



# Musculoskeletal Injuries Among Professional Football Players in Kuwait: A Protocol for a Cross-sectional Survey

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## Abstract

**Background:** Football is by far the most played sport around the globe, but it comes with a high risk of musculoskeletal (MSK) injuries that are reported to differ greatly between professional leagues from different countries. In Kuwait, there is no available injury profile data for professional football players.

**Objectives:** The primary aim of the proposed study is to quantify information about MSK injuries (i.e., rate, type, and severity of injury) among professional football players in Kuwait. A secondary aim is to investigate the associated injury risk factors.

**Methods and Results:** The study is descriptive and cross-sectional, with data collected from 300 professional male football players across 15 national clubs in Kuwait. A self-administered retrospective survey is completed by the football players at a single time point. The survey aims to quantify information about MSK injuries that occurred in the past three football seasons (2022, 2023, and 2024). The survey also collects information about player sociodemographic and training data. Descriptive data are presented using means  $\pm$  standard deviations (SD) and absolute or relative frequencies, as appropriate. A chi-square test is used to investigate the associated injury risk factors.

**Conclusions:** Findings from this cross-sectional study will provide a novel country-specific injury profile among professional football players in Kuwait, which will aid in designing effective training and injury prevention programs.

**Keywords:** Musculoskeletal Injuries, Kuwait, Football

## 1. Background

Football is the most popular sporting activity around the globe despite being associated with a high risk of musculoskeletal (MSK) injuries (1). This is because football includes complex and high-intensity movement patterns such as sprinting, jumping, acceleration, deceleration, side-cut maneuvers, kicking, and sudden changes of direction. These movement patterns create substantial physiological and mechanical demands on the MSK system, which explains the high rate of injuries in this sport (2). It has been reported that a professional football player suffers from 1.5 - 7.6 injuries per 1,000 hours of training and 12 - 35 injuries per 1,000 hours of match play (3). Common football injuries reported in

the literature include ankle sprains (64%), knee injuries (23%), and hamstring strains (30%) (4).

In the literature, several epidemiological studies have been performed to quantify the incidence and characteristics of MSK injuries among players in several football leagues, including the American, European, Australian, and Middle Eastern leagues (5). However, the incidence rate and characteristics of MSK injuries have been found to vary greatly between professional leagues from different countries. For example, the rate of anterior cruciate ligament re-injury and the rate of injury during training sessions compared to match play is reported to be much higher in the Middle Eastern leagues compared to the European football leagues (6). The reason for these discrepancies between leagues of

different countries might be multifactorial and may include differences in the total amount of training and the periodization of the competitive season, the number of matches played per season, and regional differences in the style of playing and training (7, 8). This implies that the generalizability of epidemiological data from one country to another may be limited. Therefore, performing regional studies to characterize country-specific injury profiles among professional football players may be of critical significance.

It is well-accepted that MSK injuries are multifactorial in nature. In this regard, studies investigating risk factors associated with MSK injuries among professional footballers have reported that older age, a history of previous injury within 12 months, and playing position are key risk factors. Consistent with prior research, there is a linear relationship between the number of risk factors and injury risk. Therefore, a good understanding of the key risk factors associated with MSK injuries is important to allow the development of effective injury preventive strategies.

Few football injury data have been collected in Asia, particularly in the Middle East. In this regard, a previous study conducted on professional Turkish football players found that the most frequent injuries were skin abrasions and muscle strains (9). Another study on time-loss injuries at the FIFA World Cup Qatar 2022 found that 19% of all muscle injuries were hamstring muscle injuries (10).

In Kuwait, which is a small country located in the Middle East on the northeast Arabian Peninsula, there are fifteen national sports clubs and football teams. This reflects the popularity and the dominant position of football in Kuwait. A previous study conducted on male athletes participating in ball sports in Kuwait from five sports clubs reported a 12-month prevalence of sports injuries of 73.8%, with joint injuries being the most common type (43.6%) (11). However, this study provides limited information on MSK injuries among professional football players across national clubs in Kuwait.

## 2. Objectives

The primary aim of the proposed study is to quantify information on MSK injuries among professional football players across national clubs in Kuwait. A secondary aim is to investigate the associated injury risk factors. Such a regional investigation would provide preliminary information on MSK injuries, which could have important implications for the management, monitoring, and design of training programs that could make football a safer sport for players in Kuwait.

## 3. Methods and Results

### 3.1. Study Design

The proposed study was a descriptive cross-sectional survey that aimed to quantify information about MSK injuries (i.e., rate, location, type, and severity of injury) among professional football players in Kuwait. A secondary aim was to investigate the associated injury risk factors among professional footballers in Kuwait. The study protocol was reported using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for reporting observational studies (12). This study was approved by the Research Ethics Committee at the Kuwait Ministry of Health (Project ID: 2025|2841). The ethical approval letter was available for review upon request by the editorial board.

### 3.2. Study Setting

Contracted football players from all national clubs in Kuwait ( $n = 15$ ) were invited to participate in the proposed study. The invitation for participation was via in-person visits by the authors at the sports clubs, on the basis of one club per week. Data collection was performed at one time point (during the visit day) using a retrospective self-reported survey distributed by the two authors to all contracted football players (Appendix 1 in Supplementary File). Accordingly, the duration of the data collection process for the proposed study was expected to be around 4 months.

### 3.3. Eligibility Criteria

Professional (contracted) football players from all national clubs in Kuwait ( $n = 15$ ) were invited in person to participate in the proposed study. Only male professional footballers aged 18 years or older were included in the study.

### 3.4. Data Collection Procedure

On the day of the visit, the authors met with medical staff and contracted football players to present the study's aims and objectives. The authors also explained the questionnaire design along with other important aspects, such as the definition of injuries and the football seasons considered in the study. The authors provided information sheets and consent forms for each player during the day of the visit. After that, a self-administered retrospective survey (see below for details) was distributed to all players after obtaining their consent. The authors remained present

throughout the survey administration to address any questions or concerns raised by participants. The completed surveys were collected by the authors and confidentially stored until the end of the data collection process. The authors distributed extra copies of the survey to the principal medical staff to be completed by players who were absent from the club during the official visit of the authors. These surveys were collected by the authors upon completion. The football players were informed that their participation in the study was completely voluntary and that they had the right not to complete the survey for any reason.

### 3.5. Data Collection Tool

Football players who agreed to participate and met the inclusion criteria were required to complete a self-administered survey that was voluntary and retrospective. As far as the authors were aware, no validated retrospective survey was available in the literature to quantify information about MSK injuries among professional football players. Accordingly, a survey, which was implemented in previous studies to investigate injuries among football referees (13, 14), was implemented in this study. The survey met the general recommendations of reporting studies of football (soccer) injuries (15).

Due to expected language variability among the players (Arabic and English speakers), the English version of the survey was translated into Arabic. The translation process was carried out by two bilingual translators whose first language was Arabic (one of whom was the corresponding author of the paper). The content validity (i.e., relevance and clarity of each item) of the Arabic version of the survey was assessed by two bilingual professionals. A back-translation by an independent translator was also performed to compare the semantic and conceptual equivalence with the original survey. Moreover, the Arabic version of the survey was assessed for test-retest reliability using the intraclass correlation coefficient and Cohen's Kappa, as appropriate. Accordingly, 50 football players were invited to complete the survey twice, with a one-week interval between the two time points. Completing the survey required around 15 minutes.

The survey consisted of five sections as follows: Sociodemographic information (i.e., age, nationality, weight, height), general health (i.e., smoking, medical problems, number of diagnosed MSK injuries, operation in the MSK system), history of training (name of the national club, years playing for the club, hours of training per week, current playing position, additional sports), injuries and complaints and associated

consequences during the last match and the last three football seasons (2024, 2023, and 2022). The football players were instructed to report only time-loss injuries, which were defined as injuries that resulted in the player being unable to fully participate in a training session or match play (15). Also, they were requested to report MSK injuries sustained only during a training session and/or match play and not to report injuries that occurred outside the club setting (i.e., at home or work). The injury severity, which was defined as the days between the initial injury date and the player's full return to team training, including their readiness for match selection (time loss), was categorized as minimal (1 - 3 days), mild (4 - 7 days), moderate (8 - 28 days), and severe (> 28 days) (16).

### 3.6. Bias

In this study, we chose to quantify MSK injuries only during the last three football seasons and not throughout the entire career as originally suggested by previous authors (13, 14). This decision was intended to minimize recall bias in our cross-sectional study. According to evidence, as the time frame for recalling past events or experiences increases, recall accuracy tends to decline (17). However, to reduce reliance on memory and help players recall injuries when necessary, the medical staff for each team were present during the data collection process. The authors also ensured their presence during the data collection process to reduce non-response bias, which is a common source of error in survey-based research (18).

### 3.7. Study Size

All contracted and registered professional football players (both starters and reserves) from all the national sports clubs ( $n = 15$ ) in Kuwait were invited to participate in the study. There were more than 20 contracted players in each sports club; therefore, the estimated sample was  $\geq 300$ . A previous regional study reported a 12-month prevalence of sports injuries of 73.8% (11). Therefore, using a known prevalence of 73.8%, a confidence level of 95% ( $Z = 1.96$ ), and an acceptable margin of error between 0.05 and 0.03, the estimated sample size for this cross-sectional study was between 153 and 263. Therefore, our sample size ( $n \geq 300$ ) was sufficient and maximized representativeness.

### 3.8. Statistical Analysis

Data were presented as means  $\pm$  standard deviations (SD) and absolute or relative frequencies, together with a 95% confidence interval, as appropriate. To investigate

associated injury risk factors (i.e., age and playing position), a chi-square test was implemented. A logistic regression analysis was conducted to assess injury risk while controlling for confounders such as age, playing position, and the number of previous injuries. Age was analyzed as a continuous variable to preserve its full distribution and avoid arbitrary cutoff points, which can affect the results and interpretation. A value of  $P < 0.05$  was considered statistically significant. Data analysis was performed using IBM SPSS Statistics ver. 30.0.0.

#### 4. Discussion

The proposed study aims to quantify information about MSK injuries (i.e., rate, location, type, and severity of injury) among professional football players in Kuwait. A secondary aim is to investigate the associated injury risk factors. To the best of the authors' knowledge, this is the first study on MSK injuries among professional football players across all sports clubs ( $n = 15$ ) in Kuwait. A previous study on professional male athletes in Kuwait reported a 12-month prevalence of sports injuries of 73.5% (11). However, the study was conducted on athletes participating in ball sports and they were recruited from only 5 sports clubs. Therefore, the proposed study will establish the injury profile of professional male football players in Kuwait. This will provide valuable information for officials and stakeholders in the sports industry in Kuwait to review injury trends among both football players and sports clubs and will allow the development of effective injury prevention and training programs.

It is well-established that MSK injuries among football players vary greatly in terms of rate, severity, and type between professional leagues from different countries. For example, a study conducted on European professional men's football found that 17% of all injuries were thigh strain injuries, which occurred more frequently during the competitive season (1). Another study on Turkish football players found that the most common injuries were posterior thigh muscle fatigue and patellar tendinopathy (19). Moreover, a study on Iranian professional football players found that the most frequent injuries were muscle strains in the thigh and groin region (30.2%) and contusions (30.2%) (20). Such variability in MSK injuries across countries limits the generalizability of epidemiological data and highlights the need to investigate country-specific injury profiles among football players.

The proposed study is a retrospective cross-sectional survey. A prospective cohort study is the type of study design recommended for studies on football injuries

(15) and would enable the identification of risk factors for MSK injuries in football. However, a cross-sectional survey is known to be inexpensive and convenient, making it appropriate as a first step in establishing an injury-specific profile in the targeted cohort in Kuwait. It is acknowledged that such a research design is associated with recall bias (17), which occurs when study participants are unable to precisely remember or report a past event or experience (21). Therefore, we restricted our retrospective investigation to the last three football seasons (2024, 2023, and 2022) to reduce bias associated with recalling older MSK injuries. Also, given that recall bias is likely associated with having a limited recall capacity and/or older age, the authors anticipate a low level of recall bias in the proposed study due to the relatively young age of the study sample.

Given that data collection for the proposed study is performed at one time point (cross-sectional design), the authors expect a high response rate, which is defined as the number of players who agree to participate divided by the total number of contracted players. Moreover, the authors' in-person visits to the national sports clubs and their presence during the data collection process may influence participant motivation and thereby increase the response rate. In this regard, a previous retrospective survey on injuries in Croatian football/soccer referees found a response rate of  $\geq 95\%$  (13).

#### 4.1. Conclusions

Following the proposed plan for data collection, the authors will provide a novel country-specific injury profile of professional male football players in Kuwait, and this will establish the foundation for conducting a future advanced prospective cohort study.

#### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

#### Footnotes

**Authors' Contribution:** E. M. and M. B. developed the original idea and the protocol. E. M. wrote and prepared the manuscript. S. P. and A. B. contributed to the development of the protocol. M. B., A. B., and S. P. revised the manuscript. S. P. supervised the study.

**Conflict of Interests Statement:** The authors declare no conflict of interest.

**Data Availability:** No new data were created or analyzed in this study. Data sharing does not apply to this article.

**Ethical Approval:** This study is approved by the Research Ethics Committee at the Kuwait Ministry of Health (Project ID: 2025|2841).

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