

# UNDERSTANDING, PROMOTING & PROTECTING BRAIN HEALTH IN ENGLISH FOOTBALL

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The FA, Premier League, EFL and PFA  
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# OUR BRAIN HEALTH APPROACH

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Football is an incredible game which has the power to unite people and bring communities together. In England, we have vibrant elite and grassroots competitions that provide enjoyment and participation to millions of people week in week out. Here at The FA, Premier League, EFL and PFA, we are proud to be part of the game and support those who play it.

Playing football provides incredible health benefits and can help prevent some of the biggest killers of our time such as obesity, heart disease, cancer and stroke. However, we also know that research has been conducted which highlights an increased risk of neurodegenerative conditions in ex-professional footballers.

In 2019, The PFA and FA funded FIELD study at Glasgow University, showed that Scottish professional footballers born between 1900 and 1976, were more likely to die of degenerative brain disease than the general population. The FIELD study has continued since those interim findings and will come to a close in early 2022. As this study finishes, we thought it was the right time to show you our current work, including several other parallel research streams, and our future plans for understanding, promoting and protecting brain health in English football.

This joint summary explains the work we are currently doing in this area, but also provides you with the opportunity to help shape what's to come. We will hold consultation sessions with players, ex-players, families, medical experts and other stakeholders and will publish an updated approach ahead of the 2022/23 season. In the meantime, all the work highlighted in this consultation will continue in parallel.



# OUR WORKSTREAMS

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## 1. Research

Understanding the possible causes of neurodegenerative conditions in ex-footballers and working across the game to reduce the risk of brain injury

## 2. Education and Awareness

Educating the game from the professional game to grassroots

## 3. Supporting players

Providing the best medical approach for each part of the game today along with various support mechanisms for ex-professional players with neurodegenerative conditions



# 1. RESEARCH

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## **A. Understanding the effects in ex-players through live cohort studies**

The Glasgow University study (FIELD) used medical records to understand the risk of dementia in ex-professional footballers. We want to understand what this actually means in terms of neurocognitive capacity in ex-professional footballers and how it compares to the general population by comparing ex-footballers and a control population.

## **I) Nottingham FOCUS study**

The FA and PFA have provided funding for Nottingham University's FOCUS study since January 2019 which analyses concussion and heading history against neurocognitive performance in ex-professional footballers against a control population. This will allow us to better understand the risk factors that could have caused the results in the FIELD study. The initial results are due in 2022.

## **II) London School of Hygiene and Tropical Medicine, HEADING Study**

The FA and PFA have been supporting the LSHTM's cross-sectional study looking for the early signs of impaired neurocognition in ex-professional players and will look to understand if players that report that they were concussed or headed the ball more frequently exhibit different levels of impairment. The study is funded by the Drake Foundation and is due to report out in Spring 2022.

## **III) International Concussion and Head Injury Research Foundation (ICHIRF)**

The PFA has been funding and supporting the International Concussion and Head Injury Research Foundation (ICHIRF) study since 2017 which involves research across a number of sports. Former PFA members, aged over 50 years of age, are taking part in longitudinal screening involving MRI scanning, blood tests and physical examination by neurology and neuropsychology consultants. The study has been unfortunately put on hold due to Covid-19, but will recommence soon.



## **B. Understanding mid-life deterioration and potential interventions to reduce decline**

There are numerous risk factors associated with neurocognitive disease. By monitoring players' brain health in mid-life and taking an holistic approach we hope to be able to better understand any deterioration and see whether interventions can be put in place to help reduce the progression of degenerative brain disease.

### **I) Glasgow BrainHOPE study- cohort study**

The FA and FIFA are supporting a new study starting in 2022 led by the University of Glasgow. The BrainHOPE study provides an analysis of mid-life brain health in ex-professional footballers to understand how their brains are aging and explore potential interventions which could help reduce risk or speed of developing dementia. This £1.2m investment by football is scheduled to run until 2026.

### **II) Advanced BRAIN clinic**

The FA is also partnering with the RFU and Premiership Rugby to expand the Advanced BRAIN Health Clinic, a new specialist clinical service and associated research programme which currently supports retired rugby players. The expansion to retired footballers will start in 2022. This will take a proactive approach to the assessment and medical management of individual retired elite male and female rugby and football players. The clinic will be run by world-leading experts from Imperial College London (ICL), University College London (UCL) and the Institute of Sport, Exercise and Health (ISEH).

The study will establish a linked research programme that will provide novel insights into the risk, causes and management of brain problems occurring following participation in elite rugby and football. The football investment in this study is £2.4m and it is scheduled to run until at least 2028.

## **C. Understanding brain health in former players**

Whilst there is much research being carried out domestically, very little is known about brain health in players globally. We will continue to work with UEFA and FIFA to explore how the FIELD study could be replicated in other countries and welcome insight from academics on any potential studies.

## **D. Understanding the forces historically in the game**

The FA will start work with the Sports Technology Institute at Loughborough University in January 2022 to help better understand the historic forces in the game with respect to a player's head. This research will build on previous work the Institute has carried out on forces and velocities and will help us to understand whether players today are subject to similar forces when heading the ball compared to the past. Results will be made available throughout the course of the three-year programme.



## **E. Understanding the forces in today's game**

Throughout the 2021/22 season, the Premier League has funded research being carried out in a selection of Premier League, Women's Super League, (WSL) and EFL clubs. Instrumented mouthguards are being used to analyse the forces involved in heading during training. This builds on a preliminary study in 2020/21 which identified forces experienced in different scenarios.

Further research will examine the implications of heading in relation to neck strength and neuropsychological assessments. The first phase of this research will be completed in the 2021/22 season and then the next steps will be reviewed. Research will continue during the following two seasons.

## **F. Prevalence of concussion in the women's game**

Some previous studies have shown that concussion is recorded more frequently in women's sport than in men's sport. Nottingham Trent University has been working with the WSL and Women's Championship (WC) on a three-year injury and illness audit which will inform medics and scientists of prevalence of injuries in order to focus on prevention. Data will be published following collation of the 2021/22 season findings.

## **G. Quantification of heading incidence**

We have established baseline figures for heading in match play in England from examining match footage in the professional game over an extended period and attending grassroots games at steps 7 and below during the 2021/22 season.

We are aware that because methodologies are different it is difficult to compare results, but it appears that heading in the grassroots game occurs around half as often as in the professional game (approximately 3 headers per player per match). There are also variations both positionally and across the different professional leagues with the WSL and then the Premier League having the lowest volumes of heading. We are aware that this analysis is indicative and we will consider whether further investigation is needed in this area.

## **H. Validating an objective diagnostic tool for concussion in football**

The Premier League is funding an independent academic study to validate salivary biomarkers as an objective diagnostic tool for concussion in football. The biomarkers are obtained via a salivary swab; all players will have one performed at baseline, then at three further timepoints surrounding a possible concussive injury. For comparative purposes, swabs will also be taken at the same timepoints from an injury free player and another player who has suffered a musculoskeletal injury in the same match or training session.

The first phase of this research will be carried out over a three year period, with interim and final results reviewed jointly by the football stakeholders to inform future concussion protocols.



## **I. Concussion substitutes trial**

For the 2021/22 season the Premier League, EFL, WSL, WC and FA Cup are all implementing concussion substitutes trials approved by IFAB, the rule setting body of FIFA. Concussion subs have now also been introduced into U18 and U23 Premier League, the EFL Youth Alliance and Central League. IFAB has only allowed the use of permanent concussion substitutes during matches rather than temporary substitutes.

The point of the trials is to check whether this system works and we are open to exploring other approaches. It is therefore hugely important that English football not only takes part in the concussion substitutes pilot, but provides robust analysis of whether it works. The football stakeholders will jointly review the results of concussion substitution pilots before discussing at the PGMOL Technical Group and submitting recommendations to IFAB at the end of the 2021/22 season.

## **J. Understanding Chronic Traumatic Encephalopathy**

Chronic Traumatic Encephalopathy (CTE) is a specific form of degenerative brain disease linked to traumatic brain injury and first noticed in boxers. The only way CTE can currently be diagnosed is via post-mortem brain analysis. At present the limited number of assessments mean the diagnosis and prevalence of CTE is unknown. Whilst progress on neuropsychological diagnostic criteria during life is being made they are at an early stage. To help increase the understanding and in-life diagnosis of CTE and quantify precedence, long-term assessment of brain health combined with brain donation is essential.

In the coming months we will be reviewing how best to encourage ex-players to donate their brains and whether a formal partnership with a research institution or institutions would be of benefit. We would welcome expert opinion on how best to support this area.

## **K. Understanding wider dementia research and nesting football cohorts into major studies**

Neurodegenerative risk is complex and the volume of research significant- the football specific research is incredibly small compared to the large body of work in the general field. Football needs to better understand research going on across the neurodegenerative spectrum and try to understand how wider research can be applied in a football setting. We would welcome ideas on how best to do this or nest footballers into other studies. We will be examining options over the coming months.

## **L. Sharing knowledge across the sector**

We will continue to share knowledge across the sector, for example through the Drake Foundation's Head Impact Research Symposium, but would welcome additional suggestions for better sharing of research in sport.

**We would welcome your thoughts on these research programmes or indeed whether you have proposals for additional research that could support our analysis.**





## 2. EDUCATION AND AWARENESS

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### **A. Ensuring robust and up to date guidelines for concussion and heading in the Professional game**

Heading guidance for the professional game has been developed following multiple studies that were undertaken on behalf of a subgroup of the Professional Football Negotiating and Consultative Committee (PFNCC).

The professional game will continue to update guidelines for heading, head injuries and concussion as new evidence or approaches emerge. The Premier League is funding a three-year research programme which will provide collated evidence to understand the risk factors for players and use this to evolve concussion and return to play protocols, with enhanced auditing and governance in place to monitor players in a robust and appropriate way. The research being carried out will inform new protocols; for example the use of video technology in identifying concussion.

### **B. Improving brain health awareness in the professional game**

The football bodies are reviewing the understanding and knowledge of brain health in the professional game and developing an education and awareness programme for delivery in 2022 for players, coaches, medics and others. While coaches, medics and many other positions receive education as part of their

training, we aim to raise awareness of the heading guidance, the dangers of concussion and the importance of brain health across the game. This will look to complement FIFPRO and European League's concussion project.

### **C. Ensuring robust and up to date guidelines for concussion and heading in the Grassroots game**

Following the publication of the FIELD study, The FA's independently led Research Task Force recommended three actions. Firstly, to continue research into understanding the cause of increased prevalence of neurodegenerative disease in former players in the study. Secondly, in parallel, to put in place precautionary measures to ensure medical best practice was followed with respect to concussion and, thirdly, to reduce unnecessary exposure to head impacts. Grassroots football's approach to head injuries and concussion follows these recommendations to ensure clubs are best placed to deal with head injuries and concussion and to limit unnecessary heading in training. FA Education will refresh Concussion and Heading Guidelines module every 2-3 years or as necessary and use best practice and new research when doing so.





#### **D. Improving concussion awareness in grassroots football**

The FA is creating an awareness campaign for the grassroots game, focusing on players, coaches and clubs. The campaign will be launched later in the 2021/22 season and will promote awareness based on clear, simple messaging both on social media and on-site at clubs. It will also promote the use of The FA's free e-learning module and detailed guidelines on concussion.

#### **E. Improving grassroots clubs' knowledge of concussion**

The FA will be reviewing clubs' understanding of concussion with a view to a specific approach to concussion being a required element of England accredited clubs. We will review this over the remainder of the 2021/22 season.

#### **F. Work with Government and other sports to create a cross-sport approach to grassroots concussion**

We support proposals to create a coordinated cross-sport approach to concussion guidance across grassroots sport which is something that has been seen in Scotland. The FA is part of the Government's cross-sport concussion group and will continue to liaise with Government and other stakeholders in considering a cross-sport approach for England.

#### **G. Dementia friendly clubs**

The Alzheimer's Society UK is working with the Premier League to support its clubs to be Dementia Friendly. With the support of funding from the Premier League, PFA and other organisations there is a range of activities on offer for those with dementia. Building on this work the Premier League and ASUK will provide guidance for clubs wishing to improve their offering, looking at stadium accessibility; club systems; workforce development; community activity; and player engagement.

This work will be incorporated into the latest iteration of the Premier League's Accessible Stadia Guide and clubs' work will contribute to their Premier League Equality, Diversity and Inclusion Standard accreditation. ASUK will use this preliminary work to develop pan-sport guidance, and support for the grassroots game.

**We would welcome your thoughts on improving awareness of head injuries across the game and other areas in which we should work.**



# 3. SUPPORTING PLAYERS

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## 1. CURRENT PLAYERS

### A. Annual professional player baseline testing

Baseline neurocognitive function testing is required across the professional game in the Premier League, EFL, WSL and WC using either SCAT5 or ImPACT for baseline and follow up testing. Data collected at the start of the season is then used to compare neurocognitive performance following a possible concussive injury, helping to inform the diagnostic decision-making process. Monitoring subsequent results on repeat assessment can also help the medical staff to determine whether a player is suitable to make a graduated return to play.

### B. Injury surveillance database

In order to best understand the prevalence of injuries in football- including head injuries and concussion- the Premier League, EFL, WSL and WC all require their clubs to provide data on injuries and illness. This helps inform medics and scientists of the prevalence of injuries in order to focus on prevention and the football authorities will review collective data on head injuries and concussion to help inform interventions and protocols.

### C. Medical provision in the English professional game

All matches across the Premier League, EFL, WSL and WC are required to have doctors or physios trained to the highest level of football's medical qualifications- The FA's Level 5 Advanced Trauma Medical Management in Football (ATMMiF). This is specifically designed for doctors and physiotherapists responsible for the pre-hospital management of footballers.

All doctors and physios are highly trained to diagnose and manage serious injuries- including head injuries and concussions- to ensure players have the medical support required when they take to the field. The Premier League also employs independent tunnel doctors at all games as well as a full-time medical team supporting each club. Football is examining whether additional support is needed for doctors and physios in the game and in particular the threshold for removing players from the game after a head injury.



## **D. Medical provision in the grassroots game**

While individual coaches will have taken concussion modules as part of their training, The FA is reviewing the welfare of players across the semi-professional and grassroots games and how this can be best supported. From the 2022/3 season it will be mandatory from Steps 1 to 6 for a club to have specific trained personnel at matches, which will vary depending on the level the Club is playing at. Step 1 will mirror requirements in the EFL League 2 and require personnel trained to Level 5 on The FA Medical Pathway. Step 2 will require personnel trained to Level 4; Steps 3 and 4 to Level 3; and Steps 5 and 6 to Level 2.

Medical provision in Tiers 3 and below in the women's game is also currently being reviewed as is best practice at Step 7 and below in the men's game where coaches will have taken Level 1 of the FA Medical Pathway as part of their basic training. The FA is reviewing grassroots medical training for implementation during the 2022/23 season.

## **E. Para Football**

A Position Statement on concussion in all forms of Para football has been published in the British Journal of Sports Medicine, marking a major milestone in the care of management for athletes. IBSA (International Blind Sports Association) has introduced a new policy to protect players with potential concussion at all official tournaments utilising temporary substitutions.

# **2. EX-PLAYERS**

## **A. Individual assessments and triage**

The PFA's Family Support Advisors follow up referrals to the PFA to triage families of PFA members living with dementia and other neurodegenerative disease. They will find out about the history of the problems experienced, assess their needs and signpost the family to the PFA's support services. They will then keep in touch with the family to assess their needs and deal with any issues.

## **B. Helping ex-players and families access support**

The PFA's independent benefits advisor will help families with knowledge of what state benefits are available to them and help them with the completion of application forms and guide them in any appeals that may be required. The support team can advise on contacting Adult Social Care (ASC) and having a full Occupational Therapist assessment regarding what can be provided by the state. PFA advisors can contact ASC and negotiate on the family's behalf.

Assistance is available from The PFA's support team in finding the right care home and negotiating over the costs.



### **C. Living with dementia and forward planning**

The PFA Support Team provide courses for families of PFA members living with dementia and other neurocognitive disease which are aimed at informing and empowering carers at making the best decisions for themselves and the person they care for. These courses include information on diagnosis, Lasting Power of Attorney, wills, dealing with ASC, care home considerations, end of life care, amongst many other subjects relating to living with dementia.

### **D. Partnerships with charities and support groups**

The PFA has partnerships with Sporting Memories, the Jeff Astle Foundation and Clubs' Former Player Associations which provide a variety of additional support mechanisms. This includes running the PFA Sporting Memories Club for former players and their families. These sessions are conducted remotely every week for families to rekindle old memories and reminisce on their football careers and experiences. This has been able to give families a little respite and laughter away from the everyday difficulties of living with dementia and has proven very successful.

### **E. Providing clinical support services to players**

The most significant part of the Advanced Brain Clinic study highlighted in the research section, is actually the new specialist clinical service that is being provided to ex-professional footballers as part of the study. The support service will provide direct support to ex-players with concerns and provide a diagnosis and/or reassurance about any on-going symptoms with the aim of identifying treatable causes of cognitive and other impairments and initiate treatments.

This will also help develop and test the deployment of a 'brain health' intervention that could be used outside a specialist clinic setting; but the primary focus is direct patient support. Football will fund the research and pay for the direct clinical services initially for 200 footballers over a six-year period, but if demand is higher we will look to find additional capacity from the Clinic.

### **F. Financial support for ex-professional players**

Grants are available from the PFA Charity towards respite care, care in the home and home adaptations. These grants would be available once the PFA has supported the family through the options outlined above. If you have concerns and are an ex-professional footballer who is a PFA member or part of their family, please get in touch with the PFA to discuss your worries.

The PFA is committed to exploring ways in which its members can be best supported. Designing a suitable support system, including a new Care Fund, will need increased understanding of the number of former players with dementia and other neurodegenerative diseases. The PFA will lead a former player engagement survey with former players, their families and charities in the field and work with the football partners to design an appropriate support mechanism for former professional footballers.

**We would welcome your thoughts on additional ways we could improve our approach for current and ex-professional footballers.**



# YOUR VIEWS

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What you have read is a summary of The FA, Premier League, EFL and PFA's work to understand, promote and protect brain health.

We would welcome your views on what other research we could do, how we could better raise awareness and how we can best help players and ex-players.

If you are a PFA member or part of their family who has concerns about brain health, please contact the PFA on [dementia@thepfa.com](mailto:dementia@thepfa.com).

If you would like to provide us with your thoughts as part of our consultation, please contact [brainhealth@thefa.com](mailto:brainhealth@thefa.com) before the end of January 2022. Any submissions will be shared by The FA with the PL, EFL and PFA for the purposes of this consultation.

