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Original Article

Physiotherapy Section

Perceptions of Mizo Professional Footballers on Injury Risk Factors, Preventive Measures and Management Strategies: A Cross-sectional Study

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ABSTRACT

Introduction: Injuries are common in professional football and can significantly affect player performance, team outcomes and career longevity. Mizoram, a state known for producing elite footballers, lacks region-specific research on injury perceptions and preventive strategies among its athletes.

Aim: To assess the perceptions of Mizoram's professional footballers regarding injury risk factors, injury history, preventive strategies and their effectiveness.

Materials and Methods: This cross-sectional study was conducted in Mizoram, India, from January 2023 to March 2023. A structured questionnaire was administered to 43 male footballers aged 18-35 years from various leagues, including the Indian Super League (ISL), I-League and Mizoram Premier League (MPL). Data were analysed using IBM Statistical Package for the Social Sciences (SPSS) Statistics, version 25.0, applying descriptive statistics and Chi-square tests, with a p-value of <0.05 considered statistically significant.

Results: A total of 38 players (88.4%) reported injuries, primarily affecting the knees (n=25, 65.8%) and ankles (n=20, 52.6%). Major perceived causes included player contact (n=25, 65.79%), overtraining (n=22, 57.89%) and poor playing surfaces (n=20, 52.63%). While 35 players (81.4%) were aware of injury-prevention strategies, warm-up exercises (n=30, 69.77%) and stretching routines (n=25, 58.14%) were most commonly practiced. Barriers to implementation included lack of time (n=20, 46.5%) and lack of guidance (n=15, 34.9%). Most participants rated the strategies as moderately effective (n=18, 41.86%).

Conclusion: This study highlights the high prevalence of lower-limb injuries among Mizoram footballers and identifies key barriers to prevention strategies, underscoring the need to improve player education, infrastructure and the integration of structured prevention programs such as FIFA 11+ into daily practice.

Keywords: Athletic injuries, Cross-sectional studies, Football psychology, Musculoskeletal trauma, Sports injury prevention

INTRODUCTION

Football is a popular and demanding sport worldwide that requires endurance, agility, strength and tactics [1]. As it has become more professional, the physical demands of the game have increased and players are more prone to injuries [2]. Such injuries have career implications for individuals, as well as performance implications for teams and the overall quality of the sport [3]. Mizoram has become a football powerhouse among Indian states and has produced a large number of professional football players who compete in national and regional leagues [4]. Nevertheless, there is a paucity of studies regarding the perceptions of these athletes about injury risks and the implementation of preventive measures into their daily training and competition routines [5]. Their views are important for understanding how to establish context-specific, effective injury-prevention strategies that can support their health and longevity in performance [6,7].

Injuries are a common and often unavoidable aspect of professional football [8], affecting player performance, team outcomes and long-term athletic careers [9]. It is unfortunate that despite advances in sports science and medical support [10], a number of athletes still experience repeated injuries because of different modifiable and non modifiable risk factors [11]. Although the mechanisms of injury and injury prevention have been well studied in the global population [12], little literature is available on Indian football players [13], let alone players of a particular culture or region, such as Mizoram, a state with a rich football culture and strong grassroots development system [14]. The perceptions of Mizoram professional footballers toward injury risks and prevention strategies would be vital in designing specific injury-prevention interventions, which are culturally relevant and practically applicable [15]. The proposed study will help to fill this gap by investigating their experiences, beliefs and practices regarding injury and prevention, which will eventually help to design more effective locally adapted injury-management programs.

Objectives:

1. To identify the perceived risk factors contributing to injuries among Mizoram professional footballers.
2. To examine the types and frequency of injuries experienced by Mizoram professional footballers during their careers.
3. To assess the level of awareness and implementation of injury-prevention strategies among Mizoram professional footballers.
4. To explore the perceived effectiveness and barriers related to injury prevention practices among Mizoram professional footballers.

MATERIALS AND METHODS

A descriptive, cross-sectional study was conducted between January 2023 and March 2023 across multiple football training and match venues in Mizoram, India. No injury-prevention program or training was provided by the researchers; responses reflect players' existing practices and self-reported experiences. Participation was entirely voluntary and written informed consent was obtained from each respondent before data collection. All procedures followed the ethical standards outlined in the Declaration of Helsinki.

Inclusion criteria:

- Male professional footballers aged 18-35 years
- Players of Mizo ethnicity actively participating in professional leagues (Indian Super League [ISL], I-League, I-League 2nd Division, MPL)
- Willingness to provide informed consent

Exclusion criteria:

- Female football players
- Amateur or recreational players
- Athletes under the age of 18
- Players with incomplete questionnaire responses

Sample size calculation:

$$n=\frac{z^2.P(1-P)}{d^2}$$

Where:

- Z=1.96Z=1.96Z=1.96 for 95% confidence level
- P=0.5 (estimated proportion for maximum variability)
- d=0.15 (margin of error)

$$n=\frac{(1.96)^2.0.5(1-0.5)}{(0.15)^2}\approx 43$$

Study Procedure

A purposive sampling method was employed to identify eligible male Mizoram professional footballers across various competitive levels. The final sample consisted of 43 professional football players. Given the small and specialised population of professional players in Mizoram actively playing in top-level leagues, this number provides a realistic and obtainable group.

Data were collected through a structured questionnaire developed based on a comprehensive literature review of injury risk factors, mechanisms and prevention strategies in football. The questionnaire was presented in both Mizo and English to ensure clarity and ease of understanding. It included questions on the participants' injury history, perceived risk factors, beliefs and practices regarding preventive measures. Each category was assessed with a single focused question to maintain simplicity and reduce response fatigue. Before the main data collection, the questionnaire was pilot-tested with 10 players to evaluate content validity and enhance reliability. The feedback obtained was used to make minor modifications to improve clarity while preserving the instrument's structure and intent. To ensure linguistic and cultural accuracy, forward and backward translation were employed. The original English version was translated into Mizo by a bilingual expert and then independently translated back into English by another expert. Discrepancies were reviewed and resolved through consensus.

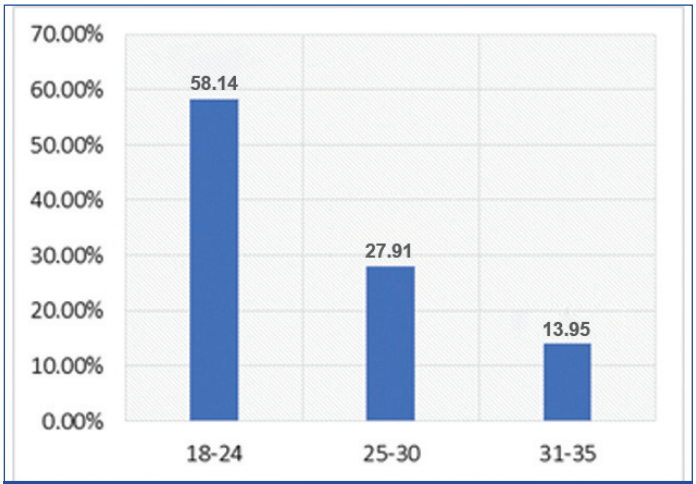
Content Validity Index (CVI) was calculated based on evaluations from three subject experts (one physiotherapist and two certified football coaches). The CVI value obtained was 0.88, indicating good content validity. Reliability was tested through a pilot study involving 10 Mizoram professional footballers (excluded from final data). The internal consistency of the questionnaire was evaluated using Cronbach's alpha, yielding a value of 0.84, which denotes acceptable reliability.

STATISTICAL ANALYSIS

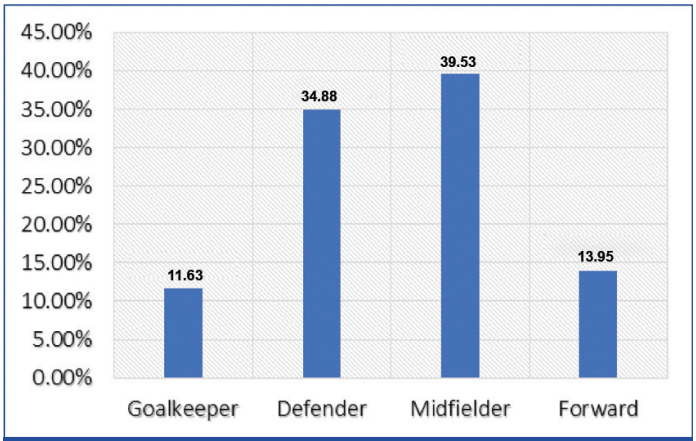
All data were entered and analysed using IBM SPSS Statistics Version 25.0. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarise demographic characteristics, injury history and perceptions.

RESULTS

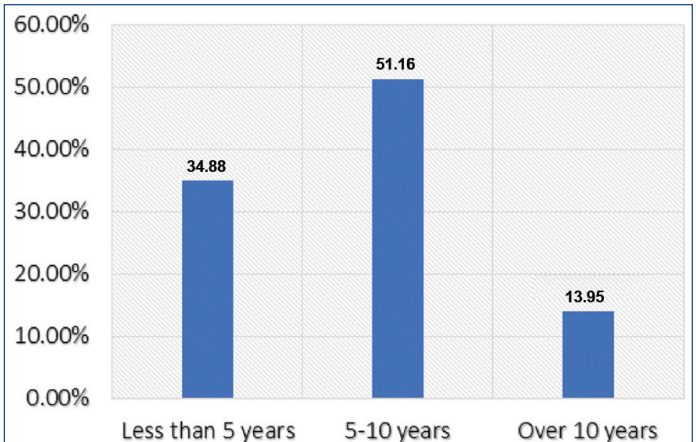
A total of 60 eligible participants were approached, of whom 43 completed the questionnaire, yielding a response rate of 71.7%. The majority of respondents were young footballers aged 18-24 years, accounting for 25 of the sample. The next largest group consisted of those aged 25-30 12 players, followed by 31-35 6 players [Table/Fig-1]. Most respondents played as midfielders 17, followed by defenders 15, forwards 6 and goalkeepers 5 [Table/Fig-2]. Over half of the respondents had 5-10 years of professional football experience [Table/Fig-3].



[Table/Fig-1]: Graphical representation of age distribution.



[Table/Fig-2]: Graphical representation of playing position distribution.

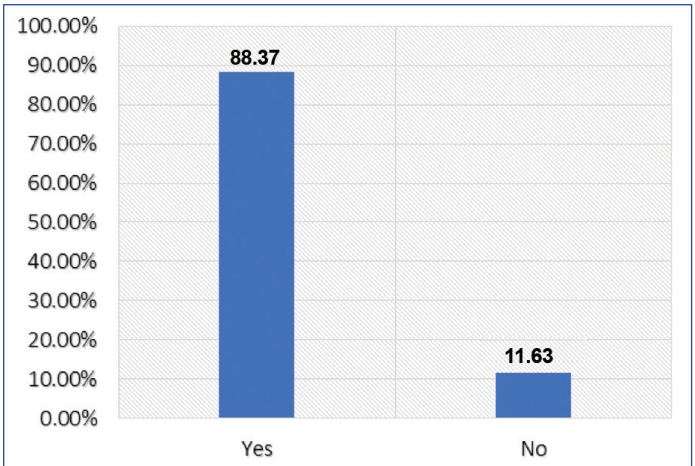


[Table/Fig-3]: Graphical representation for years of professional football experience.

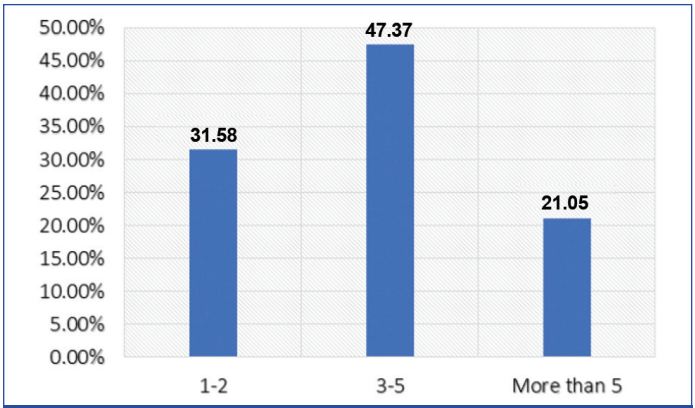
Injury History

The majority i.e. 38 had sustained injuries during their football careers, while only 5 had not experienced any injuries [Table/Fig-4]. Most respondents 18 reported sustaining 3-5 injuries during their careers and 8 had experienced more than five injuries [Table/Fig-5]. Respondents most frequently cited contact with other players 25 and overtraining 23 as primary causes of injuries. Poor playing surface (52.63%) and fatigue (47.37%) were also significant factors [Table/Fig-6]. Almost half of the respondents felt that fatigue

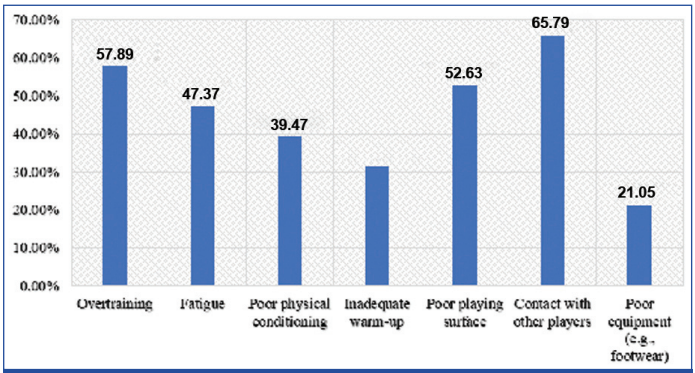
frequently affected their performance and increased injury risk [Table/Fig-7].



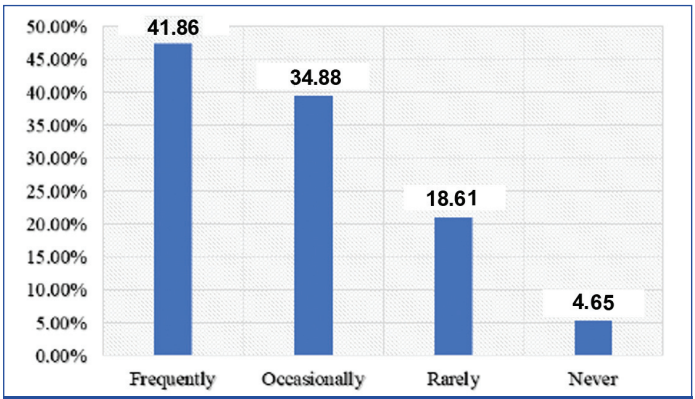
[Table/Fig-4]: Graphical representation of injury incidence.



Table/Fig-5]: Graphical representation of injuries during career.
Author's own Source

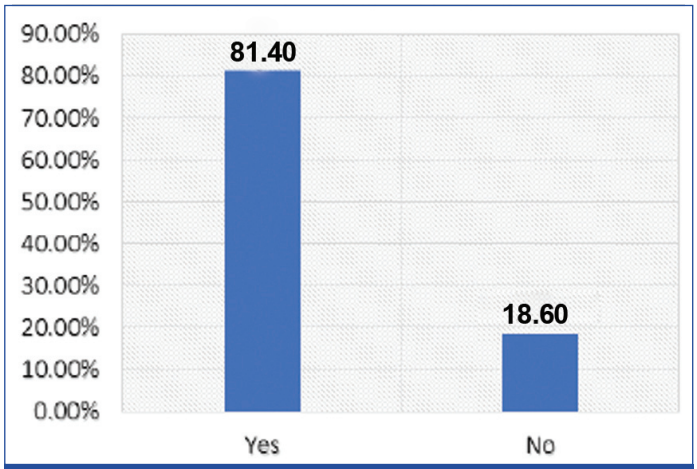


[Table/Fig-6]: Graphical representation for perceived causes of injuries.

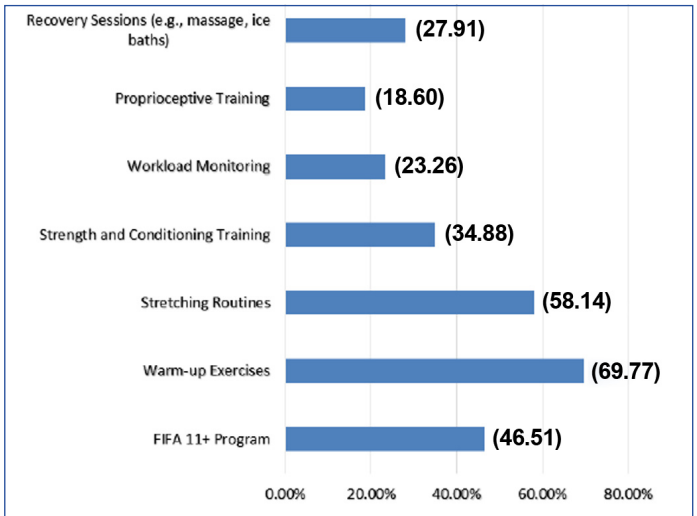


[Table/Fig-7]: Graphical representation for fatigue impacting performance and injury risk.
Author's own Source

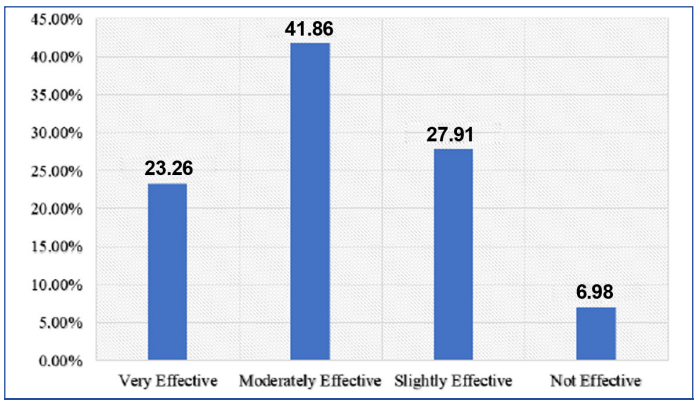
The majority of respondents 35 were aware of specific injury prevention strategies, while 8 were not familiar with any such measures [Table/Fig-8]. The most commonly used strategies were warm-up exercises in 30 and stretching routines in 25. Other methods, like the FIFA 11+ program and recovery sessions, were less commonly implemented. Strategies such as proprioceptive training and workload monitoring were the least used [Table/Fig-9]. Most respondents i.e. 18 believed that injury prevention strategies were moderately effective. Some respondents felt the strategies were only slightly effective 12 [Table/Fig-10].



[Table/Fig-8]: Graphical representation for awareness of injury prevention strategies.



[Table/Fig-9]: Graphical representation of injury prevention strategies used.

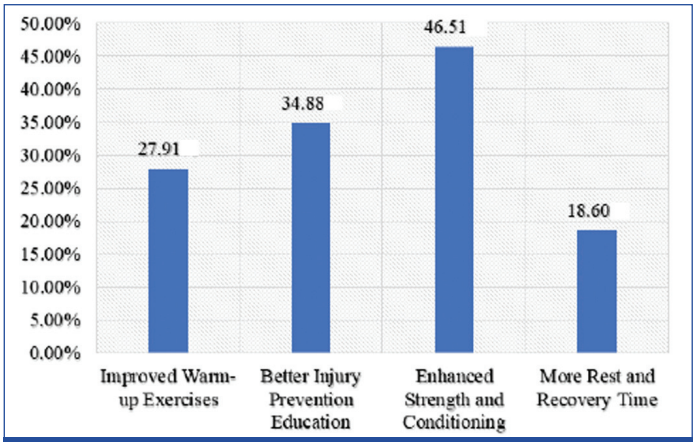


[Table/Fig-10]: Graphical representation of effectiveness of injury prevention strategies.
Author's own Source

The most commonly suggested measure to reduce injuries was enhanced strength and conditioning, followed by better injury prevention education [Table/Fig-11].

DISCUSSION

This study offers important insights into the perceptions of Mizo professional footballers regarding injury risk factors and prevention



[Table/Fig-11]: Graphical representation for additional measures to reduce injuries.

strategies. The findings reveal a high prevalence of injuries, particularly affecting the knees and ankles, with physical contact, overtraining, poor playing surfaces and fatigue cited as the most common causes. These perceptions are consistent with global trends, yet they also highlight region-specific challenges such as limited infrastructure, time constraints and inadequate guidance, which hinder the implementation of structured injury-prevention programs [16].

Comparative analysis with previous studies further contextualises these findings. Liporaci RF et al., identified poor muscle strength, inadequate rest, congested match schedules and excessive training as top risk factors among professional footballers. Their study also showed that more than three-quarters of players considered advanced strategies such as workload monitoring, lumbo-pelvic stability training, proprioceptive exercises and functional training to be effective in reducing injury risk [12]. In contrast, Mizo players primarily rely on basic methods like warm-up exercises and stretching routines, with less frequent use of structured programs like FIFA 11+ or recovery sessions. This suggests a narrower strategy spectrum and a need for broader education on evidence-based practices.

Zech A and Wellmann K, found that players from a German high-level football club perceived contact, fatigue and environmental factors as key injury risks. Interestingly, their study revealed a discrepancy in how injured and uninjured players viewed previous injuries as a risk factor, highlighting the subjective nature of injury perception. While most players performed stretching and neuromuscular warm-ups, the overall alignment between perceived risk and scientific evidence was inconsistent [17].

Similarly, Cardoso-Marinho B et al., emphasised that although footballers generally acknowledge their high injury risk and the importance of prevention strategies, many do not intend to adopt these methods. This gap between awareness and implementation is also evident in the present study, where Mizo players rated strategies as only moderately effective and cited barriers such as lack of time and guidance [11].

These findings underscore the importance of localised education and stakeholder engagement. Tailored workshops, culturally relevant materials and structured programmes like FIFA 11+ could help bridge the gap between perception and practice. Improving playing surfaces and access to physiotherapy resources are also critical. Moreover, coaches and medical staff must actively promote injury prevention as a core component of team strategy, fostering a culture where players feel supported and motivated to adopt preventive practices [18]. Ultimately, aligning the perceptions of players with those of coaching and medical teams will be essential for developing effective, context-specific injury management programmes in Mizoram and similar settings.

Of the 60 eligible players invited to participate in the study, 43 provided informed consent and completed the questionnaire, resulting in a response rate of 71.6%. This high level of participation reduces the potential for non-response bias and strengthens the representativeness of the study findings.

The present study findings align with global trends regarding injury localisation and causes. However, unlike studies in professional European or South American contexts where structured injury-prevention programmes are well adopted [12,17], Mizo footballers primarily rely on basic strategies such as warm-ups and stretching.

Limitation(s)

This study has several limitations. Firstly, the sample consisted exclusively of male professional footballers, as female representation in top-tier football leagues in Mizoram was limited during the data collection period. This gender specificity limits the external validity of the results to female athletes. Secondly, the sample size was relatively small and participants were selected using purposive sampling, which might introduce selection bias. Additionally, the study used self-reported data that can be prone to recall bias or social desirability bias. Prospective research should include women participants, larger sample sizes and longer follow-up to make the findings more widely applicable.

A key limitation of this study was the absence of statistical analyses, which restricts the ability to draw robust inferences or identify significant associations between variables such as injury prevalence, perceived risk factors and prevention strategies. Without statistical testing, the findings remain largely descriptive and may not fully capture the strength or direction of relationships within the data. This limits generalisability and the potential to inform evidence-based interventions. Future studies should incorporate appropriate statistical methods to enhance analytical rigour and support more definitive conclusions.

CONCLUSION(S)

This study offers valuable insights into the perceptions of Mizo professional football players regarding injury risk factors and prevention strategies. The findings highlight a notably high injury prevalence, particularly affecting the knees and ankles, with physical contact, overtraining, fatigue and poor playing surfaces identified as key contributors. While players demonstrate moderate awareness of injury prevention methods, practical challenges such as limited time, inadequate guidance and insufficient facilities impede consistent implementation. Common practices such as warm-ups and stretching are widely adopted, yet structured programmes like FIFA 11+remain underutilised. These results underscore the urgent need for improved workload management, infrastructural support and targeted education by coaches, physiotherapists and sports organisations to enhance injury prevention and player wellbeing.

REFERENCES

[1] Engebretsen L, Soligard T, Steffen K, Alonso JM, Aubry M, Budgett R, et al. Sports injuries and illnesses during the London Summer Olympic Games 2012. Br J Sports Med. 2013;47(7):407- 14. PMID:23515712.
[2] Junge A, Dnorak J. Football Injuries during the 2014 FIFA World Cup. Br J Sport Med. 2015;49(9):599-602.
[3] Kwakye SK, Mostert K, Garnett D, Masenge A. Risk factors associated with football injury among male players from a specific academy in Ghana: A pilot study. Sci Rep. 2023;13(1):8070.
[4] Arnason A, Sigurdsson SB, Gudmudsson A, Holme I, Engebretesn L, Bahr R. Risk factors for injuries in football. Am J Sports Med. 2004;32(1 Suppl):5S-16S.
[5] Hübscher M, Zech A, Pfeifer K, Hänsel F, Vogt L, Banzer W. Neuromuscular training for sports injury prevention: A systematic review. Med Sci Sports Exerc. 2010;42(3):413-21.
[6] Mc Call A, Davison M, Andersen TE, Beasler L, Bizzini M, Duport G. Injury prevention strategies at the FIFA 2014 World cup: Perceptions and practices of the physicians from the 32 participating national teams. Br J Sports Med. 2015;49(9):603-08.
[7] Hanlon C, Krzak JJ, Prodoehl J, Hall KD. Effect of injury prevention programs on lower extremity performance in youth athletes: A systematic review. Sport Health. 2020;12(1):12-22.
[8] Stephenson SD, Kocan JW, Vinod AV, Kluczynski MA, Bisson LJ. A comprehensive summary of systematic reviews on sports injury prevention strategies. Orthop J Sports Med. 2021;9(10):23259671211035776.

[9] Seow D, Massey A. Correlation between preseason body composition and sports injury in an English Premier League professional football team. BMJ Open Sport Exerc Med. 2022;8(2):e001193.
[10] Ekstrand J, Hägglund M, Waldén M. Injury incidence and injury patterns in professional football: The UEFA injury study. Br J Sports Med. 2011;45(7):553-58.
[11] Cardoso-Marinho B, Barbosa A, Bolling C, Marques JP, Figueiredo P, Brito J. The perception of injury risk and prevention among football players: A systematic review. Front Sports Act Living. 2022;4:1018752.
[12] Liporaci RF, Yoshimura S, Baroni BM. Perceptions of professional football players on injury risk factors and prevention strategies. Sci Med Footb. 2022;6(2):148-52.
[13] Hamdan M, Sharir R, Yeo WK, Azidin RMFR. Soccer players' perceptions on injury risk and prevention strategies. J Physical Education and Sport. 2022;22(10):2362-69.
[14] All India Football Federation. Mizoram: The land of rising football stars. 2021. Retrieved from https://www.the-aiff.com.
[15] Seeja VV. Health-risk behavior and attitude towards Physical activity among engineering college Students in Kerala. Doctoral dissertation, Dept. of Physical Education, University of Calicut; 2022. Available from: https://scholar.uoc.ac.in/server/api/core/bitstreams/bb686be8-8595-4a94-8b05-1407fe63108b/content.
[16] Nath PR. Valuation of a Football Club-Unearthing the Financial Potential of an Indian Football Club and Why is it on the Rise. Master's thesis, Universidade NOVA de Lisboa (Portugal); 2021.
[17] Zech A, Wellmann K. Perceptions of football players regarding injury risk factors and prevention strategies. PLoS ONE. 2017;12(5):e0176829. Available from: https://doi.org/10.1371/journal.pone.0176829.
[18] O'Brien J, Santner E, Kröll J. Moving beyond one-size-fits-all approaches to injury prevention: Evaluating how tailored injury prevention programs are developed and implemented in academy soccer. J Orthop Sports Phys Ther. 2021;51:432-39. Doi: 10.2519/jospt.2021.10513.

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