

Written evidence submitted by the Football Association

Digital, Culture, Media and Sport Committee

Inquiry into Concussion in Sport:

Evidence from The FA

1. The Football Association (FA) is the not-for-profit national governing body of football in England, which in recent years has put more than £180m back into the game annually. It grows participation, promotes diversity and regulates the sport for everyone to enjoy.
2. 13.5 million players of all ages, approximately 400,000 volunteers, over 200,000 coaches and over 27,000 qualified referees help The FA keep the grassroots game going.
3. The FA runs 28 England teams across men's, women's, youth and disability football - utilising the world-class facilities of Wembley Stadium and St George's Park. It has oversight of football at every level and works to ensure that the 13.5 million people who play football in England have a positive and safe experience of doing so.
4. The FA welcomes the opportunity to provide evidence to the Digital, Culture, Media and Sport Select Committee on Concussion in Sport.

SECTION 1: CONCUSSION IN FOOTBALL

5. Concussion in football is not frequent. Where a professional men's rugby union team could expect one concussion in every match they play, a professional football team would expect one or two per season.
6. Nevertheless, it is vital that concussion is managed appropriately whenever it occurs. The FA published its Concussion Guidelines in 2015 and reviews and updates them as required based on any recommendations from the global Concussion in Sport Consensus Group.
7. Within FA guidance, elite and non-elite football is distinct, but it is necessary for both pathways to align because, within the 100,000 clubs affiliated to the FA, there are many which sit between professional and amateur. The guidelines therefore cover all the types of clubs which exist within the game.
8. The FA cross-checks its guidance against other sports, including the RFU guidelines, to ensure that at school and grassroots level, if someone plays rugby one day and football the next, the advice is completely congruent. Guidelines in other sports are also congruent, but are less detailed than those of The FA and RFU.

9. The FA's guidelines are the most stringent in world football and involve a specific graded return to play which means that even if someone feels well immediately, they would not be able to return to match play until a week after their injury. If symptoms remain, they must not embark on the return to play pathway until these are resolved; thus the 6 days' rest is an absolute minimum and only after medical clearance. For non-elite players and players under 18, the rules are more conservative and the return to play is longer.
10. The FA guidelines have been mandated by the Premier League and EFL for all its clubs.
11. To support the uptake of the FA concussion guidelines, the following supplementary actions are in place:
 - There is an online [e-learning module](#) for coaches, teachers, parents and players, which is free to access on the FA website
 - There is an [educational video](#) which has been shown to players and coaches at the pre-season club visit, which FA representatives make to all professional clubs and is free to access on the FA website
 - The guidelines mandate education with regards to concussion as one of the pre-requisites for managing players through the 'elite' concussion management pathway
 - Treatment of concussion, according to the guidelines, is included as part of all FA pitchside medical care courses. These courses are mandatory in the professional leagues, so all pitchside medical staff will have received training in concussion management. The course has to be refreshed every three years.
 - Coaching courses have a mandatory first aid course as part of the curriculum. Concussion management via the concussion guidelines is part of every first aid course. The course has to be refreshed every 3 years.
 - In all Premier League matches, as well as the club medical staff, there is a 'Tunnel' Doctor present. This is a third person who is able to support the team doctors and feedback observations on live video footage of possible concussive injuries to help the medical staff make decisions on the pitch.

SECTION 2: THE 2016 CALL FOR RESEARCH

12. Since the death of Jeff Astle in 2002 and his further post-mortem in 2014, there have been suggestions that repeatedly heading the ball- particularly the old leather ball which studies have shown was 40% heavier when wet- may be linked to dementia in later life.
13. It is known that traumatic brain injury, including concussion can increase the chances of developing dementia in old age. Some have postulated that smaller repeated 'subconcussive' head impacts might also have the same effect over time.
14. In earlier years, The FA and Professional Footballers Association (PFA) collaborated on a piece of research which aimed to answer this question. The study took 50 young players who were in the England youth team and therefore expected to progress into professional football. They were matched with controls who didn't play football and all had a brain scan. The study design was to

follow them up after 5 and 10 years, but ultimately it was hard to draw conclusions from the study as very few of the players had long term careers in professional football, which would have been hard to predict at the start of the study.

15. The results of the study were eventually released covering just five years with a smaller population of players. It concluded that the players had not had any detrimental effects from playing football. However, this should be considered inconclusive because even if someone is going to develop dementia later in life, they are still likely to have a normal brain scan in their early adult life.
16. In 2016 The FA and PFA carried out a Call for Research to consult widely to ensure a more satisfactory and conclusive result. We launched a Call for Research with one specific research question: "Is Dementia more common in Former Professional Footballers (FPF) than in the normal population?"
17. It was clear that if the answer was yes, further studies would be needed, but if the answer was no, it would be possible to put to rest anxieties about the risks of dementia in football.
18. The FA's independently chaired Expert Panel on Head Injury and Concussion, which was created first of all to deliver the concussion guidelines, set the parameters for research and assessed the applications. They agreed unanimously that the FIELD study, led by Dr Willie Stewart at the University of Glasgow was the best application. It was not the most expensive study proposed, but it was the most effective at answering the research question.
19. The overriding benefit of the FIELD study was that it had access to the newly digitised Scottish NHS database and an historic database of Scottish Professional footballers. The fact that this database was newly created and could be matched against the historic footballer database meant this study could not have been done anywhere else in the World, nor at an earlier time than it was.
20. The FA and PFA also decided to fund a further study, the FOCUS study led by Prof Weiya Xang at the University of Nottingham. This study is currently looking at Former Professional Footballers over the age of 50 years old and assessing their neurocognitive (brain) function.
21. The Call for Research was developed in close consultation with the chief scientific adviser for the Drake Foundation, a charity specialising in funding and supporting research into concussion in sport. As a result, a third study, the HEADING study led by the London School of Hygiene and Tropical Medicine was highlighted and funded by the Drake Foundation.

SECTION 3: RESULTS OF THE FIELD STUDY

22. One of the advantages of the FIELD study compared to other studies is that because it uses pre-existing medical records which have been recently digitised, there is no recruitment of subjects required and it is therefore quick to run.

23. The FIELD study reported its findings in September 2019 and was published in the New England Journal of Medicine, one of the most prestigious medical journals in the world.

24. What the FIELD study tells us:

- The study matched former Scottish professional footballers with control males of the same age and socioeconomic status and compared the cause of death on their death certificates
- The group studied were born between 1900 and 1976 – almost all players in this era would have played with the old leather ball which was phased out in the mid 1980s
- The footballers on average lived 3 years longer than the non-footballers
- As might be expected due to the health benefits of exercise, the former professional footballers also had less heart disease, lung disease and cancer
- The footballers when they did die were 3 times more likely to die of neurodegenerative disease (a group of conditions including dementia)
- Although dementia was more common in the footballers, they did not develop dementia any earlier than the control population

25. What the FIELD study doesn't tell us:

- The FIELD study cannot say what the cause of the increase in neurodegenerative disease was
- The FIELD study cannot predict what the risk to footballers is currently, particularly because the ball that is now used is a synthetic ball which does not gain weight when wet
- The FIELD study cannot tell us whether heading or concussion is a risk factor for dementia in footballers

26. Why we need to know more:

- Until we know whether heading or concussion (or something else) was the cause of the increase in dementia, we cannot be sure whether some of the interim measures we are taking (like changes to concussion management and heading training) are going to be effective in protecting players.
- Until we have a better understanding of whether heading or concussion (or something else) was the cause of the increase and whether there is any change to the results with a more modern ball or style of play, we can't reliably inform current players what their risk is. It is not acceptable to just assume that a lighter ball necessarily results in less force to the head during heading or that playing the ball on the ground more, decreases the dementia risk automatically.

SECTION 4: AFTER THE FIELD STUDY

27. The FIELD study was published in September 2019 and The FA put in place a Research Task Force made up of external experts in concussion, dementia, epidemiology and football medicine, as well as doctors with experience in Rugby Union and American football (NFL).

28. They recommended that the FA should follow a 3-stranded plan:

1. Conduct further research to understand the cause of the finding in the FIELD study, including looking wider at the effects of football in female footballers and in the 'grassroots' game.
2. Whilst it was not possible to say that poorly managed concussion was a cause of the dementia found in the study it is well known that during the period that the footballers in the FIELD study were playing, management of concussion was poor. Concussed players were encouraged to continue playing and substitutes were not introduced to the game until 1965. It was agreed that all possible measures to improve concussion management pitchside should be taken, including concussion substitutes.
3. Whilst it was not possible to say that heading was a cause of the dementia found in the study, it was agreed that measures to reduce overall exposure to heading should be adopted without compromising technique. The group acknowledged that while heading remains part of the game, it is necessary to rehearse the movements that allow controlled heading technique; but that this should be limited.

29. The last two points were agreed because it was accepted that it may take some time for research to show the cause of the increased dementia in footballers, but given that heading and concussion were two clear possibilities, it would be better to act now rather than wait for more definitive research.

30. In Feb 2020, The FA brought out heading guidelines for youth football. The guidance (some of the most stringent in the world) stated that children under the age of 12 should no longer head the ball in training. Research shows that at this age in match play, children head the ball on average less than once a match, so there is good reason to limit training in this age. The guidelines allow a gradual increase over the older ages, starting with 5 headers once a month until at the oldest level, 10 headers once a week is the maximum allowed.

31. Given that it is beneficial for children to start to make decisions about how to play the ball in the air for when they are older, it was considered more appropriate to allow heading in the game given that levels are so low.

32. In Jan 2020, The FA and Premier League collaborated to put together documents to take to a meeting of IFAB (the world rule-making body of football) to suggest a model for developing concussion substitutes in the game. This was taken forward and developed by IFAB over the following months and a decision was made by IFAB to launch a trial of a permanent concussion substitute in any competition willing to operationalise this

33. In June 2020, the Research Task Force met to discuss the best way to progress the FA's Proposed Call for Research in light of the developing Covid19 pandemic. The group advised the FA that should postpone its intended call for research while academic institutions were adjusting and responding to new demands and instead consider funding the FIELD study for a further year.

34. In December 2020, IFAB circulated a protocol for a pilot study into concussion substitutes in football. Within weeks, the Premier League, the Women's Super League and The FA Cup had all

agreed to implement the substitutes protocol, in the middle of a season and despite Covid protocols. The pilot is ongoing in these leagues with an expectation that it will be implemented in the English Football League at the start of the 2021 /22 season. Only 4 other countries across the world have adopted the protocol.

35. The FIELD study is still ongoing and being funded by The FA and PFA. It continues to examine a variety of different areas such as positional differences and effect of career length.

SECTION 5: CURRENT STATE OF PLAY AND FUTURE PLANS

36. The FOCUS study, which was the second study funded by The FA and PFA, is ongoing. It has been delayed by Covid because the study relies on face-to-face assessments of former professional players. However, it is moving forward now with online assessments and is due to report at the end of 2021.
37. The HEADING study is also ongoing and was due to report at the end of 2021. It has struggled with the recruitment of former professional players and the Research Task Force has highlighted the lack of numbers of former players participating in studies as a major risk in commissioning any further research which might dilute the access to players. The FA launched publicity highlighting the FOCUS, HEADING and SCORES (as led by fellow panel member Dr Michael Grey) projects in January 2021, putting forward Gareth Southgate who had just turned 50 to take part in the HEADING study to try and increase the profile of the studies.
38. The Call for Research (highlighted in point 1 of the expert panels findings) is currently out now with a closing date for applications of April 2021. This has been delayed due to the pandemic however we are on track for the selected project to commence at the start of the 2021/22 academic year. The specific research question is "What is the cause of the observed increased risk of death from neurodegenerative disorders in former professional footballers found in the FIELD study?" Researchers are encouraged to address issues relating to the women's game as well as the 'grassroots' game.
39. It should be noted that there is no research budget limit associated with the Call for Research, with The FA wanting to fund the study which best answers the research question. This was also the case when the FIELD study was chosen from the previous call for research too. This means that The FA has no fixed budget line for this area of work, although over £1.1m has been spent in this area over the last five years having funded the top two research studies recommended by the independently chaired Research Task Force- specifically the FIELD and FOCUS studies. It should also be noted that this is not the final investment from football which would include additional spend by the PFA and Premier League.

40. It is important to note that the main limiting factors in effective research are not financial – they are in fact:
- recruitment of former professional footballers
 - limitations of existing databases
 - lack of sufficiently developed technology
41. Given research into this topic predominantly requires a longitudinal approach, as time elapses, we are slowly able to put in place better processes to mitigate some of the challenges e.g. injury surveillance in the modern game will enable benchmarking to take place.
42. As well as the funded studies, The FA uses its relationships with other institutions to support research projects outside of the ones that we are funding. These include:
- Liverpool Hope University – current study into effectiveness of Youth Heading Guidance – provided academic support and access to FA club database
 - Queen Mary University London – study into referees understanding of concussion guidelines - provided academic support and access to our referees’ databases
 - The FA launched publicity highlighting the FOCUS, HEADING and SCORES projects in January 2021, putting forward Gareth Southgate who had just turned 50 to take part in the HEADING study to increase the profile of the studies and drive recruitment
 - Dr Charlotte Cowie sits on the independent oversight committee for the HEADING study and on the advisory panel for the Drake Football Study
43. The FA also uses its status as a large sporting national governing body to engage with eminent experts in the field of concussion research, dementia research, epidemiology and the implementation of technical changes in contact sports to form its Research Task Force.
44. Recently, the medical advisers to UEFA and FIFA have joined our Research Task Force as part of the steering committee for the research. This reinforces the fact that England has been world leading on this topic and we are delighted that the wider football family are now engaging so that we can ensure a joined-up approach.
45. The PFA and Premier League can provide more information on the specific work they are doing. The PFA is focussing on player care and we know that Dawn Astle has recently started working with them to help shape the support that they give to former professional footballers with dementia. We also continue to have dialogue with Dawn Astle and her family. Their influence has been enormous in galvanising change and we value their input.
46. The Premier League is focussing its research on mitigation and has just launched its own action plan which includes analysis of forces during heading in training following a successful similar analysis in rugby using mouth shields which measure forces to the head.
47. Linked with the above point a further joint piece of work from The FA, Premier League, English Football League, WSL and PFA is a collaborative working group to agree heading guidelines for

the professional and amateur adult game in preparation for the start of the 2021/22 season with the aim to reduce the number of headers in training.

48. We are also working on a joint injury surveillance register which will allow us to better collate data across the men's and women's game. One outcome of this will be to better understand the relative likelihood of concussion in the men's and women's game. We are aware of research suggesting concussion is more prevalent in the women's game, but also of other research suggesting female athletes are more likely to report concussion. Regardless of incidence, it is important that concussion is treated with the utmost respect by every athlete and treated according to the appropriate guidelines.
49. A date has provisionally been set in Dec 2021 for the 5th Annual Concussion Research Symposium which is a collaborative conference run by the FA, The RFU, The ECB, the British Horseracing Authority and the Drake Foundation. There is an invited audience of around 100 prominent researchers in the area of concussion, dementia, and brain injury. It has been highly prized by participants and provides an opportunity for researchers to share ideas and progress in the field of research into sports concussion.

SECTION 6: THE ROLE OF GOVERNMENT AND OTHER SECTORS

50. The vast majority of people suffering concussion through participation in sport will pass through the NHS and our experience of this is that there is not widespread knowledge of the management of concussion in sport and the importance of things such as a graduated return to play or ensuring the absence of symptoms before restarting training. Education and support for medical professionals dealing with this should be prioritised.
51. If a person plays football one day, hockey another, rugby another and goes horse-riding another, concussion should be managed consistently and to a high standard wherever it occurs. Agreed high level concussion guidelines produced centrally by government and used consistently across sports and in schools and colleges, as happens in Scotland, would help to achieve this.
52. If a former professional footballer develops dementia, it is impossible to tell whether that is a direct result of playing football or whether they would have developed dementia anyway. It is important that all dementia is treated with care and respect regardless of cause. The approach to supporting former professional footballers should be 'joined up' with the government's overall approach to dementia care. The MPs in the Select Committee meeting on the 23rd March 2021 commented that dementia in football is an 'industrial disease'. However, dementia is not recognised by the HSE as an industrial disease in footballers.
53. One of the primary issues with football-related dementia research is that it suffers from small participant numbers. If government research is taking place into the causes of dementia, a 'nested' study of footballers within that would be not only useful to football but could give some interesting insights into the causes of dementia in the wider population.

54. In 2002, a group of Sport and Exercise Medicine doctors, including Mr Peter Hamlyn the current independent chair of the FA's Research Task Force, submitted a document to government called 'Improving Safety in Sport' which highlighted some of the issues relating to the management of concussion in sport. MPs may wish to refer back to this document to assess whether progress has been made.

55. Should any members of the Committee wish to discuss our work further, we, and in particular our Chief Medical Officer, Dr. Charlotte Cowie, would be very happy to do so.