g. rugby union, lawn tennis.

The promotion of the guidance by Premier League and English Football League clubs throughout the autumn of 2017, the publication of articles on the English FA and UEFA websites plus a feature in UEFA Direct in January 2018 and coverage across UEFA and the FA social media channels.

The use of the document as an educational tool in development of club training workshops tailored to different aspects of football, including coaching, marketing/publications, stadium safety and security, and testing these workshops with clubs and other stakeholders.



6. CONCLUSION

The 3 best practices and learnings from different colour blind awareness organisations have given the Tackling Colour Blindness in Sport project partners with a strong foundation to collaboratively work on a new methodology designed to create and raise awareness around the topic of a highly inherited condition. Project partners and sports clubs around Europe and the world will endeavour to incorporate these key findings into their

projects and programmes, to ensure a more inclusive society for colour blind people. EFDN together with Colour Blind Awareness, Oxford Brookes University, Randers FC and the National Football Associations of Iceland, Romania, and Portugal will build up the TACBIS programme across Europe completing the project in 2022.



8. RESOURCES

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THE PARTNERS



COLOUR BLIND AWARENESS

T +44 (0)1844 396336
E info@colourblindawareness.org

EFDN

T +31 76 369 05 61
E info@efdn.org
A Takkebijsters 9
4817 BL Breda
The Netherlands



T @TACBISproject
F /TACBIS

T @efdn_tweets
F /efdn.org

TACBIS.EU