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## Original Research

# Effect of a national programme of men's health delivered in English Premier League football clubs

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## SUMMARY

**Objectives:** To investigate the impact of a national programme of men's health delivered in/ by English Premier League (EPL) football clubs on health profiles.

**Study design:** Health promotion interventions were delivered to male supporters with heightened health risks, and hard-to-engage men who were not using primary care and health information services. Interventions included educational activities on match days and weekly lifestyle classes at the football stadia/training venues. Activities were led by the health trainers in 16 EPL football clubs.

**Methods:** Pre- and post-intervention, men completed validated self-report measures for demographics and health behaviours. Intention-to-treat (ITT) analysis was performed alongside a standard per-protocol (PP) analysis based on pre- vs post-intervention differences over 3 months. Descriptive statistics were used to show demographics pre-intervention and changes in the health profiles of participants.

**Results:** Predominantly, recruits were White British men aged 18–44 years. Most men (78%, 909/1159) did not see themselves as having health problems. Around 35% (364/1044) never consulted a general practitioner (GP), while 57% (591/1040) reported that they never used health advice services. In men providing pre-intervention responses, the proportions who failed to meet the recommendations for healthy behaviours were as follows: physical activity, 85% (1106/1301); sitting time, 68% (623/907); consumption of fruit/vegetables, 88% (948/1072); smoking, 33% (422/1262); alcohol consumption, 30% (203/679); and body mass index (BMI), 63.8% (570/893). ITT and PP analyses demonstrated the significant increases in weekly physical activity ( $P < 0.001$ ) and daily consumption of fruit and vegetables ( $P < 0.001$ ), and significant decreases in daily sitting time ( $P < 0.001$ ), weekly alcohol consumption ( $P < 0.001$ ) and BMI ( $P < 0.05$ ).

**Conclusion:** A national programme of men's health delivered in EPL football clubs reached men failing to meet health guidelines. Interventions engaged men who neither consulted a GP nor used health information services. Positive changes were found for an array of activity-related and other health behaviours on PP analysis and the more stringent evaluation condition of ITT analysis.

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## Introduction

Men are at risk from a wide range of lifestyle-related conditions, such as cardiovascular disease (CVD), poor mental health and fat-related cancers, leaving them vulnerable to chronic disease and premature death.<sup>1,2</sup> Lifestyle behaviours contributing to the incidence of these preventable conditions include poor diet,<sup>3</sup> smoking,<sup>4</sup> unsafe drinking<sup>5</sup> and low levels of physical activity (PA).<sup>6</sup> Indeed, in the UK, less than 40% of men self-reported meeting the recommended adult PA guidelines.<sup>7</sup> A combination of low levels of PA and a high incidence of sedentary behaviours including prolonged sitting time play an important role in the long-term regulation of weight.<sup>8</sup> Further, research shows that 42% of men demonstrated a body mass index (BMI)<sup>9</sup> that poses a heightened risk of developing a range of metabolic conditions. As such, the combinations of these unhealthy lifestyle behaviours are only amplified by men's poor awareness of health issues, meaning that many males are unwittingly incubating health conditions for later in life.<sup>10</sup>

While there is no evidence that men delay in presenting to a general practitioner (GP) when they have a symptom compared with women,<sup>11</sup> the non-engagement of young men within primary care (PC), especially preventative healthcare, further exaggerates men's health profiles.<sup>1</sup> It has been reported that as few as one in 10 men have consulted a National Health Service (NHS) GP within the last 14 days, whilst for men aged 18–44 years, this figure is as low as 8%.<sup>12</sup> Research shows that men have been discouraged from going to see their GP.<sup>13</sup> Reasons for this include feelings of embarrassment and anxiety linked to particular medical issues, such as conditions of the prostate,<sup>12</sup> not wanting to 'waste' the GP's time, and inability to fit attendance at surgeries around work commitments.<sup>1</sup> Moreover, research has demonstrated that health promotion activities aimed at the prevention of obesity have been shown to be irrelevant to men.<sup>14</sup> In order for similar interventions to be effective, 'experts in men's health' have advised that healthy eating campaigns need to overcome men's negative preconceptions linking dieting with femininity.<sup>15</sup>

These barriers, and numerous others, have encouraged practitioners to find more effective ways to connect with men on their health issues.<sup>15</sup> This includes men who demonstrate unhealthy lifestyles<sup>10</sup> but who do not consider these behaviours to be problematic to their well-being. It also includes men who are difficult to connect with and engage in health interventions<sup>16</sup>; that is, men who remain unresponsive to the conventional health promotion provision, including those interventions delivered in PC<sup>15</sup> and health advice services, such as the Government's health information service, NHS Direct.<sup>17</sup> To reach men with interventions designed to enhance their health, researchers have made a number of helpful recommendations, including the adoption of male-specific approaches,<sup>15,18</sup> use of lifestyle and behaviour modification programmes,<sup>19</sup> framing interventions around activities that link to men's interests and hobbies<sup>20</sup> (which is likely to facilitate programme adoption if not completion), and location of alternative healthcare approaches away from PC settings.<sup>15</sup>

With those thoughts in mind, researchers<sup>15,21,22</sup> have also recommended using leisure and sporting contexts to connect

with men over their health. Both in the UK and internationally, a number of health interventions have responded to this advice. For instance, the Boundaries for Life Project delivered medical checks to the male supporters attending international cricket matches,<sup>23</sup> the Tackling Men's Health Project was a programme of health advice and lifestyle checks combined with follow-up activities aimed at male fans attending Rugby League matches,<sup>22</sup> and the US NASCAR (motor racing) series<sup>21</sup> was a programme of gender-specific health promotion activities for race car fans. However, the longer-term impact of these interventions on changes in men's health behaviours are unconfirmed. With that in mind, evidence is required to confirm the effectiveness of gender-specific interventions delivered to men in sporting settings.<sup>15</sup>

Professional football (soccer) clubs have a growing tradition of delivering health-related activities to supporters, including men.<sup>24</sup> Recent studies have reported the impact of interventions delivered through professional football clubs for homeless men,<sup>25</sup> men from low-income groups,<sup>26</sup> and men demonstrating poor mental health.<sup>27</sup> In the UK, the English Premier Football League (EPL) is attended annually by 11 million men<sup>28</sup>; worldwide, a projected 4.7 billion people and 643 million households view EPL matches on television and through the Internet.<sup>29</sup> Given this enormous reach, the EPL acts as a foundation for the delivery of Premier League Health (PLH), the first nationally evaluated programme of men's health delivered in/by EPL football clubs.

While initial baseline findings were previously reported in mid 2011,<sup>30</sup> this study provides outcomes emerging from this programme of research up to January 2012. More importantly, this paper documents the changes in the health profiles of participants adopting PLH that were not reported in the first paper.<sup>30</sup> Given the significance of delivering effective men's health promotion called for in the literature,<sup>1,15</sup> this study provides important insights into the impact of PLH. These outcomes will be of interest to those professionals who commission and provide men's health interventions in football-based contexts. Moreover, this paper shares the learning drawn from researching PLH, as this may be of interest to both evaluators and investigators alike.

## Methodology

### Study context

PLH was a £1.63-m (\$2.5-m), 3-year programme of men's health promotion delivered through 16 EPL football clubs.<sup>30</sup> Interventions were led and delivered by health trainers (HTs); allied health professionals who have received education and training in behavioural change techniques and, specifically, men's health promotion. In the majority of cases, HTs were employed by the football clubs rather than the NHS.

Men were recruited through advertising, outreach work with partners who engaged captive male audiences, and promotional events staged by and at the clubs. Interventions were directed at men aged 18–35 years, although adult men of any age were eligible to attend. PLH activities not only included a combination of health checks and awareness-

raising exercises delivered on match days to the supporters, but also a programme of regular weekly classes and groups for men. Activities were designed to improve the health of male recruits through interventions delivered in football club facilities and community venues. Often this involved playing football, but this was not universal and included other forms of PA combined with health promotion interventions.

With no standardized delivery, interventions aimed to have an impact on the health needs of men identified locally through needs assessment activities. For some football clubs, interventions aimed to reduce the incidence of risk factors for CVD, including low levels of PA and poor diet. In other football clubs, interventions tackled the broader influences on the health of men, such as unemployment and substance use. Following recommended guidelines for the implementation of behaviour change interventions<sup>31</sup> and in order to establish the effectiveness of PLH, an independent evaluation was commissioned from which this study emerges.

### Data collection

Before this study began, all data collection procedures and instrumentation were refined in consultation with the Premier League and the HTs to ensure their acceptability to both potential participants and the intervention staff. Once consent was obtained, data were collected by HTs at first point-of-contact when men engaged with interventions, typically at pre-activity assessments and participant inductions to the programme of events and activities. Consistent with the previous studies, participants completed self-report measures for demographics (age, ethnicity and employment status). Men also recorded if they had health problems.<sup>32</sup> Participants reported consultations with their GP and their use of health advice and information services, such as NHS Direct.<sup>32</sup> As social determinants impact on men's health,<sup>15</sup> men's social support networks were ascertained by asking participants if they had people they could turn to in times of trouble. A bespoke question also investigated if participants were a fan of the host club where they engaged with PLH interventions.

Measurements were recorded for the various health-related behaviours and profiles (lifestyle data).<sup>33</sup> Firstly, participants were asked how many days during the last week they had undertaken 30 min of moderate PA.<sup>34</sup> It is recommended that adults should undertake 150 min of at least moderate PA per week.<sup>6</sup> Secondly, participants were asked how many hours, in total, they spent sitting down throughout the day [at work, travelling, watching television and using a computer for leisure (i.e. reading, films or socializing)]. Sitting for >4.7 h/day places participants in a 'higher risk' health category compared with those who sit for <4.7 h/day.<sup>35</sup> Thirdly, participants were asked about the total consumption of vegetables, salads, fruit juices and fresh/canned/dried fruit eaten on an 'average' day.<sup>36</sup> Adults are recommended to consume five portions of fruit and vegetables per day.<sup>37</sup> Fourthly, participants were classed as smokers if they recorded that they smoked tobacco. Fifthly, participants were asked how many units of alcohol they consumed per week.<sup>38</sup> It is recommended that adult men should not exceed 21 units of alcohol per week.<sup>38</sup> Finally, participants were asked to record their height (feet/inches or centimetres) and weight (kg or stones/pounds). These data

were used to calculate BMI, and participants were assigned to one of four categories (underweight, healthy weight, overweight or obese).<sup>37</sup> All data were submitted electronically via a secure web-link, and the researchers subsequently performed data cleaning and analysis.

### Data analysis

#### Demographics

Descriptive statistics were used to show the demographic profiles of men in three groups: (1) all men taking part in PLH, including those engaging match day and weekly interventions who provided demographic data (all participants); (2) men engaging weekly interventions who provided demographic and lifestyle data at pre or post-intervention (adopters<sup>c</sup>); and (3) men engaging weekly interventions who provided demographic and lifestyle data pre and post-intervention (completers<sup>d</sup>).

#### Pre-intervention health profiles of participants

Descriptive statistics were also used to show the pre-intervention health-related behaviour/profiles of all participants providing baseline lifestyle data.

#### Changes in the health profiles of adopters and completers

The mode of the participant's engagement with PLH (match day vs weekly interventions), incomplete data sets and/or a lack of follow-up data contributed to the variations between and within the sample size for all participants engaging with PLH, adopters and completers. Indeed, the loss of pre- and post-intervention data from the evaluation of PA programmes delivered in community settings is common.<sup>39</sup> Factors contributing to this outcome include the submission of data sets which are incomplete, participant attrition, poor literacy, and participant fears surrounding the surveillance of engaging in a programme of research.<sup>40</sup>

Considering the issue of loss of pre- and post-intervention data, two forms of analysis for assessing change in the lifestyle profiles of participants were used: an intention-to-treat (ITT) analysis and a standard per-protocol (PP) analysis. ITT analysis was performed with the participants providing pre- or post-intervention data (i.e. adopters). ITT analysis takes the conservative stance of 'no change' in the desired health behaviour, and has been recommended as a process for addressing loss of data.<sup>41</sup> PP analysis is a common strategy performed with participants providing pre- and post-intervention data (i.e. completers).<sup>40</sup>

An example is used to illustrate how a participant in this study would contribute data for the ITT and PP analyses. Firstly, Participant A who attended weekly interventions and, who provided pre-intervention data but no post-intervention data (or vice versa), substituted their pre- for their post-intervention data (or vice versa). Participant A and others fitting these criteria were categorized into the ITT group along

<sup>c</sup> Adopters are participants who provided pre- or post-intervention data on their health-related behaviours/profiles (Intention-to-Treat).

<sup>d</sup> Completers are participants who provided both pre- and post-intervention data on their health-related behaviours/profiles Per-Protocol

with participants from the PP group. Secondly, Participant B who attended weekly interventions and, who provided both pre- and post-intervention data (change) was included in the PP group. Only participants providing both pre- and post-intervention data were included in the PP analysis.

In order to show changes in the pre- vs post-intervention health profiles for the ITT and PP groups, three statistical tests were performed. Firstly, cross-tabulations were used to show the movement in three change categories: progression, maintenance and reversal. Key findings are reported in the text for weekly PA, daily sitting time, daily consumption of fruit and vegetables, weekly alcohol consumption and BMI pre- vs post-intervention. Secondly, paired t-tests were used to show the pre- vs post-intervention scores for the ITT and PP groups. In order to identify the variation in differences in intervention effect between the ITT and PP groups, a new variable (change) was produced by subtracting post- from pre-intervention outcomes (or vice versa) for each participant and variable (e.g. PA, sitting time). Thirdly, once change was calculated, independent t-tests were used to test for mean change between the two groups: ITT vs PP. All data were analysed using Statistical Package for the Social Sciences Version 18 (SPSS Inc., Chicago, IL, USA).

## Results

### Demographic profile of participants

For demographics, data are shown for three groups: all participants, ITT group and PP group. Variation in the sample sizes for these three groups is shown in the results for ethnicity, age and employment. Fig. 1 shows that the ethnicity of participants was similar in the three groups: all participants ( $n = 2026$ ); ITT group ( $n = 1342$ ); and PP group ( $n = 204$ ).

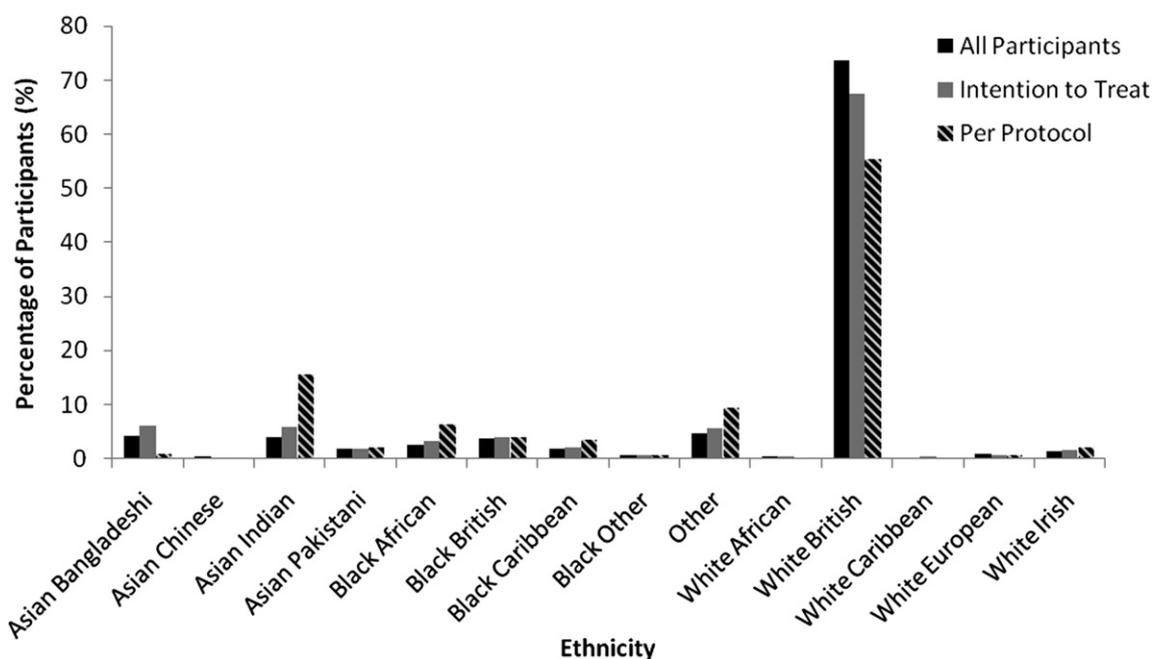


Fig. 1 – Ethnicity of participants.

### Age

Fig. 2 shows that the age of participants was similar in the three groups: all participants ( $n = 1988$ ); ITT group ( $n = 1327$ ); and PP group ( $n = 202$ ).

### Employment

Fig. 3 shows that the employment status of men was similar in the three groups: all participants ( $n = 1408$ ), ITT group ( $n = 1004$ ) and PP group ( $n = 160$ ).

### Pre-intervention health profiles of participants engaging interventions

Key baseline results for all participants engaging PLH interventions were as follows. Seventy-eight percent (909/1159) did not see themselves as having a health problem(s), fewer than 6% (58/1044) consulted their GP regularly, approximately 35% (364/1044) never consulted their GP, and over 57% (591/1040) reported that they never used health advice and information services such as NHS Direct. Around 14% (121/879) reported having no social support network to rely on in times of trouble. While 59% of men (959/1606) were fans of the host club, 29% (465/1606) had no previous connection to the football club delivering the interventions. The proportions who failed to meet the recommendations for healthy behaviours<sup>6,35–38</sup> were as follows: weekly PA, 85% (1106/1301); daily sitting time, 68% (623/907); daily consumption of fruit/vegetables, 88% (948/1072); smoking, 33% (422/1262); weekly alcohol consumption, 30% (203/679); and BMI, 63% (570/893).

### Changes in the health profiles of adopters and completers

Cross-tabulation analyses were performed for ITT and PP groups, with the PP group showing stronger impacts. The proportion of men improving their health behaviour/status

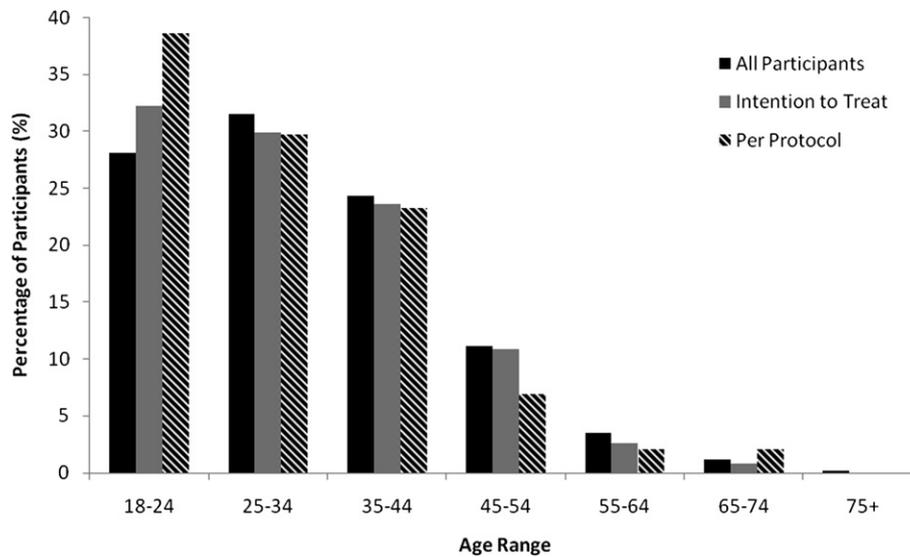


Fig. 2 – Age of participants.

for each group was as follows: PA, 12.3% (135/1089) vs 66% (135/205); sitting category, 5.2% (42/804) vs 25.7% (42/163); daily fruit and vegetable consumption, 11% (102/919) vs 59.3% (102/172); weekly alcohol consumption, 2.9% (18/613) vs 12.5% (18/144); and BMI, 1.6% (12/728) vs 8.8% (12/137).

Table 1 shows the mean (standard deviation) scores for each lifestyle variable pre- vs post-intervention for ITT and PP groups, and shows significant positive changes in health profiles post-intervention for both groups.

Table 2 shows the outcomes from testing the ‘difference of differences’, and confirms stronger effects for the PP group compared with the ITT group.

## Discussion

Men are seldom the focus of targeted gender-specific health promotion programmes.<sup>15</sup> Recognizing the potential of top

flight football to connect with men on health-related matters,<sup>24</sup> this study investigated the impact of PLH, a national programme of men’s health delivered in/by 16 EPL clubs.<sup>30</sup> Indeed, PLH represents one of the first nationally evaluated programmes of men’s health delivered in/by Premier League football clubs.

### Pre-intervention health profiles of participants engaging interventions

Importantly, PLH not only reached men demonstrating multiple health behaviours which contribute to chronic conditions,<sup>1,2</sup> but also men who did not report having a health problem. PLH also connected with men typically regarded as ‘hard to contact or engage’<sup>16</sup> (i.e. over one-third of men who reported that they did not consult their GP, and over half of men who never engaged with a health advice service such as NHS Direct). Despite having substantial health needs,<sup>1</sup> these

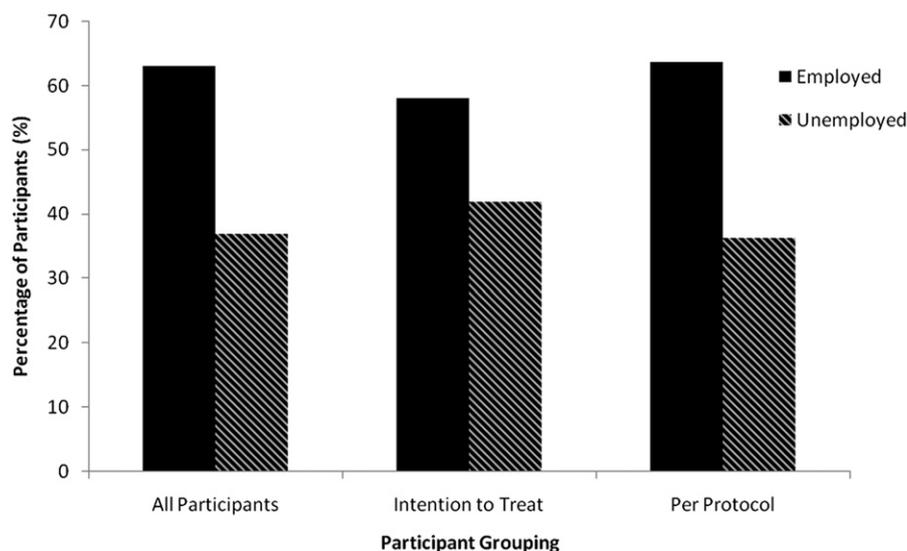


Fig. 3 – Employment status of participants.

**Table 1 – Mean [standard deviation (SD)] scores for lifestyle variables pre- and post-intervention for intention-to-treat and per-protocol groups.**

Variable	Mean (SD)					
	Intention-to-treat			Per-protocol		
	Pre	Post	n	Pre	Post	n
Activity (sessions/week)	2.34 (1.54)	2.51 (1.52)	1089**	2.20 (1.55)	3.12 (1.28)	205**
Sitting (hours/day)	6.11 (2.77)	5.92 (2.78)	804**	5.89 (2.72)	4.95 (2.57)	163**
Daily portions of fruit/vegetables	2.36 (1.42)	2.51 (1.39)	919**	2.03 (1.45)	2.86 (1.27)	172**
Alcohol (units/week)	15.63 (17.2)	14.82 (16.7)	613**	15.72 (14.1)	12.26 (10.7)	144**
Body mass index (kg/m <sup>2</sup> )	26.78 (5.39)	26.70 (5.35)	728*	26.23 (4.39)	25.81 (4.08)	137*

\*P < 0.05, \*\*P < 0.001.

participants were unlikely to be exposed to conventional health promotion opportunities made available through these channels.<sup>17</sup> This finding not only confirms that health interventions delivered in professional football clubs have a powerful reach with male supporters,<sup>24</sup> but also with men not engaging with PC and health information services.

Indeed, this effect seems to be unique, as men who engage in such male-specific health interventions delivered in football clubs have reported that they would not have participated in a similar service delivered within a traditional NHS setting.<sup>42</sup> Taken together, these findings emphasize the importance of implementing programmes in contexts which are already familiar to potential participants, that centre on men's pre-existing interests and/or communities,<sup>20–22</sup> and which work with men in a positive and constructive way.<sup>15</sup>

However, while PLH was mainly attended by supporters, just under one-third of the participants were not fans of the host club. This result suggests that factors other than the draw of the football club may be influential in facilitating the engagement of 'non-fans' into PLH. Investigations into the (as yet) unconfirmed factors facilitating the recruitment of 'non-fans' to gender-specific, football-based health interventions is the focus of ongoing research. Potentially, such outcomes offer important contributions to discussions on the effectiveness of health interventions delivered in/by professional football clubs to different groups of men.<sup>15</sup>

### Demographic profiles of adopters and completers

The demographic profiles of participants from ITT and PP analyses are similar. PLH also recruited both unemployed men and men who reported no or limited social support networks. This further underlines the value of male-specific PLH interventions, since the aforementioned groups can otherwise be characterized as 'at risk' in health terms.<sup>15,43,44</sup> Further, unemployed men can lack the financial and interpersonal resources<sup>44</sup> to help initiate and sustain positive health behaviour change. Research therefore supports an increased need for male-specific interventions,<sup>15</sup> as unemployed men seeking work also demonstrate a heightened risk of CVD<sup>45</sup> and social isolation.<sup>1,15</sup> More specifically, among unemployed men aged 40–64 years, poor nutrition and low PA are especially common, while almost 85% of long-term unemployed men aged 18–24 years are smokers.<sup>43</sup>

As such, focused efforts are required to engage these groups of men into health-enhancing activities.<sup>1</sup> For instance, in this study, two of the PLH interventions recruited men from local job centres into a programme of PA-supported with health education sessions. Gender-specific health interventions not only addressed men's lifestyle behaviours seen in the literature,<sup>43,45</sup> but also aimed to help men return to employment by providing career advice and coaching on preparing job applications alongside health improvement activities.

**Table 2 – Differences in post-intervention scores between intention-to-treat and per-protocol groups.**

Variable	Mean (SD)				
	Intention-to-treat		Per-protocol		P
	Mean change (SD)	Number of participants	Mean change (SD)	Number of participants	
Activity (sessions/week)	0.17 (0.63)	1089	0.89 (1.21)	205	0.000**
Sitting (h/day)	–0.17 (0.84)	804	–0.87 (1.70)	163	0.000**
Daily portions of fruit/vegetables	0.15 (0.56)	919	0.80 (1.08)	172	0.000**
Alcohol (units/week)	–0.88 (4.19)	613	–3.73 (8.03)	144	0.000**
Body mass index (kg/m <sup>2</sup> )	–0.08 (1.02)	728	–0.38 (2.29)	137	0.139*

SD, standard deviation.

\*P < 0.05, \*\*P < 0.001.

### *Changes in the health profiles of adopters and completers: intention-to-treat vs per protocol*

Both the ITT and PP analyses displayed significant positive changes in risk factor profiles for CVD. However, the extent of positive change in health behaviours was superior in the PP group. This is unsurprising as the PP group reflects longer-term adherence to the interventions and the evaluation, while ITT is the more conservative and stringent evaluation condition. The stronger effects in the PP analysis may reflect higher participant motivation to engage in the research and/or to engage with the domains of behaviour change investigated in this study. This research highlights relatively short-term changes in lifestyle health behaviours. Future investigations will provide insights into how PLH has helped men to sustain these positive changes. Although this study did not include a control group, the analysis (ITT vs PP) does provide a comparison group.

Comparatively, this analysis highlights that the intervention effect for individual behaviours in ITT was small. Despite the size of the initial change in behaviour, when sustained, progressions achieved within the current study contribute to long-term improvements in men's health.<sup>1,2</sup> Improvements in lifestyle behaviours have the potential to build the capacity for future changes. Moreover, positive changes help to reduce the risks arising from a number of conditions including CVD, fat-related cancers and diabetes,<sup>1</sup> along with the associated costs of their treatment. The combined costs of treating preventable diseases are set to rise by £2 billion/year by 2030.<sup>46</sup> To realize the reductions in morbidity and healthcare costs, changes in behaviour need to be maintained over a longer period of time, which poses a challenge for both participants and practitioners alike. As identified in this research, a small proportion of men reported maintenance and reversals in some health behaviours. Such an outcome is not uncommon in community health interventions,<sup>40</sup> including those that aspire to help people change multiple health behaviours. With these thoughts in mind, there is a need to ensure that effective approaches are developed to prevent 'backsliding' in some participants.

Given the scientific convention of adopting conservative interpretations and to defer to ITT analysis, it is important to optimize sample sizes by ensuring complete pre- and post-intervention data sets. However, in this study, the strongest intervention effects were shown by participants who completed the two stages of the evaluation. These outcomes indicate the potential effects of the intervention. Findings provide a considerable ground for optimism for what might be achieved in subsequent health-enhancing interventions delivered to men in/by professional football-based settings.

This research also underlines why it is important for evaluators to collaborate and work together with deliverers and participants.<sup>47</sup> This approach may extend to refining the overall evaluation design. Indeed, in this study, consultations with the HTs in the clubs who collected the data provided valuable insights into how data may be best captured within the setting where interventions were delivered (e.g. in-building the data collection procedures into participant inductions, along with the development of secure online systems for the submission of completed data sets). Further, the ongoing training provided to the HTs both on and off site emphasized the broader value of the PLH 'evaluation'. These

activities also showed project staff how best to introduce and administer consent and data collection protocols to participants, including strategies for reassuring reluctant recruits who commonly present in community PA interventions.<sup>39,40</sup>

Frequent follow-up and dialogue between evaluators and HTs was also important when reviewing both the quality and quantity of data. The submission of completed data sets at regular intervals, along with subsequent remedial actions, was similarly important when performing mid programme evaluations. To this end, encouraging HTs to follow-up participants, as well as checking for the completeness of returned questionnaires, also helped to achieve the completion rates of even the minimally invasive approaches developed in PLH. While funds are not always freely available for this purpose, the investment in the activities described was a cost-effective use of scarce evaluation resources. As such, partnership evaluation approaches seem to be justified in similar community settings, especially where there are limited funds for evaluation activities.

These findings reflect both the research limitations and strengths. Limitations include the use of self-report vs objective measures, and the variation in the sample size, including the number of men completing the ITT vs PP analyses. The evaluation also needs to be developed to assess the ongoing longer-term impacts of PLH beyond the reported initial intervention period. The preference of clubs within PLH to deliver tailored content meant that only generic intervention design factors can be considered as having the most potent impact on participating men. On the other hand, this specificity can be regarded as a strength as it reflects the extensive collaboration with the HTs on the research design before the programme delivery was initiated. Without the facilitative relationships that this developed, it is difficult to estimate how many fewer men would have completed the PP evaluation. Indeed, evaluations of health interventions delivered in professional football contexts with hard-to-contact/engage men are rare.<sup>30</sup> This makes it difficult to compare the completion rate of this study, notwithstanding that it was based on validated self-report measures for lifestyle behaviours.

These findings confirm that the professional football clubs have a powerful effect on engaging men in health improvement interventions. Recruitment not only included men who demonstrated combinations of unhealthy lifestyle behaviours, but also men who did not consult their GP or use health information and advice services. Further, male-only interventions delivered in/by EPL clubs were associated with beneficial changes in health-promoting behaviours. If sustained, these positive changes in healthy lifestyles will reduce the risk of chronic conditions identified in international recommendations for men's health.<sup>1</sup>

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### Ethical approval

This work was approved by the Research Ethics Committee, Carnegie Faculty, Leeds Metropolitan University, and the participants gave informed consent prior to participation.

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### Competing interests

The authors' institutions received funding to undertake the evaluation of the PLH Programme. Neither the commissioners nor the sponsors played any role in performing the research or the decision to submit this specific manuscript for publication.

### REFERENCES

- European Commission. *The state of men's health in Europe*. Luxembourg: European Commission. Available at: [http://ec.europa.eu/health/population\\_groups/docs/men\\_health\\_report\\_en.pdf](http://ec.europa.eu/health/population_groups/docs/men_health_report_en.pdf); 2011 [last accessed 24.01.12].
- European Commission. *The state of men's health in Europe: extended report*. Luxembourg: European Commission. Available at: [http://ec.europa.eu/health/population\\_groups/docs/men\\_health\\_extended\\_en.pdf](http://ec.europa.eu/health/population_groups/docs/men_health_extended_en.pdf); 2011 [last accessed 25.01.12].
- Elmadfa I. *European nutrition and health report: forum of nutrition*, vol. 62. Basel: European Commission Health and Consumer Directorate; 2009.
- European Commission. *Survey on tobacco: analytical report, Eurobarometer*, vol. 253. Brussels: European Commission; 2009.
- Office for National Statistics. *Opinion survey report No 42, Drinking: adults' behaviour and knowledge in 2009*. London: Office for National Statistics. Available at: [http://www.statistics.gov.uk/downloads/theme\\_health/drink2009.pdf](http://www.statistics.gov.uk/downloads/theme_health/drink2009.pdf); 2010 [last accessed 25.01.12].
- Department of Health. *Start active, stay active: a report on physical activity for health from the four home countries' Chief Medical Officers*. London: Crown. Available at: [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/documents/digitalasset/dh\\_128210.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_128210.pdf); 2011 [last accessed 25.01.12].
- The Information Centre for Health and Social Care. *Health survey for England, Physical activity and fitness: summary of main findings, 2008*. London: The Information Centre for Health and Social Care. Available at: [http://www.ic.nhs.uk/webfiles/publications/HSE/HSE08/HSE\\_08\\_Summary\\_of\\_key\\_findings.pdf](http://www.ic.nhs.uk/webfiles/publications/HSE/HSE08/HSE_08_Summary_of_key_findings.pdf); 2009 [last accessed 25.01.12].
- Nelson M, Gordon-Larsen P, North K, Adair L. Body mass index gain, fast food, and physical activity: effects of shared environments over time. *Obesity* 2006;**14**:701–9.
- The Information Centre for Health and Social Care. *Statistics on obesity, physical activity and diet in England 2010*. London: The Information Centre for Health and Social Care. Available at: [http://www.ic.nhs.uk/webfiles/publications/opad10/Statistics\\_on\\_Obesity\\_Physical\\_Activity\\_and\\_Diet\\_England\\_2010.pdf](http://www.ic.nhs.uk/webfiles/publications/opad10/Statistics_on_Obesity_Physical_Activity_and_Diet_England_2010.pdf); 2010 [last accessed 25.01.12].
- White A, de Sousa B, de Visser R, Hogston R, Madsen S, Makara P, et al. Men's health in Europe. *J Men's Health* 2011;**8**:192–201.
- Wenger L. Beyond ballistics: expanding our conceptualization of men's health-related help seeking. *Am J Men's Health* 2011;**5**:488–99.
- Potter R, Fraser A. *Men's health: royal college of general practitioners curriculum statement, 10.2*. London: Royal College of General Practitioners; 2009.
- Coles R, Watkins F, Swami V, Jones S, Woolf S, Stanistreet D. What men really want? A qualitative investigation of men's health needs from Halton and St Helens primary care trust men's health promotion project. *Br J Health Psychol* 2010;**10**:921–39.
- Gough B, Conner M. Barriers to healthy eating amongst men: a qualitative analysis. *Soc Sci Med* 2006;**62**:387–95.
- White A, McKee M, Richardson B, de Visser R, Madsen S, Raine G, et al. Europe's men need its own health strategy. *BMJ* 2011;**343**:d7397.
- Sinclair A, Alexander H. Using outreach to involve the hard-to-reach in a health check: what difference does it make? *Public Health* 2012;**126**:87–95.
- Witty K, White A, Bagnall A, South J. Male frequent attenders of general practice and their help seeking preferences. *J Men's Health* 2011;**8**:21–6.
- Johnson L, Hoggard P, Goodyear-Smith F. Men's health and the health of the nation. *NZ Med J* 2008;**121**:69–76.
- Leishman J, Dalzeil A. Taking action to improve the health of Scottish men. *Men's Health J* 2003;**2**:90–3.
- Brown A. Older men and home and community care (HACC) services—barriers to access and effective models of care. *J Men's Health* 2011;**8**:228.
- Campbell B. Community health programming targeting men and their families. Men and ageing: a lifelong process. Improving health through inter-disciplinary care. Presentation at 8th Men's Health World Congress. Vienna: 2011.
- Witty K, White A. Tackling men's health: implementation of a male health service in a rugby stadium. *Commun Pract* 2011;**84**:29–32.
- Trivedy L. Oral health through sport. *Br Dent J* 2011;**210**:150. <http://dx.doi.org/10.1038/sj.bdi.29.11.98>. Available at: <http://www.nature.com/bdj/journal/v210/n4/full/sj.bdj.2011.98.html> [last accessed 25.01.12].
- Brady A, Perry C, Murdoch D, McKay G. Sustained benefits of a health project for middle aged football supporters at Glasgow Celtic and Glasgow Rangers football clubs. *Eur Heart J* 2010;**24**:2696–8.
- Dunn K, Drust B, Flower D, Richardson D. Kicking the habit: a biopsychosocial account of engaging men recovering from drug misuse in regular recreational football. *J Men's Health* 2011;**8**:233.
- Richardson D, Burgess T, Newland T, Watson L, Bingham D, Parnell D. The family and football: enabling positive healthful behaviours. *Proceedings of the 16th Annual Congress of the European College of Sports Science*, Liverpool: New horizons from a world heritage city, 2011, p. 508.
- Pringle A, Sayers P. It's a goal: basing community psychiatric services in a local football stadium. *J R Soc Health Promot* 2004;**124**:234–8.
- FA Premier League. *Barclays Premier League review of the 2009–10 season*. London: Football Association; 2010.
- Harris N. *A football competition and a headline about a global audience: what on earth is going on?*. London: Sporting Intelligence. Available at: <http://www.sportingintelligence.com/2011/10/28/a-football-competition-and-a-headline-about-a-global-audience-of-billions-and-yet-its-actually-true-what-on-earth-is-going-on-281002/>; 2011 [last accessed 25.01.12].
- Pringle A, Zwolinsky S, Daly-Smith A, Robertson S, McKenna J, White A. The pre-adoption demographic and health profiles of men participating in a programme of men's health delivered in English Premier League football clubs. *Public Health* 2011;**125**:411–6.

31. National Institute of Health and Clinical Excellence. *The most appropriate means of generic and specific interventions to support attitude and behaviour change at the population and community levels*. London: National Institute of Health and Clinical Excellence; 2007.
32. White A, Witty K. *The tackling Men's health evaluation study*. Leeds: Centre for Men's Health, Leeds Metropolitan University; 2009.
33. Zwolinsky S, Pringle A, McKenna, J, Smith A, Robertson S, White A. Associations between daily sitting time and the combinations of lifestyle risk factors in men. *J Men's Health*, in press.
34. Marcus B, Forsyth L. *Motivating people to become physically active*. 2nd ed. Champaign, IL: Human Kinetics; 2009.
35. Brown W, Miller Y, Miller R. Sitting time and work patterns as indicators of overweight and obesity in Australian adults. *Int J Obes* 2003;27:1340–6.
36. National Health Service. *Healthy eating questionnaire*. London: Department of Health; 2009.
37. National Institute of Health and Clinical Excellence. *Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children*. London: National Institute of Health and Clinical Excellence; 2006.
38. Department of Health. *How much is too much? drinking and you*. London: Department of Health; 2007.
39. Pringle A, Marsh K, Gilson N, McKenna J, Cooke C. Cost-effectiveness of interventions to improve moderate physical activity: a study in nine UK sites. *Health Educ J* 2010; 69:211–24.
40. Carnegie Research Institute (Leeds Metropolitan University) with Matrix RCL and Ipsos MORI. *National evaluation of LEAP: a final report on the local exercise action pilots*. London: Department of Health. Available at: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicy-AndGuidance/DH\\_073600](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicy-AndGuidance/DH_073600); 2007 [last accessed 24.01.12].
41. Wood A, White I, Hillsdon M, Carpenter J. Comparison of imputation and modelling methods in the analysis of a physical activity trial with missing outcomes. *Int J Epidemiol* 2005;34:89–99.
42. Gray C, Hunt K, Mutrie N, Anderson A, Treweek S, Wyke S. Can the draw of professional football clubs help promote weight loss in overweight and obese men? A feasibility study of the Football Fans in Training programme delivered through the Scottish Premier League. *Epidemiol Community Health* 2011;65:A37–8.
43. Freyer Adam J, Gaertner B, Tobschall S, Ullrich J. Health risk factors and self-rated health among job seekers. *BMC Public Health* 2011;11:659.
44. Hammarström A, Gustafsson P, Standh M, Virtanen P, Janlert U. It's no surprise! Men are not hit more than women by the health consequences of unemployment in a Northern Swedish cohort. *Scand J Public Health* 2011;39:187–93.
45. Holleederer A. Unemployment and health in the German population: results from a 2005 micro census. *J Public Health* 2011;19:257–68.
46. Wang YC, McPherson K, Marsh T, Gortmaker SL, Brown M. Health and economic burden of the projected obesity trends in the USA and the UK. *Lancet* 2011;378:815–25.
47. South J, Tilford S. Perceptions of research and evaluation in health promotion practice and influences on activity. *Health Educ Res* 2000;15:729–41.