ORIGINAL ARTICLE

Injury prevention and rehabilitation gaps in low-resource football: Evidence from Ethiopian Premier League clubs

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ABSTRACT

Examining the injury prevention and rehabilitation strategies employed by Ethiopian men's Premier League football clubs is the aim of this particular article. Since the Premier League was established in 1993, football has been quite popular in Ethiopia. However, because of their dread of injury, Ethiopian football players' longevity and playing ability remain a worry. The application of injury prevention methods in Ethiopian football teams with restricted resources is hampered by organizational constraints, the lack of qualified human resources, and poor infrastructure, despite conclusive evidence from all across the world regarding the efficacy of such methods. This specific study made use of a descriptive cross-sectional study design. The participants in this study included 140 respondents, athletes, coaches, and physiotherapists. The results indicate a high incidence of ankle sprains, knee injuries (particularly ACL injuries), hamstring strains, and groin injuries. Since there is very little participation in organized activities like FIFA 11+, and injury management and tracking systems, injury prevention strategies are not organized and are unstructured. Most rehabilitation practices are very simple and are based on manual therapy and physical therapy, and there is very little access to modern rehabilitation techniques. Lack of resources, lack of awareness, cultural, and other factors are some of the major challenges faced in the present scenario. To overcome these shortcomings, it is recommended that injury care procedures, capacity building, resource allocation, injury prevention strategies and regular training be integrated, and injury monitoring systems be adopted. With the implementation of these strategies, Ethiopian football is expected to develop in a sustainable manner, and injury and safety risks for the players can be reduced.

Keywords: Sport medicine, Injury prevention, Rehabilitation, Ethiopian football, Player safety, Resource constraints.

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INTRODUCTION

With an estimated 4 billion fans and players worldwide, football is considered one of the most watched and played sports in the world (FIFA, 2023). In Ethiopia, where football is considered an integral part of the country's identity that instils pride, harmony, and progress in the people, the popularity of football can also be seen in the country. The Ethiopian Premier League (EPL), founded in 1993, is considered the top-level professional football league in Ethiopia. It showcases players from all across the country and promotes competitive sportsmanship in the game (Ethiopian Football Federation, 2022). The physical demands of the game make players vulnerable to injury, even if the Ethiopian Premier League has significantly contributed to the development of sports in the country.

The physical demands of sprinting, jumping, and quick changes in direction that occur in football make injuries range from minor muscle strains to major ligament injuries, fractures, and muscle injuries (Owoeye et al., 2021). These factors affect the performance of the team, which affects the league games, in addition to the ability of the player to play and participate.

The methods used in football injury care include both prevention and rehabilitation. It has been proven that the rate of injury can be reduced worldwide by implementing injury prevention programs. Such injury prevention programs include neuromuscular training, strength conditioning, appropriate warm-up methods, and load control (Gabbett & Domrow, 2022). It has been proven, for example, that the rate of injury associated with football players can be reduced by as much as 30% by using appropriate warm-ups like the FIFA 11+ method (FIFA, 2023). On the other hand, it is essential to implement appropriate rehabilitation methods for football injury care. Such methods include appropriate functional training methods, evaluations, and treatment methods. Such methods have been implemented by football teams around the world and have been proven by the latest research in sports medicine.

Despite all these advancements, Ethiopia and other developing countries are facing challenges in implementing injury prevention and rehabilitation activities to the maximum extent. It is difficult to implement injury management strategies to a maximum extent due to a lack of standardized procedures, sports medicine facilities, and training for medical personnel and sports coaches (Liu et al., 2022). In addition, a lack of sports medicine specialists, physiotherapy facilities, and awareness also affects injury prevention activities. Ethiopian football players are prone to injuries, which can have a devastating effect on their careers and the development of the sport in Ethiopia (Mengistu, 2019).

According to Tesfaye, (2020) previous research in Ethiopia has mainly concentrated on the assessment of the prevalence and nature of injuries that occur in football players Tesfaye, (2020). However, there seems to be an identified gap in terms of the injury prevention and rehabilitation techniques that are used in football clubs, in addition to the challenges that are experienced in implementing these techniques in the region. Most of the research conducted in the region does not extensively discuss the infrastructural, institutional, and resource-based factors that affect the injury management techniques that are used in football clubs.

Recent research emphasizes the importance of context-specific research and development of solutions in the context of Ethiopian football. For instance, Alemu et al. (2023) stressed the importance of improving the knowledge of coaches and sports health professionals to better manage injuries. In-depth research can bridge these gaps and develop sustainable injury management systems for the progress of Ethiopian football.

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Statement of the problem

It is agreed that injuries have a negative impact on the health, career, and performance of football players. The trend of injuries, prevention of injuries, and rehabilitation of injuries in football players have been identified through various studies carried out worldwide. For instance, the prevention of injuries in professional football teams is very crucial in the prevention of injuries in football players, as noted in the study carried out by Gabbett and Domrow in 2022. In addition, Bishop et al. noted in their study in 2021 the significance of rehabilitation in the successful return to play among football players.

However, it should be noted that the majority of the research has been done in developed countries with advanced sports medicine services. Therefore, the research might not be applicable to the context of football clubs in Ethiopia. Currently, there has been limited research done in Ethiopia on the management of injuries in football. For example, the research done by Mengistu (2019) and Tesfaye (2020) has identified the prevalence of injuries in football in Ethiopia. However, the research did not address the prevention and rehabilitation of injuries in football clubs.

Moreover, the absence of standardized procedures for injury care, training, and medical staff, as well as resource limitations in Ethiopian clubs, may pose a possibility that the procedures for injury prevention and rehabilitation are not standardized (Lemma et al., 2021). This is because the need for empirical data that is context-specific to Ethiopia has been emphasized. Although research worldwide indicates the importance of standard injury management practices, there is limited knowledge about the type of injuries that occur in Ethiopian Premier League clubs, the prevention strategies used in these clubs, and the rehabilitation practices used in these clubs. There is also limited knowledge about the prevailing problems in these clubs in terms of adhering to injury management practices despite the resource constraints faced in these clubs.

Therefore, it is important to conduct this study to explore the current injury prevention and rehabilitation methods, the nature of injuries commonly experienced among players, and the challenges faced by Ethiopian male Premier League football clubs. This research aims to fill a significant gap in injury management practices within Ethiopian football teams and to provide practical, context-specific recommendations that can enhance player safety and performance.

Moreover, this study is highly relevant to low-resource football environments globally, as many regions face similar systemic challenges such as limited access to specialized sports medicine personnel, inadequate facilities, and inconsistent injury prevention and rehabilitation practices. Whether in Africa, Asia, Latin America, or other developing regions, football programs often operate under resource constraints that adversely affect athlete health and long-term development (Owoeye et al., 2021). By examining the Ethiopian context, this research offers insights and evidence applicable to a broad spectrum of low-resource settings, highlighting the need for scalable, contextually appropriate strategies to improve sports medicine infrastructure, build capacity, and optimize injury management worldwide. Consequently, the findings contribute to an expanding body of knowledge aimed at supporting sustainable football development and athlete well-being in resource-limited environments.

Research objectives

1. To identify the common types of injuries among players in Ethiopian male Premier League football clubs.
2. To explore the injury prevention strategies currently employed by these clubs.
3. To examine the rehabilitation methods used for injured players.
4. To identify challenges faced by clubs in implementing injury management protocols.

Research questions

1. What are the prevalent injuries among players in the league?
2. What injury prevention measures are in place?
3. What rehabilitation techniques are used post-injury?
4. What barriers exist to optimal injury prevention and rehabilitation?

Significance of the study

This research will be highly significant to the majority of persons who are interested in Ethiopian football, sports medicine, and sports management. This research aims to provide helpful information which could improve the health and safety of players in Ethiopia through the investigation of injury trends, prevention, rehabilitation, and other concerns in Ethiopian Premier League football clubs.

For players and coaches

The best practices in injury prevention methods can be applied by the players and coaches by being knowledgeable about the different injury types and injury prevention methods. This could potentially improve the performance of the players and extend their professional careers.

For sports medical and rehabilitation practitioners

The findings of this study will provide crucial information regarding the current rehabilitation practices and the challenges encountered by the sports medicine practitioners in resource-constrained environments. The findings will be used as a basis for developing training programs for sports medical practitioners on capacity building and implementation of injury management.

For football clubs and management

Understanding the trend in injuries and successful injury prevention and rehabilitation strategies will provide a guide in the formulation of appropriate policy decisions. This will lead to the development of guidelines in the management of injuries in football clubs. This will have a positive impact on the performance of football clubs.

For researchers and future studies

This study will fill a knowledge gap in the management of injuries in Ethiopian football. This study also opens up an opportunity for future researchers to explore new and cost-effective injury prevention and rehabilitation strategies.

In general; by identifying and presenting injury prevention and rehabilitation strategies, this research hopes to contribute to a better and improved future for all, including players, coaches, medical teams, and sports organizations, and ultimately improve and develop football in Ethiopia.

METHODOLOGY

Research design

This study used a descriptive cross-sectional research design. The descriptive research design is appropriate for measuring existing injury prevention and rehabilitation strategies, identifying existing problems, and determining the number of injuries among Premier League footballers in Ethiopia at a given time. The cross-sectional research design allows for the collection of numerical data from different clubs and footballers.

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Population, sample, and sampling method

The target population for this study comprises football players, their respective coaches, and physiotherapists in 20 football clubs within the Ethiopian Premier League. A total of 140 participants took part in this study, with 100 football players, 20 coaches, and 20 physiotherapists. Five football players were randomly selected from each football club, while 20 coaches and 20 physiotherapists were purposively selected from each football club because each football club had one coach and one physiotherapist. A combination of both random and purposive sampling methods was used in this study. Random sampling was used to select the 100 football players because the researcher needed a representative sample of football players from the football clubs, considering their involvement in the ongoing football season. Purposive sampling was used for the selection of football coaches and physiotherapists because these are the people directly involved in injury prevention in football clubs.

Data collection tools

In order to obtain comprehensive and relevant information regarding the study, a number of data collection tools have been utilized. Structured questionnaires have been utilized in obtaining information from the players regarding their injury history, injury prevention strategies, and rehabilitation practices. In a similar manner, structured questionnaires have been utilized in obtaining information from the coaches and physiotherapists regarding their knowledge, attitude, and practices regarding injury prevention strategies and rehabilitation practices. In addition to structured questionnaires, semi-structured interview tools have been utilized in conducting interviews from the coaches and physiotherapists regarding the injury management practices in their respective institutions, challenges faced during the management of injuries, and the availability of resources during the management of injuries. Further, in obtaining information regarding the injury prevention practices and rehabilitation practices during training sessions, observation checklists have been utilized. In obtaining information regarding the injury reports, treatment practices, and rehabilitation practices recorded in the clubs, medical records have been utilized.

Data analysis

Both the quantitative data collected through structured questionnaires and the review of the medical records used descriptive statistics. To learn more about the injury awareness and practices of the players, coaches, and physiotherapists, some of the data was calculated. The study also gave insight into the distribution and trends of the collected data.

The thematic analysis was used to examine the qualitative data collected from the semi-structured interview schedule. In order to identify the trends and themes, the collected data from the interview with the athlete, coach, and physiotherapist was used. The thematic analysis gave a clear understanding of the coaches' and physiotherapists' points of view.

Ethical considerations

In this study, I obtained consent from all participants and kept all the information private. I also ensured that all the participants were aware of what the study was all about and obtained approval from the relevant authorities before I began my study.

Limitations

This study has several limitations that should be acknowledged. First, the research employed a descriptive cross-sectional design, which captures data at a single point in time. Consequently, it limits the ability to establish causal relationships or observe changes over time in the implementation of injury management protocols and the challenges faced by clubs.

Second, the data relied heavily on self-reported information and interview-based insights from coaches, physiotherapists, and management staff. While these perspectives provide valuable contextual understanding, they are subject to biases such as social desirability bias and recall bias, which may influence the accuracy and objectivity of the findings. The subjective nature of interview responses may also limit the generalizability of the results.

Third, the study did not incorporate analytical or inferential statistical approaches to quantitatively assess relationships or differences among variables. The absence of such analyses restricts the ability to statistically validate observed themes or to measure the significance of identified challenges, thereby constraining the depth of data interpretation.

Overall, these limitations suggest that future research could benefit from longitudinal designs, objective measurement tools, and rigorous statistical analyses to enhance the robustness and generalizability of findings related to injury management practices in resource-limited settings.

RESULTS AND DISCUSSION

This section would give a comprehensive review of the results obtained from the study, with a correlation to the objectives of the study. This would give an insight into the current trends of injury patterns among Premier League players in Ethiopia, including the nature of the most common injuries, their causes, and the regions of the body where such injuries are common. This would also give a review of the current injury prevention strategies in place, their effectiveness, and areas of improvement, as well as rehabilitation strategies, including methods used, resources available, and challenges faced in resource-poor settings. Finally, the results would also give an insight into the challenges faced in the management of such injuries, including the availability of medical facilities and access to knowledge in the field. This would not only give a comprehensive review of the effectiveness of the strategies currently in place but also areas of improvement in the strategies to better the safety and performance of players in Ethiopia.

Objective 1. To identify the common types of injuries among players in Ethiopian male Premier League football clubs

The following table indicates the summary of the distribution of different kinds of injuries found in football players in Ethiopian Premier League for men's football teams. A summary of the different kinds of injuries, their frequency, and the most common injuries, including the less common injuries in football players in the Ethiopian Premier League, is included in the table below.

Table 1. Injury types and frequency among players.

Injury type	Number of players (unique)
Hamstring strain	15
Ankle sprain	40
Groin injury	15
Knee injury (e.g., ACL tear)	30
Calf strain	14
Shoulder injury	10
Other like bon and head fracturing	5

The injury patterns among Ethiopian male Premier League players show notable trends in injury occurrence, which are essential in ensuring the safety and well-being of players in the league. Notably, the occurrence of ankle sprain among 40 players shows the susceptibility of the ankle joint in football players. Ankle sprain is

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one of the most common injuries in football players across the globe, making up 15-30% of all football-related injuries (Ekstrand et al., 2020). This just shows how difficult football really is because not only does a footballer need to be able to jump, change direction, and cut quickly on the field during a match, but also respond to the opposing team's movements. This puts pressure on the ligaments connecting the ankle bones. Ankle sprains occur when the ligaments stretch or tear due to stress. Preventive approaches, such as proprioceptive training, strength training for the ankle stabilizers, and suitable footwear selection for football players, are crucial in lowering the incidence of these injuries in football players (Ekstrand et al., 2020).

Approximately 30 athletes have knee injuries, which is a major concern considering the severity of such injuries and the potential for long-term effects such as osteoarthritis and instability in the knee. The most common and severe of all knee injuries is ACL injury, which is usually caused by pivoting, braking, or unexpected changes in direction in football. This is because such movements exert too much stress on the ACL. Therefore, neuromuscular training is significant in preventing ACL injuries by improving knee stability and proper biomechanics (Giza et al., 2021). Research has proven that proprioceptive training, strength training, and plyometric training can reduce ACL injuries (Giza et al., 2021). Moreover, the hamstring strains in 15 players emphasize the significance of thorough conditioning, proper warm-ups, and training strategies for preventing hamstring strains. New studies have pointed out the fact that hamstring injuries tend to occur while sprinting and when there is fatigue, as this affects the muscles and increases the risk of hamstring strains (Bishop et al., 2022). Proper eccentric training is significant in reducing the risk of hamstring strains and building strength in the muscles (Bishop et al., 2022). In all cases, the inclusion of such training strategies is significant in preventing severe knee injuries and ensuring the health of the players.

Groin injuries, reported by about 15 players, have been closely related to the high-intensity movements of the hips during kicking, directional changes, and accelerations. The injuries have been caused by overstretching or straining of the muscles of the hip adductors. The muscles have been highly utilized during dynamic movements. Research has suggested that strengthening the muscles of the hip adductors can minimize groin injuries. It has also been suggested that improving flexibility and adopting appropriate warm-up regimens can minimize groin injuries. Calf strains, which were common in 14 players, are linked to muscle fatigue, inadequate recovery, and improper conditioning. It has also been observed during explosive activities like sprinting and jumping. The injury occurs when muscles are fatigued or inadequately warmed up. It has been suggested that calf strains can be prevented by using effective conditioning programs, such as eccentric strengthening exercises. Furthermore, it can also improve the resiliency of muscles. It is crucial to emphasize these programs to prevent calf strains and improve muscle performance.

Even though the occurrence of shoulder injuries is less common, with 10 players being affected, it has the potential to impact athletic performance and the length of the recovery period. Shoulder injuries occur due to falls during the game, which puts pressure on the shoulder joint. It has been observed that such injuries can be prevented using protective gear and shoulder strengthening techniques (Hölmich et al., 2020). Moreover, the "*Other*" injury type, which includes 5 players with bone fracture and head injuries, though less common, has the potential to impact health. Bone fracture injuries, though less common, also have the potential to impact the health of the players. It has the potential to prolong the recovery period. Moreover, head injuries have the potential to impact cognitive functions and lead to traumatic encephalopathy (Giza et al., 2021). It has the potential to impact cognitive functions in the future. Therefore, it is important to implement injury prevention techniques to reduce the severity of the injury.

In all, it must be noted that such an injury profile also stresses the importance of an urgent need for specific injury prevention strategies within the league. The development and implementation of extensive warm-up

regimens, load management strategies, and injury monitoring in accordance with international recommendations are also believed to be useful in decreasing injury rates and improving performance levels for players (Bahr et al., 2020).

Objective 2. To explore the injury prevention strategies currently employed by these clubs

Table 2. Overview of injury prevention strategies and injury distribution in Ethiopian premier league football clubs.

Club	Injury prevention strategies implemented	Participation rate (%)	Key focus areas	Structured warm-up program	Injury monitoring & load management	Additional measures
Club 1	Limited exercises, inconsistent application	45%	Ankle, hamstrings	No	No	Rare injury screenings
Club 2	Minimal stretching routines	40%	Groin, knees	No	No	No recovery protocols
Club 3	Sporadic proprioception drills	50%	Ankle, knee	No	No	No load monitoring
Club 4	Basic warm-up, irregular use of FIFA 11+	55%	Hamstring, hip	Yes (irregular)	No	No individualized plans
Club 5	No structured prevention programs	42%	Overall	No	No	No injury detection systems
Club 6	Limited strength exercises	48%	Muscle balance	No	No	No recovery protocols
Club 7	No proper preventive strategies	38%	Overuse injuries	No	No	No load management
Club 8	Rare warm-up routines	52%	Lower limb	No	No	No injury screenings
Club 9	Some stretching, no structured program	46%	Hamstrings	No	No	No individual plans
Club 10	Inconsistent use of injury prevention exercises	50%	General injuries	No	No	No wearable tech
Club 11	No formal prevention measures	43%	Multiple regions	No	No	No early detection systems
Club 12	Basic warm-up, no follow-up protocols	55%	Ankle, groin	Yes (irregular)	No	No load monitoring
Club 13	Limited neuromuscular training	49%	Knee, hamstrings	No	No	No recovery protocols
Club 14	No structured injury prevention	41%	Overall	No	No	No individualized plans
Club 15	Rare use of warm-up programs	44%	Muscular balance	No	No	No injury screening
Club 16	No proper load management	37%	Overuse injuries	No	No	No early detection systems
Club 17	No structured prevention strategies	39%	Common injuries	No	No	No recovery protocols
Club 18	Limited preventive exercises	47%	Injury-prone areas	No	No	No wearable tech
Club 19	No proper warm-up or injury prevention measures	36%	Multiple regions	No	No	No individualized plans
Club 20	Rarely applies injury prevention strategies	40%	General injuries	No	No	No monitoring systems

This table below provides a comprehensive overview of injury prevention strategies implemented by various football clubs in the Ethiopian Premier League. It highlights the participation rates in injury prevention activities, key focus areas for injury mitigation, and the extent of structured programs such as warm-up routines, injury monitoring, and load management. Additionally, the table identifies supplementary measures adopted by the clubs to reduce injury risks. The data aims to shed light on the current practices and gaps in

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injury prevention efforts across the league, emphasizing the need for more systematic and consistent approaches to safeguard player health and performance.

This data indicates a mixed bag in terms of the implementation of injury prevention strategies in the football clubs under review. There are gaps in the implementation of injury prevention strategies in football clubs. Recent research has pointed out the significance of an integrated approach to implementing injury prevention strategies. Such an approach should include structured warm-ups, load management, injury monitoring, and individualized interventions. This will lead to a marked reduction in the incidence of injuries (Ekstrand et al., 2021). However, an "*implementation gap*" often exists between the evidence supporting these strategies and their actual application in real-world settings, which can hinder their effectiveness.

The participation rates in the implementation of injury prevention strategies in the clubs are moderate. The rates range from 36% to 55%. The clubs with the highest participation rates in implementing injury prevention strategies are clubs 4 and 12, with a participation rate of 55%. Conversely, clubs 16 and 19 have the lowest rates at 37% and 36%, respectively. This indicates a low engagement in the implementation of injury prevention strategies. The significance of a high participation rate in the implementation of injury prevention strategies is supported by a study indicating a correlation between a high participation rate in injury prevention programs and a low incidence of injuries (Bizzini et al., 2020). These findings align with international literature emphasizing that partial or inconsistent implementation of injury prevention programs contributes to suboptimal injury reduction outcomes.

The most common areas for injury are the lower limbs, including hamstring, knee, and ankle injuries, which are consistent with recent epidemiological studies showing these areas to be the most susceptible in football players (Ekstrand et al., 2021). Of particular note is the fact that a number of football clubs are using formal warm-up programs, such as the FIFA 11+ program, which has been extensively validated for its ability to reduce the incidence of injury through its neuromuscular, strength, and balance components (Bizzini & Dvorak, 2015). However, the use of these programs is inconsistent across football clubs, which reduces their effectiveness. A recent study has shown that football clubs using the FIFA 11+ program in its entirety can reduce their injury rate by as much as 50% when consistently applied (Bizzini et al., 2020). This highlights the importance of not only adopting evidence-based strategies but ensuring their consistent application, which is often lacking in practice a core aspect of the "*implementation gap*."

The majority of clubs lack comprehensive injury surveillance and load management systems, even if some have warm-up routines in place. Gabbett et al. (2021) report that only Clubs 4 and 12 have adopted irregular load control to prevent overtraining and fatigue. This points to a broader challenge noted in international literature, where resource limitations and organizational barriers contribute to the limited adoption of advanced injury monitoring systems, thus widening the implementation gap. The lack of proper injury surveillance systems hinders early detection of injury risk, potentially resulting in preventable injuries and prolonged recovery periods. Wearable technology and sophisticated load management systems have been demonstrated to enhance real-time training intensity modifications, thus reducing injury incidence and maximizing player performance (Gabbett et al., 2021).

Furthermore, most of the clubs lack individualized injury prevention strategies and early injury detection systems, which is an indicator of a reactive rather than a proactive injury management approach. This is alarming since existing literature emphasizes that proactive, individualized strategies are more effective in injury prevention, especially when based on player-specific risk factors and injury history (Owoeye et al., 2022). For instance, neuromuscular training, proprioception exercises, and strength conditioning programs

have been demonstrated to significantly reduce injury risk, particularly in hamstring and ankle injuries (Ekstrand et al., 2021).

While some clubs have no particular measures in place, others are very focused on preventing injuries in specific areas. To illustrate this, in Club 1, there is limited exercise application, while in Club 2, only minimal stretching is used. The absence of injury prevention strategies in clubs like 7 and 17 underscores the critical need for comprehensive and universal implementation of evidence-based injury prevention measures (Owoeye et al., 2022). This variability underscores the conceptual contribution of this study: it highlights the dissonance between what is known from international research and what is practically implemented, emphasizing the "*implementation gap*" at the organizational level.

As can be gleaned from this review, the majority of clubs do not have an overarching injury prevention strategy in place. Although some incorporate strategies like structured warm-ups or irregular load monitoring, the lack of consistency, individualization, and technological aids limits their effectiveness. The inclusion of injury prevention strategies such as structured warm-ups like FIFA 11+, irregular load monitoring, injury surveillance, and individualization has been linked to substantial injury rate reduction, longer athlete longevity, and improved performance (Gabbett et al., 2021; Bizzini et al., 2020). This conceptual insight adds to the existing literature by demonstrating that the mere presence of strategies is insufficient; their systematic, consistent, and context-specific application is crucial in bridging the evidence-practice gap.

Finally, clubs should seek to raise participation rates, standardize evidence-based warm-ups, regularly conduct load and injury surveillance, and tailor interventions to meet individual athlete needs to improve injury prevention. These strategies, supported by the latest scientific research, are fundamental to creating a safe environment and fostering athlete development. In doing so, this study contributes to the ongoing discourse on how to operationalize evidence-based practices within resource-limited settings, emphasizing the need for strategic implementation to close the "*implementation gap*."

Objective 3. To examine the rehabilitation methods used for injured players

The rehabilitation of injured athletes is an important aspect of sports medicine and has a great influence on the recovery of injured players and their return to participating games and competitions. Good rehabilitation practices are influenced by standardized practices, equipment availability, and the integration of rehabilitation practices within the general training of players. The current rehabilitation practices of Ethiopian football clubs are largely informal and may be effective depending on their comparison with standardized practices and guidelines. The following table provides an overview of the current rehabilitation practices in comparison to the rehabilitation of injured players within Ethiopian football clubs during the 2025 competition season and other relevant factors such as the use of protocol, consistency of practice, and equipment availability, among others (Gabbett et al., 2020).

Table 3. Assessment of 2025 competition season rehabilitation practices and resources in football clubs.

Aspect	Findings / Description
Use of formal rehabilitation protocols	Mostly rely on basic or informal approaches; lack structured, evidence-based protocols.
Consistency of rehabilitation practices	Practices vary widely; no standard approach, leading to inconsistent recovery processes.
Focus of rehabilitation methods	Emphasis on rest, manual therapy, and basic physiotherapy exercises; limited use of advanced techniques.
Access to specialized equipment	Scarcity of modern rehabilitation tools such as resistance machines, cryotherapy units, and proprioception training aids.

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Reliance on outside professionals	Reliance on external physiotherapists or medical practitioners; limited availability affects timely and effective rehabilitation.
Monitoring and progress tracking	Lack of systematic monitoring; rehabilitation decisions often based on subjective judgment rather than objective measures.
Player education and compliance	Limited education for players on the importance of adherence; poor compliance can hinder recovery and increase re-injury risk.
Integration with overall training	Rehabilitation viewed as a separate phase, not fully integrated into regular training routines, affecting smooth recovery and return to play.
Early return-to-play decisions	Often based on time frames or subjective judgment, risking premature return and potential re-injury.
Capacity building and resources	Need for training staff in modern rehabilitation techniques, procurement of equipment, and development of standardized protocols to improve outcomes.

The above table showed that in recent years, i.e., 2025, the need for proper injury management and rehabilitation has come to be widely accepted in the field of sports medicine. Not only is a proper rehabilitation process helpful in enabling an injured athlete to heal as best as he or she can, but it also helps in minimizing the risk of re-injury of a similar or even worse degree. However, this recognition often exists alongside an "*implementation gap*" a disconnect between the evidence supporting optimal rehabilitation practices and their actual application in resource-limited settings like Ethiopia. The problem is that in developing countries such as Ethiopia, sports injuries are often handled with limited resources and outdated methods and protocols. Such an approach not only affects the progress of the athlete's recovery but also has long-term implications for the health and longevity of the athlete's career. This gap highlights the need for context-specific strategies that bridge the divide between evidence-based knowledge and practical application. The need to understand the current rehabilitation scenario in Ethiopian football clubs is vital in order to suggest strategies based on the recent scenario.

Use of formal rehabilitation protocols

It has been observed that the majority of the football clubs in Ethiopia are not using formal or evidence-based rehabilitation protocols. Instead, they are highly dependent on subjective or anecdotal approaches, which are not giving the desired results. Recent studies revealed that the implementation of formal or evidence-based rehabilitation protocols increases the precision, efficacy, and safety of the injury treatment process. It is observed that the implementation of evidence-based protocols ensures the inclusion of the best practices, which are evidence-based, and provides a scientific approach to the injury treatment process, thereby avoiding the chances of re-injury or the recurrence of injuries. This, in turn, not only affects the performance of the athletes but also compromises their health. This aligns with international literature emphasizing that formalized, scientifically grounded rehabilitation protocols are essential for predictable and effective recovery, especially in resource-constrained environments.

Consistency of rehabilitation practices

Another challenge noted is the inconsistency in rehabilitation practices both across different clubs and within the same club from one practitioner to another. Such inconsistencies make it hard to assess the progress of the recovery process. Current research indicates that standardization of the rehabilitation process results in better recovery outcomes for the athletes, improves safety, and facilitates a smoother return-to-play (Liu et al., 2022). This underscores a broader issue identified in global sports medicine literature the lack of standardization contributes to variable outcomes and reinforces the importance of developing context-appropriate, standardized protocols. When there is a lack of standardization, athletes receive different levels of care, which affects their confidence and trust in the rehabilitation process.

Focus of rehabilitation methods

The focus of rehabilitation methods in Ethiopian clubs remains on simple measures such as rest, manual therapy, and physiotherapy exercises. Advanced methods such as neuromuscular training, functional training, and movement retraining are seldom used. Current literature confirms that incorporating such advanced measures accelerates recovery, reduces re-injury risk, and enhances performance (Liu et al., 2022; Myer et al., 2021). This gap between evidence and practice exemplifies the broader "*implementation gap,*" where resource limitations hinder the adoption of cutting-edge techniques, thereby limiting potential improvements in athlete outcomes. For example, neuromuscular training improves proprioception, balance, and coordination key elements for sports performance.

Access to specialized equipment

The lack of resources is a significant issue, with most clubs unable to afford specialized equipment like cryotherapy machines, electrical stimulation devices, proprioceptive tools, or resistance training apparatus. This limits the ability to deliver comprehensive, scientific rehabilitation. Having the appropriate equipment is crucial for improving recovery, saving time, and ensuring quality treatment (Coutts et al., 2022). This highlights a key structural barrier within the "*implementation gap*," where resource constraints impede the translation of evidence-based practices into routine care. For example, cryotherapy, when properly applied, can significantly reduce pain and oedema, facilitating faster tissue repair.

Reliance on outside professionals

Many clubs depend heavily on external physiotherapists and sports medicine experts. This reliance can introduce logistical challenges, inconsistencies in care, and issues related to accessibility. Recent studies emphasize the importance of developing internal capacities and competencies among club staff (Maffulli et al., 2021; Liu et al., 2022). This points to a conceptual addition building internal capacity is crucial for sustainable implementation of evidence-based practices, especially where external resources are limited. Developing internal expertise ensures continuity and context-specific application of best practices.

Monitoring and process tracking

Most clubs fail to employ systematic, objective methods for monitoring recovery, relying instead on subjective indicators such as pain thresholds. This approach risks inaccuracies and inconsistent assessments, potentially leading to premature return to play or re-injury. Recent research advocates for the use of objective measures like strength tests, range of motion assessments, and functional performance evaluations (Bishop et al., 2021). This aligns with the broader literature emphasizing that objective, standardized monitoring is essential to closing the "*implementation gap*" and ensuring safe, effective return-to-play decisions. Objective monitoring enhances recovery accuracy and reduces the risk of recurrent injuries.

Player education and compliance

There is a notable lack of education among players regarding the importance of adherence to rehabilitation protocols. This results in low compliance, which hampers recovery and increases injury risk. Evidence shows that player education improves adherence, reduces injury recurrence, and fosters a culture of injury prevention (Ivarsson et al., 2021). This highlights a behavioural component crucial to implementation without proper education and buy-in, even the best protocols may fail to be effective, reinforcing the need for holistic strategies.

Integration with overall training

Rehabilitation is often viewed as a separate process from regular training, leading to disjointed recovery pathways. Recent research advocates for integrating rehabilitation with routine training and conditioning to

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promote seamless return to sport (Gabbett & Domrow, 2022). This conceptual addition emphasizes that effective implementation requires systemic integration bridging the divide between rehab and training is vital for sustainable athlete development.

Early return to play decisions

Return-to-play decisions are frequently based on subjective judgment rather than objective assessments, increasing the risk of re-injury. Recent studies recommend using objective tests such as hop tests and strength evaluations to guide these decisions (Davis et al., 2021). This reinforces the importance of evidence-based, objective decision-making processes to close the "*implementation gap*" and safeguard athlete health.

Capacity building and resources

There is a shared understanding of the importance of capacity building training staff, acquiring resources, and establishing standardized protocols. Without investment in these areas, rehabilitation quality remains low, adversely affecting athlete health and recovery timelines (Coutts et al., 2022). This conceptual insight underscores that closing the "*implementation gap*" requires strategic investments in human and material resources at the organizational level.

Conclusion

The current state of rehabilitation in Ethiopian football clubs relies heavily on basic, resource-dependent methods, with limited use of advanced techniques. Addressing this challenge involves developing contextually appropriate protocols, enhancing capacity, and investing in resources and personnel training. The application of evidence-based practices, tailored to the realities of resource-limited settings, is crucial for reducing re-injury rates and improving athlete health. This study conceptually contributes by highlighting the importance of strategic, context-sensitive implementation strategies to bridge the evidence-practice gap in developing country settings.

Objective 4. To identify challenges faced by clubs in implementing injury management protocols

This section describes the insights provided through the semi-structured interviews with coaches, physiotherapists, and management staff about the challenges they face in the implementation of injury management strategies. The themes presented in the following sections describe the multifaceted aspects of the challenges in the implementation of injury prevention and rehabilitation strategies. This analysis highlights the real-world complexities and contextual barriers that contribute to the persistent gap between evidence-based practices and their actual application in resource-limited settings, exemplifying the "*implementation gap*."

The next major challenge was the prioritization of results over the health of the athletes. The interviewees stated, "*In the midst of the competitions, the priorities change, and we find ourselves more focused on tactical and technical training, and injury prevention is the first thing to be neglected or omitted in the training sessions*." The physiotherapist at the club said, "*During congested fixtures, injury prevention exercises are often the first to be cut because coaches want to maximize training time for tactics and fitness*." Such an approach is a short-term strategy, which compromises the long-term health and well-being of the athletes. This exemplifies a common challenge in many developing contexts: the tendency to prioritize immediate performance gains over sustainable health outcomes, which perpetuates the "*implementation gap*" and undermines injury prevention efforts. Such an approach often compromises the health and well-being of the athletes (Ekstrand et al., 2021).

Limited resources and financial constraints were also mentioned as challenges by the participants. The clubs in the study had limited budgets that could not allow them to hire professionals in injury prevention, such as physiotherapists and sports scientists. A club administrator noted, "*We lack the funds to hire qualified professionals or buy the necessary equipment. We do the best we can with what we have*." The scarcity of resources makes it hard for the clubs to design and implement injury prevention programs. In their study on injury treatment in emerging sports environments, Gabbett et al. (2021) observed this pattern. This reflects a broader structural barrier in resource-constrained environments, which limits the implementation of evidence-based injury prevention measures and contributes to the "*know-do*" gap.

Time constraints in the training schedule were cited as a barrier. Trainers complained of inadequate time in the training sessions to allocate for injury prevention. A coach noted, "*Most of our training time is spent on tactics and fitness. There's hardly any time left for preventive exercises, which are often seen as less important*." Consequently, injury prevention activities are relegated to the background in favour of other activities deemed more important (Bizzini et al., 2020). This challenge illustrates how operational priorities often overshadow evidence-based injury prevention strategies, reinforcing the "*implementation gap*" at the practical level.

The unavailability of expertise is one such problem that is often cited as an important barrier. Clubs may not have sports medicine experts or physiotherapists in their staff; they may have general trainers or coaches. The unavailability of expertise may result in generic training programs that do not necessarily address injury concerns. As one interviewee stated, "*Without experts, we are just guessing what is best for injury prevention. We don't have specialized programs for our players*." The study done by Owoeye et al. (2022) highlights that the unavailability of expertise affects injury prevention processes, especially in resource-limited settings. This points to a critical component of the "*implementation gap*": the lack of skilled personnel impedes the effective translation of evidence-based knowledge into practice.

Cultural factors and the unwillingness to change are other barriers that were identified. Traditional training methods may not be changed easily due to the unwillingness to adopt new approaches. As one coach stated, "*We have our own methods, and it is difficult to convince everyone to try new methods that are not part of our tradition*." Cultural factors may influence the adoption rate of new injury management strategies, as observed in the study by Bizzini et al. (2020). This emphasizes the importance of contextual and cultural considerations in implementation science, highlighting how resistance to change can hinder the integration of evidence-based practices.

Moreover, a common undertone of injury risk undervaluation was noticed. The majority of stakeholders considered injuries as inevitable or insignificant, which lessened the importance of preventive measures. A club manager said, "*Injuries occur sometimes despite our best efforts. Preventive exercises may be helpful, but they will not completely eradicate injuries*." These attitudes lower the incentive to systematically implement preventive efforts, as supported by Ekstrand et al. (2021). Player engagement and education were also found to be challenging. Players often lack understanding of the significance of injury prevention and rehabilitation exercises, resulting in low engagement. Coaches confessed that they do not prioritize injury prevention, which affects compliance. A coach stated, "*If the players do not understand the significance of these exercises, they will not make the effort*." Recent studies indicate that educating players is vital for increasing compliance and reducing injuries (Owoeye et al., 2022). This underscores that attitudinal and cultural barriers are central to the "*implementation gap*," making education and awareness campaigns crucial for effective practice uptake.

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Finally, there is a notable lack of injury monitoring systems within the clubs. Gabbett et al. (2021) emphasize the importance of developing comprehensive injury surveillance systems, noting that such systems are essential for managing injuries effectively. A management official from the club pointed out that they currently do not have a system in place to monitor injuries; instead, they only respond reactively after injuries occur. This reactive approach highlights a common challenge in sports medicine implementation, where many clubs, especially in low-resource settings, struggle to adopt proactive injury prevention and management strategies due to systemic limitations.

These findings reflect broader implementation challenges faced by sports medicine programs worldwide, particularly in resource-constrained environments. Many developing countries and regions with limited access to advanced sports medicine infrastructure encounter similar issues, including insufficient specialized personnel, inadequate facilities, and inconsistent application of injury prevention and rehabilitation protocols. Such challenges hinder not only athlete safety and performance but also the sustainability and growth of sports programs. Recognizing these widespread barriers underscores the need for global and context-specific strategies to improve the integration of sports medicine practices. Addressing these systemic issues through capacity building, resource allocation, and international collaboration can facilitate more effective injury management, reduce long-term health risks for athletes, and promote equitable talent development in resource-limited settings worldwide (Owoeye et al., 2020).

CONCLUSIONS

This study provides an in-depth examination of injury patterns, prevention strategies, rehabilitation practices, and the challenges faced by Ethiopian Premier League football clubs in implementing effective injury management protocols. The findings reveal that ankle sprains, knee injuries (notably ACL tears), hamstring strains, groin injuries, and calf strains constitute the most common injuries among players, aligning with global epidemiological trends. These injuries predominantly affect the lower limbs, emphasizing the importance of targeted preventive measures such as neuromuscular training, proprioception exercises, and strength conditioning.

The current injury prevention strategies employed across clubs are inconsistent and often limited in scope. While some clubs incorporate basic warm-up routines and minimal stretching exercises, the participation rates remain moderate, and the application of evidence-based practices such as FIFA 11+ and load management systems is sporadic. The absence of comprehensive injury surveillance and individualized intervention programs further hampers effective injury prevention and management.

Rehabilitation practices in these clubs are largely informal, characterized by reliance on basic physiotherapy and manual therapy without standardized protocols or advanced techniques. Limited access to specialized equipment, dependence on external professionals, and lack of systematic monitoring hinder optimal recovery and increase the risk of re-injury. Additionally, low player awareness and education about injury prevention and rehabilitation contribute to poor compliance and suboptimal outcomes.

The semi-structured interviews highlight multifaceted challenges impeding the implementation of injury management strategies, including resource constraints, time limitations, cultural resistance to change, undervaluation of injury risks, and organizational barriers. The prevalent reactive approach, characterized by inadequate injury monitoring and delayed return-to-play decisions, underscores the critical need for systemic improvements.

Recommendations

Based on these findings, the following recommendations are proposed to bridge the existing gaps and enhance injury prevention and management in Ethiopian Premier League clubs:

1. *Develop context-specific, evidence-based protocols*: Establish standardized injury prevention and rehabilitation protocols tailored to resource-limited settings, incorporating proven strategies such as structured warm-up routines, load monitoring, and individualized interventions.
2. *Enhance capacity building and training*: Invest in training club staff, particularly physiotherapists and coaches, to develop internal expertise in injury prevention and rehabilitation techniques. This includes workshops, continuous education, and skill development programs.
3. *Improve resource allocation and infrastructure*: Advocate for increased funding and resource support to acquire essential equipment (e.g., resistance devices, proprioception tools, cryotherapy units) and adopt affordable technological solutions like wearable injury monitoring systems.
4. *Implement systematic injury surveillance and load management*: Introduce injury tracking systems and objective monitoring tools to facilitate early detection, risk assessment, and timely interventions, ultimately reducing injury incidence and severity.
5. *Foster a culture of prevention and education*: Conduct ongoing awareness campaigns targeting players, coaches, and management to emphasize the importance of injury prevention, adherence to protocols, and proactive health management.
6. *Promote organizational and cultural change*: Address resistance to adopting new practices through stakeholder engagement, demonstrating the benefits of evidence-based strategies, and aligning interventions with cultural contexts.
7. *Encourage research and data collection*: Support further research to monitor injury trends, evaluate intervention effectiveness, and inform policy development for injury management in resource-constrained environments.

Final note

Bridging the gap between evidence and practice requires a coordinated effort involving policy changes, capacity building, resource mobilization, and cultural adaptation. Implementing these recommendations can significantly improve player safety, injury outcomes, and overall performance, contributing to the sustainable development of football in Ethiopia and similar resource-limited settings worldwide.

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CONFLICT OF INTEREST

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AI USE DISCLOSURE

In accordance with current publishing ethics and transparency recommendations, artificial intelligence (AI) tools were used solely to assist with translation and language editing, with the aim of improving clarity and readability. No AI tools were used in the generation of scientific content, including the study design, data

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collection, analysis, interpretation of results, or the formulation of conclusions. The authors retain full responsibility for the content of the manuscript and confirm its originality, integrity, and accuracy.

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