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Mental and psychosocial health among current and former professional footballers

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Background	In common with elite athletes from other sport disciplines, severe or recurrent injuries in professional footballers are considered to be major physical and psychosocial stressors, which may predispose to mental health problems during and after their career.
Aims	To determine the prevalence of mental health problems and psychosocial difficulties in current and former professional footballers, and to explore the association between psychosocial stressors and the health conditions studied.
Methods	Based on validated scales, a paper and electronic questionnaire was developed for current and former professional footballers and distributed by the World Footballers' Union (FIFPro) and players' unions in six countries. Prevalence was calculated and cross-sectional analyses were conducted.
Results	The response rate was 29% with 253 responses available for analysis. The prevalence of mental health complaints ranged from 5% (burnout) to 26% (anxiety/depression) in 149 current players and from 16% (burnout) to 39% (anxiety/depression) in 104 former footballers. The prevalence of psychosocial problems ranged from 3% (low self-esteem) to 26% (adverse nutrition behaviour) in current players and from 5% (low self-esteem) to 42% (adverse nutrition behaviour) in former footballers. In both current and former players, mental health problems were significantly associated with low social support (odds ratio [OR] = 1.1) and recent life events (OR = 1.4–1.6). In former players, previous surgery was significantly associated with smoking (OR = 1.9).
Conclusions	The prevalence of mental health problems and/or psychosocial difficulties in current and former professional footballers was found to be high. The presence of mental health problems was associated with low social support and recent life events.

Key words	Mental health; professional football; psychosocial problems.

Introduction

Severe or recurrent injuries in professional footballers are considered to be major physical and psychosocial stressors [1]. In common with elite athletes from other sport disciplines, severe or recurrent injuries may predispose to mental health problems (distress, burnout, anxiety, depression) in the short- and long-term and to adverse psychosocial effects such as lower self-esteem and adverse health behaviours [1]. In the worst cases, severe injuries may lead to early retirement from professional football, involuntary retirement being a potential risk for mental and psychosocial health problems following retirement [2]. In addition, after retirement, severe injuries and related surgery seem to be associated with osteoarthritis and mental health problems among former professional footballers [3].

Recently, other sources of psychosocial stressors have been reported in professional football, especially organizational pressure related to sporting and financial success, and public and media interest in players, on and off the pitch [4]. After retirement from football, public and media interest generally stops, which may be an additional psychosocial stressor for former footballers to cope with. In addition to these sports-related stressors, professional football players are as likely as anyone to develop mental health problems and adverse psychosocial effects as a consequence of more conventional stressors, both during and after their playing career. Major life events (LEs) and low social support from colleagues or

supervisors have been acknowledged to be psychosocial stressors that may induce adverse mental and psychosocial effects [5].

The assumption in our study was that professional footballers may suffer from mental health complaints and psychosocial difficulties, both during and after their career. Also, we hypothesized that the odds of suffering from mental health problems and psychosocial difficulties may be greater for current and former players exposed to severe injury, surgery, low social support and adverse LEs compared with players unexposed to these psychosocial stressors. Consequently, the aim of this study was first to determine the prevalence of mental health problems (distress, burnout and anxiety/depression) and psychosocial difficulties (low self-esteem and adverse health behaviour) in current and former professional footballers, and second to explore the association between psychosocial stressors (severe injury, surgery, low social support and LEs) and mental health problems.

Methods

An observational study was conducted using the Strengthening the Reporting of Observational Studies in Epidemiology statement in order to guarantee the quality of reporting [6]. The participants were current and former professional football players who were members of the World Footballers' Union (FIFPro) and national players' unions in Australia, Ireland, The Netherlands, New Zealand, Scotland and the USA. Members of national players' unions are known to commit or have committed significant time to football training and to compete or have competed at professional level. To be eligible for inclusion, participants had to be no older than 45 years. The national players' unions were asked to select potential participants at random (procedures being blinded to the researcher for privacy and confidentiality reasons) in order to avoid potential selection bias and to ensure that the participants were representative of the target population. Sample size calculation for both study aims indicated that at least 138 participants in each group were needed [7]. Expecting a response rate of at least 30%, our target then was to reach at least 920 participants (460 in each group).

The Distress Screener (three items scored on a three-point scale) validated in English and Dutch was used to identify early stage distress in the past 4 weeks [8]. A total score ranging from 0 to 6 was obtained by summing up the answers on the three items, a score of 4 or more indicating the presence of distress [9]. The Utrecht Burn-Out Scale developed from the Maslach Burnout Inventory validated in English and Dutch was used to assess two central domains (emotional exhaustion and depersonalization) of burnout in the past 6 months [10]. Based on a seven-point scale (from 0 to 6), a total score ranging from 0 to 60 was calculated and the criteria used for identifying burnout were a high score (>75% percentile from the reference population) on both emotional exhaustion and depersonalization [8]. The 12-item General Health Questionnaire using six items on a four-point scale and validated in English and Dutch was used to assess minor psychological conditions related to anxiety/depression in the past 4 weeks [11]. Based on the traditional scoring system, a total score ranging from 0 to 6 was calculated by summing up the answers on the six items, a score of 2 or more indicating signs of anxiety/depression [10,11]. Rosenberg's Self-Esteem Scale validated in English and Dutch was used to assess global self-esteem in the past six months [12]. A total score ranging from 0 to 30 was obtained by summing up the answers on the 10 items (four-point scale), a score of 14 or less indicating the presence of adverse self-esteem [12]. The current level of alcohol consumption was assessed with the three-item AUDIT-C validated in English and Dutch [13]. A total score ranging from 0 to 12 was obtained by summing up the answers on the three items, a score of 5 or more indicating the presence of adverse alcohol use [13]. Current smoking behaviour was assessed with a single question (yes or no) [13]. Current eating habits were examined with four statements (e.g., 'I eat regularly throughout the day'), each to be answered on how many days per week (from 0 to 7) this is the case [13]. Consuming healthy meals <5 days per week, eating regularly throughout the day <3 days per week, having breakfast before 10:30 on fewer than 3 days per week and having a final meal before 20:30 on fewer than 3 days per week were classed as adverse nutrition behaviour [13].

The number, location and type of severe injuries during a professional football career were assessed using four single questions. Severe injury was defined as one that occurred during team activities and led to either training or match absence for >28 days [14]. In addition, the number of injury-related operations was assessed for each severe injury with a single question. Two subscales (nine items each, slightly adapted for current players) of the validated Questionnaire on the Experience and Evaluation of Work were used to assess current social support by colleagues and social support by a direct supervisor [15]. Based on a four-point scale, a total score ranging from 0 to 100 was obtained for each subscale, higher scores indicating a lower social support [16]. The validated Social Athletic Readjustment Rating Scale was used to assess the occurrence of LEs either in the past 12 months (LE < 12) or >12 months previously (LE > 12) using 18 single questions (yes or no) [16]. Two scores (LE < 12 and LE > 12) were calculated by summing up the LEs occurring.

A paper and electronic questionnaire (English and Dutch) was developed, involving the following descriptive variables (if applicable): age, height (centimetres), body mass (kilograms), duration of professional football career (years), level of play (highest or second highest

division), squad position (goalkeeper, defender, midfielder or forward), duration of retirement (years), current occupation, and self-perceived current general and psychological performance/work ability (11-point scale from 0 'very poor' to 10 'very good') [17]. Information about the study was sent by email and/or post to potential participants by the national players' unions. If players showed an interest in participating in the study, they gave their informed consent and were asked to fill in their questionnaire anonymously within 4 weeks, with reminders issued after 4 and 6 weeks. Baseline questionnaires were distributed in electronic and/or hard copy formats between April and September 2013. Once completed (20–25 minutes were needed), the paper questionnaires were returned by post to the responsible researcher using stamped envelopes provided, whereas the electronic questionnaires were saved automatically and anonymously on a secure electronic server. Current and former players participated voluntarily in the study and did not receive any reward for their participation. Official approval of our study was obtained by the medical ethical committee of the Academic Medical Center (Amsterdam). The research was conducted in accordance with the Declaration of Helsinki (2008).

All data analyses were performed using the statistical software IBM SPSS Statistics 22.0 for Windows. Analyses were conducted separately for current professional footballers and former players. To be eligible for analysis, at least half of the scales related to the outcomes measures and half of the scales related to the determinants needed to be completed, with the scales being considered completed when at least two-thirds of their items were answered. Descriptive data analyses (mean, standard deviation, frequency, range) were performed for the different variables in each study group. The prevalence of self-reported mental and psychosocial health conditions was calculated, using the adjusted Wald method for 95% confidence interval (95% CI) [18]. Univariate logistic regression analyses expressed as odds ratio (OR) and 95% CI were performed in each study group to assess the odds of having mental health problems and psychosocial difficulties in players exposed to psychosocial stressors compared with players unexposed [18].

Results

A total of 1049 players were contacted by the FIFPro and other national players' unions. In total, 301 participants (180 current and 121 former professional football players, all male) gave their written informed consent and agreed to complete the questionnaire (an overall response rate of 29%). As 48 questionnaires were insufficiently completed, a total of 253 questionnaires (149 current and 104 former professional football players) were eligible for analysis, having <2% of values missing).

Table 1 presents an overview of the demographic variables and psychosocial stressors in both current and former professional football players. Overall, both study populations were heterogeneous, especially with respect to age, duration of football career, number of severe injuries, history of surgery and LEs.

The prevalence rates of mental health problems and psychosocial difficulties in current and former professional footballers are presented in Table 2. In both groups, the highest prevalence was found for anxiety/depression (26% in current players and 39% in former players) and adverse nutrition behaviour (26% in current players and 42% in former players).

Associations between psychosocial stressors and outcomes measures are presented in Tables 3 and 4. In current players, major LEs in the previous 12 months were positively associated with distress ($P < 0.01$), burnout ($P < 0.05$) and anxiety/depression ($P < 0.01$), low social support from trainer or coach was associated with burnout ($P < 0.01$) and low social support from teammates with anxiety/depression ($P < 0.01$). A higher number of severe injuries among current players was negatively associated with adverse nutrition behaviour ($P < 0.01$). In former players, previous operations were positively associated with smoking ($P < 0.01$), and low social support from supervisors with both distress ($P < 0.05$) and burnout ($P < 0.01$). In this group, experience of a higher number of LEs in the previous 12 months was positively associated with anxiety/depression ($P < 0.05$) and had a negative association with smoking ($P < 0.05$).

Discussion

In our study, the prevalence of mental health problems ranged from 5% (burnout) to 26% (anxiety/depression) in current professional footballers and from 16% (burnout) to 39% (anxiety/depression) in former players. The prevalence of psychosocial problems ranged from 3% (low self-esteem) to 26% (adverse nutrition behaviour) in current players and from 5% (low self-esteem) to 42% (adverse nutrition behaviour) in former footballers. Current players with recent LEs, low support from trainers and low support from teammates were more likely to have mental health problems compared with other current players. Current players with previous operations were less likely to have adverse eating behaviour compared with former players with no previous operations, which was contrary to our assumption. Former players with recent LEs and low support from supervisors were more likely to have mental health problems compared with other ex-players. Former players with previous operations were nearly twice as likely to smoke compared with those with no previous operations. Former players with recent LEs were less likely to smoke compared with

Table 1. Demographic characteristics and psychological stressors among current and former professional football players

	Current professional football players (n = 149)	Former professional football players (n = 104)
Age (in years; mean ± SD)	27 ± 5	36 ± 5
Height (in cm; mean ± SD)	183 ± 6	184 ± 7
Weight (in kg; mean ± SD)	79 ± 7	85 ± 10
Duration football career (in years; mean ± SD)	9 ± 5	12 ± 5
Level of play (top league; n (%))	90 (60)	63 (61)
Field position (n (%))		
Goalkeeper	16 (11)	13 (12)
Defender	50 (33)	42 (41)
Midfielder	49 (33)	33 (32)
Forward	34 (23)	16 (15)
Current general work ability (mean ± SD)	8 ± 2	8 ± 2
Current psychological work ability (mean ± SD)	8 ± 2	8 ± 2
Voluntarily retired from football (n (%))		65 (63)
Duration retirement from football (in years; mean ± SD)		5 ± 3
Currently (self-) employed (%)		86
Working hours per week (mean ± SD)		38 ± 15
Number of severe injuries (n (%))		
None	46 (31)	23 (22)
One	47 (32)	33 (32)
Two	30 (20)	14 (13)
Three or more	26 (17)	34 (33)
Number of operations (n (%))		
None	70 (47)	33 (32)
One	33 (22)	7 (7)
Two	20 (13)	27 (26)
Three or more	26 (18)	37 (35)
LEs < 12 months ago (mean; min − max)	3 (0–9)	1 (0–6)
LEs > 12 months ago (mean; min − max)	2 (0–14)	2 (0–12)
Low social support supervisor (mean ± SD)	26 ± 18	24 ± 20
Low social support colleagues (mean ± SD)	25 ± 13	22 ± 13

min, minimum; max, maximum; SD, standard deviation.

Table 2. Prevalence of mental health complaints and psychosocial implications among current and former professional football players

	Current professional football players		Former professional football players	
	n	Prevalence (95% CI)	n	Prevalence (95% CI)
Distress[a]	15/149	10 (6–16)	19/104	18 (12–27)
Burnout[b]	7/149	5 (2–10)	17/104	16 (10–25)
Anxiety/depression[a]	38/149	26 (19–33)	41/104	39 (30–49)
Low self-esteem[b]	5/149	3 (1–8)	5/104	5 (2–11)
Adverse health behaviours[c]				
Alcohol behaviour	28/149	19 (13–26)	33/104	32 (24–41)
Smoking	10/148	7 (4–12)	12/102	12 (7–20)
Nutrition behaviour	39/149	26 (20–34)	44/104	42 (33–52)

[a]One month prevalence.
[b]Six month prevalence.
[c]Point prevalence.

those without recent exposure to such events, which was contrary to our assumption.

This study has a number of limitations and strengths. The cross-sectional analyses conducted on our baseline assessment did not allow attribution of causation [18]. Additionally because we were unable to secure a response rate higher than 29% despite the participation of players' unions, we cannot exclude reporting bias. Because the participants' selection was blinded to the researcher, non-response analysis was not possible.

Table 3. Presence of psychosocial stressors among current and former footballers with mental health complaints compared with current and former footballers without mental health complaints

	Distress, OR (95% CI)	Burnout, OR (95% CI)	Anxiety/depression, OR (95% CI)
Current professional football players			
Severe injuries	1.0 (0.5–2.1)	0.5 (0.1–1.8)	1.6 (1.0–2.7)
Surgeries	1.2 (0.8–1.9)	0.9 (0.4–2.3)	0.9 (0.7–1.3)
LEs < 12 months ago	**1.5 (1.1–2.0)****	**1.6 (1.0–2.4)***	**1.4 (1.2–1.8)****
LEs > 12 months ago	1.2 (1.0–1.6)	1.2 (0.8–1.9)	1.2 (1.0–1.4)
Low social support trainer	1.0 (1.0–1.1)	**1.1 (1.0–1.2)****	1.0 (1.0–1.0)
Low social support teammates	1.0 (1.0–1.1)	1.0 (0.9–1.0)	**1.1 (1.0–1.1)****
Former professional football players			
Severe injuries	1.0 (0.4–2.1)	0.5 (0.2–1.3)	0.6 (0.4–1.1)
Surgeries	0.9 (0.6–1.4)	1.1 (0.7–1.7)	1.1 (0.8–1.5)
LEs < 12 months ago	1.2 (0.8–1.8)	0.8 (0.5–1.2)	**1.4 (1.0–1.9)***
LEs > 12 months ago	1.0 (0.9–1.3)	1.1 (0.9–1.3)	1.1 (0.9–1.2)
Low social support supervisor	**1.0 (1.0–1.1)***	**1.1 (1.0–1.1)****	1.0 (1.0–1.0)
Low social support colleagues	1.1 (1.0–1.1)	1.0 (1.0–1.1)	1.0 (1.0–1.1)

Statistically significant values are given in bold.
*$P < 0.05$. **$P < 0.01$.

Table 4. Presence of psychosocial stressors among current and former footballers with psychosocial implications compared with current and former footballers without psychosocial implications

	Self-esteem, OR (95% CI)	Alcohol, OR (95% CI)	Smoking, OR (95% CI)	Nutrition, OR (95% CI)
Current professional football players				
Severe injuries	0.1 (0.0–1.3)	1.0 (0.6–1.6)	1.4 (0.7–2.9)	**0.4 (0.3–0.8)****
Surgeries	2.3 (0.8–76.8)	0.9 (0.6–1.3)	0.8 (0.4–1.4)	1.2 (0.8–1.7)
LEs < 12 months ago	1.0 (0.7–1.6)	0.9 (0.7–1.2)	1.1 (0.8–1.5)	0.9 (0.8–1.2)
LEs > 12 months ago	0.7 (0.3–1.5)	1.1 (1.0–1.3)	1.2 (1.0–1.5)	0.9 (0.8–1.1)
Low social support supervisor	1.0 (1.0–1.1)	1.0 (1.0–1.0)	1.0 (0.9–1.0)	1.0 (1.0–1.0)
Low social support colleagues	1.0 (0.9–1.1)	1.0 (1.0–1.1)	1.0 (1.0–1.1)	1.0 (1.0–1.1)
Former professional football players				
Severe injuries	0.1 (0.0–16.6)	0.6 (0.34–1.1)	0.6 (0.2–1.3)	1.2 (0.7–2.0)
Surgeries	0.0 (0.0–8.4)	1.2 (0.9–1.6)	**1.9 (1.2–3.0)****	0.9 (0.7–1.1)
LEs < 12 months ago	1.6 (0.5–5.3)	0.9 (0.6–1.2)	**0.4 (0.2–0.9)***	1.1 (0.9–1.5)
LEs > 12 months ago	0.8 (0.4–1.5)	1.0 (0.9–1.2)	1.0 (0.8–1.3)	1.0 (0.8–1.1)
Low social support supervisor	1.0 (0.9–1.1)	1.0 (1.0–1.0)	1.0 (1.0–1.1)	1.0 (0.9–1.0)
Low social support colleagues	1.5 (0.9–2.6)	1.0 (0.9–1.0)	0.9 (0.8–1.0)	1.0 (1.0–1.1)

Statistically significant values are given in bold.
*$P < 0.05$. **$P < 0.01$.

The national players' unions reported several reasons for not participating: the controversial (taboo) topic of the questionnaire, the length of the questionnaire (25 minutes to complete) and overload of players' surveys. To our knowledge, this is the first study exploring the prevalence of common mental health problems in current and former professional footballers across several countries. With regard to the variables in this study population (age, duration of football career, field position), the sample appears to be representative of the wider football population. In our opinion, the collaboration with FIFPro and national players' unions as opposed to clubs is also a strength of our study. It is likely that collaboration with clubs (as an additional strategy) would have led to more current players taking part, but players may have felt pressurized to participate in the study. For the former players, we believe that the main strength of our study relates to their age (up to 45 years old) as the transition period just after retirement has been recognized as critical for many elite athletes [19].

Common mental health disorders such as distress, anxiety, depression and substance abuse, which are more

frequently reported in young adults than at any other age, affect functioning and quality of life [20]. In our study, we found a higher prevalence of common mental health disorders among former than among current professional footballers. Furthermore, our findings suggest that the prevalence of common mental health disorders is higher in current and former professional footballers than in other populations. In other studies, the prevalence of common mental health disorders was found to range from 5% to 25% in young and older general and working populations, whereas 17% of young and adult French Olympic athletes reported having encountered mental problems in the past [20–24].

In our study, not all associations between stressors and mental health problems were found to be statistically significant or in the expected direction. Notably, we found that current players with previous operations were less likely to have adverse eating behaviour compared with former players without previous operations and that former players with recent LEs were less likely to smoke than other former players. These associations are contrary to our assumptions and remain difficult to interpret. In current professional footballers, the occurrence of common mental health disorders was significantly associated with recent LEs and low support (from trainer and teammates), being also significantly correlated (in *post hoc* analyses) with injuries and operations. One explanation may be the rivalry between players in order to secure a starting place in the team, whereas coaches and managers may not always be supportive in pushing players to their limits. Furthermore, professional footballers may be prone to mental health problems when they are unable to train and compete as a consequence of LEs, including severe (time-loss) injuries and operations. Monitoring these stressors during a professional football career could be important for the early identification of players at risk in order to anticipate potential mental health problems, which is also important in preventing any related decrease in performance.

In previous studies, current and former professional footballers, as well as club physicians, acknowledged the lack of information and support related to mental health problems [25,26]. In the light of our findings, raising professional footballers' awareness of mental and psychosocial health issues that may occur during and after their career seems to be the minimum requirement. Also, as it has been recognized that young people and athletes are reluctant to seek help for mental health problems, interventions based on self-management should be developed in order to empower sustainable health, functioning and quality of life in professional footballers [27,28]. Methods proven effective in health settings, such as a self-management approach, could include a self-awareness component to provide players with relevant information about their state of health, and a counselling component aimed at managing symptoms and signs of health problems, to minimize their impact on function [29,30]. With regard to the particularly closed character of the world of professional football, it may be beneficial to make such interventions available through the professional footballers' unions, both for current and for former players, who remain affiliated to their union after retirement.

Key points

- The prevalence of mental health problems was up to 26% and 39% in current and former professional football players, respectively; anxiety/depression was the most commonly reported condition.
- The prevalence of psychosocial difficulties ranged from 3% (low self-esteem) to 26% (adverse nutrition behaviour) in current professional footballers and from 5% (low self-esteem) to 42% (adverse nutrition behaviour) in former players.
- Current players with recent life events or low support from trainers and teammates were more likely to report mental health problems, whereas former players with recent life events and low supervisor support were more likely to have mental health complaints.

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Conflicts of interest

None declared.

References

1. Gulliver A, Griffiths KM, Mackinnon A, Batterham PJ, Stanimirovic R. The mental health of Australian elite athletes. *J Sci Med Sport* 2014 April 29. pii: S1440-2440 (14)00075-9. doi:10.1016/j.jsams.2014.04.006 [epub ahead of print].
2. Warriner K, Lavallee D. The retirement experiences of elite female gymnasts: self-identity and the physical self. *J Appl Sport Psychol* 2008;**20:**301–317.
3. Gouttebarge V, Inklaar H, Frings-Dresen MHW. Risk and consequences of osteoarthritis after a professional football career: a systematic review of the recent literature. *J Sports Med Phys Fitness* 2014 May 14. PMID:24823470 [epub ahead of print].
4. Kristiansen E, Halvari H, Roberts GC. Organizational and media stress among professional football players: testing an achievement goal theory model. *Scand J Med Sci Sports* 2012;**22:**569–579.

5. Karasek R, Theorell T. *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*. New York, NY: Basic Books, 1990.
6. Vandenbroucke JP, von Elm E, Altman DG *et al*. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *Epidemiology* 2007;**18:**805–835.
7. Lwanga SK, Lemeshow S. *Sample Size Determination in Health Studies. A Practical Manual*. Geneva, Switzerland: World Health Organization, 1991.
8. Maslach C, Jackson SE, Leiter MP. *MBI: Malach Burnout Inventory Manual* (3rd edn). Palo Alto, CA: Consulting Psychologists Press, 1986.
9. Braam C, van Oostrom SH, Terluin B, Vasse R, de Vet HCW, Anema JR. Validation study of a distress screener. *J Occup Rehabil* 2009;**19:**231–237.
10. Goldberg DP, Gater R, Sartorius N *et al*. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychol Med* 1997;**27:**191–197.
11. Romppel M, Braehler E, Roth M, Glaesmer H. What is the General Health Questionnaire-12 assessing? Dimensionality and psychometric properties of the General Health Questionnaire-12 in a large scale German population sample. *Compr Psychiatry* 2013;**54:**406–413.
12. Rosenberg, M. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press, 1965.
13. Van der Veer T, Frings-Dresen MH, Sluiter JK. Health behaviors, care needs and attitudes towards self-prescription: a cross-sectional survey among Dutch medical students. *PLoS One* 2011;**6:**e28038.
14. Fuller CW, Ekstrand J, Junge A *et al*. Consensus statement on injury definitions and data collection procedures in studies of football (soccer) injuries. *Br J Sports Med* 2006;**40:**193–201.
15. Van Veldhoven M. *VBBA User Manual* [In Dutch: *VBBA Handleiding*]. Amsterdam, The Netherlands: SKB, 2002.
16. Bramwell ST, Masuda M, Wagner NN, Holmes TH. Psychosocial factors in athletic injuries: development and application of the social and athletic readjustment rating scale (SARRS). *J Human Stress* 1975;**1:**6–20.
17. Tuomo K, Ilmarinen J, Jahkola A, Katajarinne L, Tulkki A. *Work Ability Index* [In Finnish: *Tyokykyindeksi*]. Helsinki, Finland: Tyoterveyslaitos, 1997.
18. Portney LG, Watkins MP. *Foundations of Clinical Research. Applications to Practice* (3rd edn). Upper Saddle River, NJ: Pearson/Prentice Hall, 2008.
19. Alfermann D, Stambulova N. Career transitions and career termination. In: Tenenbaum G *et al*, eds. *Handbook of Sport Psychology*. Hoboken, NJ: Wiley, 2007.
20. Bültmann U, Kant I, Kasl SV, Beurskens AJ, van den Brandt PA. Fatigue and psychological distress in the working population: psychometrics, prevalence, and correlates. *J Psychosom Res* 2002;**52:**445–452.
21. Gaspersz R, Frings-Dresen MH, Sluiter JK. Prevalence of common mental disorders among Dutch medical students and related use and need of mental health care: a cross-sectional study. *Int J Adolesc Med Health* 2012;**24:**169–172.
22. Ruitenburg MM, Frings-Dresen MH, Sluiter JK. The prevalence of common mental disorders among hospital physicians and their association with self-reported work ability: a cross-sectional study. *BMC Health Serv Res* 2012;**12:**292–298.
23. Schaal K, Tafflet M, Nassif H *et al*. Psychological balance in high level athletes: gender-based differences and sport-specific patterns. *PLoS One* 2011;**6:**e19007.
24. Drawer S, Fuller CW. Perceptions of retired professional soccer players about the provision of support services before and after retirement. *Br J Sports Med* 2002;**36:**33–38.
25. Gouttebarge V, Sluiter JK. Medical examinations undertaken by Dutch professional football clubs. *Occup Med (Lond)* 2014;**64:**13–16.
26. Rickwood DJ, Deane FP, Wilson CJ. When and how do young people seek professional help for mental health problems? *Med J Aust* 2007;**187:**S35–S39.
27. Watson J. College student-athletes' attitude toward help-seeking behavior and expectations of counseling services. *J Coll Stud Dev* 2005;**46:**442–449.
28. Foster G, Taylor SJ, Eldridge SE, Ramsey J, Griffiths CJ. Self-management education programmes by lay leaders for people with chronic conditions. *Cochrane Database Syst Rev* 2007;CD005108.
29. Nolte S, Osborne RH. A systematic review of outcomes of chronic disease self-management interventions. *Qual Life Res* 2013;**22:**1805–1816.
30. King M, Nazareth I, Levy G *et al*. Prevalence of common mental disorders in general practice attendees across Europe. *Br J Psychiatry* 2008;**192:**362–367.