Science Futures
2026, Vol. 2, No. 1, pp. 92–98
https://doi.org/10.11648/j.scif.20260201.19

Research Article

Challenges Faced by Sprinters and Middle-Distance Runners from Metu University at the 2024 Ethiopian Higher Education Sports Festival

Girma Bikila Banti, Alemi Medeksa Deressa*

Sport Science, Metu University, Metu, Ethiopia

Abstract

Background of Study: The most common types of athletics competitions include track and field, road running, cross-country running, and race walking. The research aims to assess the challenges faced by sprinters and middle-distance runners from Metu University during the 2024 Higher Education Sports Festival. *Method:* A descriptive survey design was employed, using a structured questionnaire administered to 12 athletes. Data were analyzed using mean and standard deviation to evaluate the severity of various challenges. *Results:* The findings revealed that the most significant obstacles included the absence of starting blocks (M = 4.83, SD = 0.38), lack of motivation and support from the university (M = 4.70, SD = 0.46), and environmental factors (M = 4.60, SD = 0.49). Other notable challenges included psychological factors (M = 4.56, SD = 0.58), inadequate nutrition (M = 3.83, SD = 0.66), and insufficient training equipment and facilities. The study highlights the urgent need for infrastructural improvements, including the provision of standard track and field facilities and essential equipment. Furthermore, enhancing coaching strategies, providing psychological support and improving access to nutritional resources are vital for athlete development. Implementing these recommendations can help create a more supportive environment for sprinters and middle-distance runners, potentially leading to improved performance in future competitions.

Keywords

Short-distance, Running, Challenges, Athletics, Ethiopia, Sports Festival

1. Introduction

In history, athletics is a distinct set of sporting events that involve competitive running, jumping, throwing, and walking. The most common types of athletics competitions include track and field, road running, cross-country running, and race walking. Organized athletics can be traced back to the ancient Olympic Games of 776 BC. Today, most major athletics events are organized by member clubs of the International Association of Athletics Federations (IAAF).

The word *athletics* originates from the Greek word *athlon*, meaning "contest" or "task." Initially, the term referred broadly to physical contests based on human feats. Over time, track and field evolved into an independent sport with its own events, techniques, coaching methods, and competition rules. The revival of the Olympic Games in 1896 led to the standardization of athletics events and competitions. These events have since grown in popularity and now require scientific, structured training and preparation. Sprinting is defined as running over a short distance within a limited time frame. It is

*Corresponding author: alemmedeksa2024@gmail.com (Alemi Medeksa Deressa)

Received: 21 October 2025; **Accepted:** 6 November 2025; **Published:** 7 January 2026

used in many sports as a means of quickly reaching a target, avoiding an opponent, or catching a competitor. Human physiology dictates that a runner cannot maintain near-top speed for more than 30–35 seconds due to the depletion of phosphocreatine stores in the muscles, and possibly due to lactic acid buildup resulting from anaerobic glycolysis [1, 2]. Sprinting is one of the oldest events in athletics, dating back to the original Olympic Games in ancient Greece. It tests an individual's ability to reach maximum running velocity. At the professional level, sprinters begin races in a crouched position using starting blocks, then lean forward and gradually move into an upright posture as momentum builds throughout the race. Ethiopia first participated in the Olympic Games in 1956 in Melbourne and has since competed in every Summer Olympics, except in 1976, 1984, and 1988. Ethiopian athletes have achieved international acclaim, especially in long-distance running, where they have won numerous medals.

In Ethiopia, long-distance running has historically received significant attention and resources, both in public recognition and institutional support. In contrast, sprinters and middle-distance runners often face limited access to systematic support and infrastructure. The Higher Education Sports Festival of 2024 (hereafter "the Festival") provides a valuable opportunity to explore how these systemic and institutional factors affect athletes in a competitive setting. This study focuses on sprinters and middle-distance runners from Metu University and aims to identify and analyze the specific challenges they faced in preparing for and participating in the Festival. Understanding these challenges is essential for recommending targeted interventions that can enhance athletic performance, promote athlete well-being, and elevate the overall reputation of Metu University in intercollegiate sports.

Statement of the Problem

Ethiopia began participating in international athletics competitions as early as the 1950s. It was one of the first African countries to take part in the Olympic Games, debuting in the 1956 Melbourne Olympics. Since then, Ethiopia has gained global recognition for its achievements in middle-distance and long-distance running. However, despite its prominence in distance events, Ethiopia has not secured significant positions or recognition in short-distance (sprint) events. Stated that the key challenges affecting the performance of Ethiopian national short-distance running teams include a lack of motivation and interest, inadequate facilities, insufficient medical care, poor nutrition, and a lack of coach qualification upgrading. Furthermore, job integration among federations, clubs, coaches, and athletes has been neither smooth nor effective. Similarly, [3, 4] identified inadequate facilities and equipment, along with a shortage of qualified coaches, as major obstacles hindering the development of short-distance running in Ethiopia.

Although a few studies have been conducted in related areas, no comprehensive research has been carried out specifically on short-distance running to identify the limitations to success. Previous research has also failed to consider key variables related to the challenges faced by sprinters, such as talent identification methods, coaching techniques, environmental factors, psychological factors, nutrition, training approaches, and access to materials and equipment. University athletics competitions play a critical role in developing athletic talent, enhancing student well-being, building institutional pride, and contributing to national sports performance. In Ethiopia, and particularly at Mettu University, sprinters and middle-distance runners participate in higher education sports festivals. However, these athletes consistently encounter various challenges that may limit their performance and potential.

Without a clear understanding of the specific challenges these athletes face, it is difficult for university administrators, coaches, or sports governing bodies to develop effective interventions to improve performance and support athlete welfare. On a broader national level, several issues are already known: Ethiopia lacks sufficient athletics venues to host domestic preliminary competitions in many areas; training tracks are often either unavailable or in poor condition; and logistical and infrastructural constraints significantly impair consistent athletic preparation.

2. Methodology

Research Design

A descriptive survey design was employed and quantitative approach was used to Assesse Challenges Faced by Sprinters and Middle Distance Runners from Metu University at the 2024 Ethiopian Higher Education Sports Festival.

Population of the Study

The Total population of the study is 10 Male And 2 Female, totally twelve (12) of short and middle distance runners those who represent Metu university.

Sample and Sampling Technique

The study area was selected by a purposive sampling technique and sample size of the study was selected by a census sampling technique. Because the number of short distance was not huge so the researcher decided to select all twelve (12) short distance runners and middle distance runners.

Data Collection Instruments

In order to collect the necessary data for analysis, the researcher used questionnaires. Questionnaire is an instrument of survey used to collect data. Closed ended questionnaires were employed. The questionnaires were prepared in the English language and translated to the respondent's language (Afaan Oromo) by a language expert.

Method of Data Analysis

At the end of the data collection, responses on the questionnaires were encoded and analyzed quantitatively. In the quantitative case, descriptive statistical analysis has been used to analyze the data of this study. In this descriptive statistical analysis; Mean and standard deviation representation such as

table and column were used in presenting the demographic information of the participant and all variables. The data have analyzed by computerized statistical package software (SPSS version 20).

Pilot Test result

Regarding to the practice of talent identification questionnaire result (α = 0.82), Coaching method (α = 0.86), material and equipment (α = 0.84), psychological factor (α = 0.81), training factor (α = 0.83), nutritional factor (α = 0.80), and environmental factor (α = 0.81). From the above analysis, one can understand that the questionnaire was accepted and considering that there were minor editorial problems, modification of grammars, spelling and general instructions of the questionnaire which were corrected right after the pilot study feedback.

3. Results

Table 1. *Demographic characteristic of respondents (Athletes).*

No.	Item	Characteristics	Athletes	
			Frequency	Percentage
1.	Sex	Male	10	83.33
		Female	2	16.66
		Total	12	100.0
2	Age	16-20	2	16.66
		20-25	10	83.33
		26	-	100
		Total	12	100.0
3.	Experience of staying in University	1		17.0
		2	5	41.66
		3	4	33.33
		4	3	25
		5	-	
		Total	12	100.0

From the above demographic characteristics of athletes' respondents:

3.1. Sex

10 (83.33%) of the athletes are *male*, and *2* (16.66%) are *female*.

This shows a large gender imbalance in favor of males among the participating respondents.

3.2. Age

2 athletes (16.66%) are aged *16-20*.

10 athletes (83.33%) fall in the *20-25* age group.

There is no entry for "26+" (or older) likely meaning none of the respondents were older than 25.

Thus, the majority of athletes are quite young, concentrated in the 20-25 bracket.

3.3. Experience of Staying in University

This item is less clearly labeled, but appears to refer to the number of years the athlete has been at the university (or the year/level):

1 (frequency not given clearly) 17.0%.

2-5 athletes, which is 41.66%.

3-4 athletes or 33.33%.

4 -3 athletes or 25%.

5 -no entries.

Total is 12 (100%).

The major challenges of sprint and middle distance runners of Metu University.

Table 2. *Major challenges of sprint and middle distance runners.*

No.	Item	Mean (M)	Standard Deviation (SD)
1	Lack of standard track and field	3.93	0.47
2	Shortage of enough sport wearing and spike shoes	3.85	0.62
3	Lack of starting block	4.83	0.38
4	Shortage of a balanced diet (nutrition)	3.83	0.66
5	Lack of modern training system	3.85	0.61
6	Lack of planned training	3.85	0.64
7	Shortage of individual training	3.90	0.55
8	Lack of evaluation and assessment of coach	3.85	0.64
9	Environmental influences	4.60	0.49
10	Lack of initiation and motivation from club	4.70	0.46
11	Psychological influence	4.56	0.58
12	Lack of different competition	4.30	0.72

Interpretation and Discussion

The analysis of the challenges faced by sprinters and middle-distance runners from Metu University during the 2024 Higher Education Sports Festival reveals several critical factors impacting their performance. The calculated means and standard deviations for each identified challenge provide quantitative insights into the severity and variability of these issues among the athletes.

The mean score of 3.93 (SD = 0.47) indicates that the absence of proper training facilities is perceived as a significant challenge. This aligns with findings from. Study, which identified the lack of quality and quantity of training tracks as a major hindrance for Ethiopian sprinters A mean score of 3.85 (SD = 0.62) reflects a moderate to severe impact of inadequate sportswear and equipment. This shortage can lead to suboptimal performance and increased risk of injury, as athletes may resort to using substandard or ill-fitting gear. Frontiers in Public Health. In their discussion, the authors note that "the use of inappropriate or poor-quality sports equipment can also heighten the risk of injury. They identify "inadequate sports equipment" among factors associated with greater injury risk. With a mean of 4.83 (SD = 0.38), the lack of starting blocks is viewed as a very severe challenge. Starting blocks are essential for sprinters to achieve optimal starts, and their absence can significantly affect race outcomes. [5-8]. This study shows how manipulating center of pressure (COP) on the starting block surface influences sprint start performance.

Block start performance is fundamental to sprint events; how well an athlete performs from the blocks (kinetics, kinematics, body posture, etc.) can critically affect the overall outcome of the race. Strong relationships between forces applied in the blocks and sprint performance, showing how crucial a proper block setup is to maximizing horizontal force and thus ensuring a good start [9, 10].

A mean score of 3.83 (SD = 0.66) suggests that inadequate nutrition is a considerable issue. Proper nutrition is crucial for recovery and performance, and deficiencies can impair an athlete's ability to train effectively and compete at high levels. This study shows how insufficient energy intake is frequently associated with deficiencies in micronutrients and can negatively affect performance and other reports on energy intake versus recommended levels, showing inadequacies in athletes' diets [11-13]. The mean of 3.85 (SD = 0.61) indicates that outdated training methodologies are a significant concern. Modern training systems incorporate scientific principles and technology to enhance performance and their absence can hinder athlete development. The authors note that while sport science is increasingly integrated into elite athlete preparation, many coaches still do not read or apply scientific studies, resulting in a lag in adoption of modern techniques in training.

A mean score of 3.85 (SD = 0.64) reflects the challenges posed by unstructured training regimens. Planned training ensures progressive development and reduces the risk of overtraining and injuries. Athletic level (more structured) training yields better cardio-respiratory fitness outcomes compared to unstructured physical training [14, 15]. With a mean of 3.90 (SD = 0.55), the absence of personalized training programs is a notable issue. Individualized training caters to an athlete's specific needs and strengths, optimizing performance and addressing weaknesses. The study found that individualized training led to significant improvements in these performance metrics, highlighting the benefits of per-

sonalized training approaches.

A mean score of 3.85 (SD = 0.64) indicates that the lack of systematic evaluation of coaches affects training quality. Regular assessment ensures that coaching methods are effective and aligned with athlete development goals. The study found that coach performance appraisal processes are often not treated as systematic and *structured* in sports clubs. This examines how athletes perceive the quality of coaching and how coaching behaviors and evaluation affect the coach-athlete relationship [16-18]. The mean of 4.60 (SD = 0.49) suggests that environmental factors, such as weather conditions and pollution, significantly impact training and performance. Adverse environmental conditions can lead to health issues and reduced training effectiveness. This narrative review describes how environmental stressors (extreme temperatures, pollution, humidity, altitude etc.) can significantly impact athletes' cardiovascular systems, potentially hindering their performance, particularly in outdoor sport.

A mean score of 4.70 (SD = 0.46) highlights the critical role of motivation in athletic performance. Without proper encouragement and support from the club, athletes may experience decreased commitment and performance levels. The mean of 4.56 (SD = 0.58) underscores the importance of mental health in sports. Psychological factors, such as stress and anxiety, can adversely affect focus, decision-making, and overall performance [19]. This study reported an overall mean of 4.55 (SD = 0.45) for emotional well-being's effect on physical health and psychosocial performance with statements like The capacity to handle stress and pressure effectively is closely associated with my physical preparedness and overall performance. A mean score of 4.30 (SD = 0.72) indicates that limited exposure to competitions hampers athlete development. Regular competition is essential for assessing progress, gaining experience, and building confidence.

Major findings

High Severity Challenges: The absence of starting blocks (M = 4.83, SD = 0.38), lack of motivation and initiation from the club (M = 4.70, SD = 0.46), and environmental influences (M = 4.60, SD = 0.49) were identified as the most severe challenges. These factors significantly hindered athletes' performance during the festival.

Moderate to High Severity Challenges: Psychological influences (M = 4.56, SD = 0.58), lack of competitive opportunities (M = 4.30, SD = 0.72), and nutritional deficiencies (M = 3.83, SD = 0.66) were also notable. These aspects affected athletes' mental preparedness and physical well-being.

Training and Equipment Challenges: The lack of standard track and field facilities (M = 3.93, SD = 0.47), shortage of appropriate sportswear and equipment (M = 3.85, SD = 0.62), and absence of modern training systems (M = 3.85, SD = 0.61) were significant. These factors limited the quality and effectiveness of training sessions.

Coaching and Support Challenges: The lack of individualized training (M = 3.90, SD = 0.55) and inadequate coach evaluation and assessment (M = 3.85, SD = 0.64) were identified. These issues impacted the development and progression of athletes.

4. Conclusion

The study highlights several critical challenges faced by sprinters and middle-distance runners from Mattu University during the 2024 Higher Education Sports Festival. Addressing these issues is essential for enhancing athletic performance and fostering a supportive environment for athletes. Recommendations include investing in infrastructure, providing adequate equipment, implementing modern training systems, offering psychological support, and ensuring proper nutrition. By addressing these challenges, Mettu University can improve the performance and development of its athletes in future competitions.

5. Recommendations

Based on the identified challenges and supported by existing literature, the following recommendations are proposed to improve the performance of sprinters and middle-distance runners from Metu University:

Invest in constructing and maintaining standard track and field facilities to provide athletes with the necessary environment for effective training.

Ensure the availability of essential training equipment, including starting blocks, spikes, and other gear, to facilitate comprehensive training sessions.

Educate athletes on the importance of balanced diets and provide access to nutritional resources to enhance performance and recovery.

Allocate sufficient funds to procure quality food and supplements that meet the dietary needs of athletes.

Incorporate modern training techniques and methodologies to optimize performance and reduce the risk of injuries.

Implement regular evaluations of training programs and provide constructive feedback to athletes to foster continuous improvement.

Provide opportunities for coaches to upgrade their qualifications and stay updated with the latest coaching strategies.

Pair experienced athletes with newcomers to provide guidance, share experiences, and foster a supportive training environment.

Incorporate psychological support services to help athletes manage stress, build resilience, and maintain focus during competitions.

Encourage group training sessions and team-building activities to enhance motivation and create a sense of community among athletes.

Host internal competitions to provide athletes with opportunities to apply their training in real-world scenarios.

Facilitate participation in regional and national competitions to gain experience and benchmark performance against

peers.

Abbreviations

IAAF	International Association of Athletics Federations
PCr	Phosphocreatine
VO_2 max	Maximal Oxygen Uptake

Acknowledgments

Thank you very much the data collection teams and study participants who made this study possible.

Author Contributions

Girma Bikila Banti: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration

Alemi Medeksa Deressa: Resources, Software, Supervision, Visualization, Writing – original draft, Writing – review & editing

Data Availability Statement

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Helil, D. (2012). the current problems and challenges of some selected Addis Ababa long distance athletics clubs.

[2] International Association of Athletics Federations. (n.d.). *100m –For the Expert / 200m Introduction / 400m Introduction*. Retrieved March26, 2010, from https://www.iaaf.org/community/athletics/trackfield/newsid=4666.html

[3] Kastala, B. (2016). an investigation the challenges that affect the success of short distance running the case of Ethiopian national team.

[4] Fisseha, T. (2012). The current practice and challenges of ethiopian national team short distance atheletes.

[5] Azene, M. (2017). Challenges of Short Distance Athletes Runners: With Special Reference to The Ethiopian National Athletics Team. Addis Ababa University.

[6] Li, M., Wang, J., Xu, J., & Jia, Y. (2025). Determinants of the severity of sports injuries among students in sports disciplines at higher education institutions. Frontiers in Public Health.

[7] Prieto-González, P., Martínez-Castillo, J. L., Fernández-Galván, L. M., Casado, A., & Sánchez-Infante, J. (2021). Epidemiology of Sports-Related Injuries and Associated Risk Factors in Adolescent Athletes:

[8] Nagahara, R., & Ohshima, Y. (2019). *The location of the center of pressure on the starting block is related to sprint start performance. Frontiers in Sports and Active Living*, 1, 21. https://doi.org/10.3389/fspor.2019.00021

[9] Bezodis, I. N., Kerwin, D. G., & Salo, A. I. (2019). Biomechanical Performance Factors in the Track and Field Sprint Start: A Systematic Review.

[10] Morin, J.-B., Dalleau, G., Kyröläinen, H., Jeannin, T., & Croisier, J.-L. (2007). Joint kinetic determinants of starting block performance in athletic sprinting.

[11] Brunelli, D. R., & Luchiari, A. C. (2020). Effect of a Nutritional Education Intervention on Sports Nutrition Knowledge, Dietary Intake, and Body Composition in Female Athletes: A Pilot Study. Nutrients.

[12] Poveda-Loor, C., Yaguachi-Alarcón, R., Espinoza-Burgos, A., Frias-Toral, E., & Suárez, R. (2023). Dietary intake, anthropometric profile and somatotype in university athletes: Differences between gender and sports practiced.

[13] Sands, B. & McNeal, J. (2010). In Strength & Conditioning Journal.

[14] Subramanian, S. K., Sharma, V. K., & Vinayathan, A. (2013). Comparison of Effect of Regular Unstructured Physical Training and Athletic Level Training on Body Composition and Cardio Respiratory Fitness in Adolescents.

[15] Pleša, J., Ujaković, F., Ribič, A., Bishop, C., Šarabon, N., & Kozinc, Ž. (2024). Effectiveness of an individualized training based on dynamic strength index on sprinting, jumping and change of direction performance in basketball players: A randomized controlled trial. Journal of Sports Science and Medicine, 23(3), 504–514. https://doi.org/10.52082/jssm.2024.504

[16] Antunes, H., Soares, J., Rodrigues, J., & Velosa, S. (2020). Performance Appraisal Criteria of Coaches According to the Age Group of the Athletes and the Level of Sports Competition. Advances in Physical Education, 10, 391-409.

[17] Foulds, S. J., Hoffmann, S. M., Hinck, K., & Carson, F. (2019). The Coach–Athlete Relationship in Strength and Conditioning: High Performance Athletes' Perceptions. Sports, 7(12), 244.

[18] Segreti, A., Celeski, M., Guerra, E., Crispino, S. P., Vespasiano, F., Buzzelli, L., Fossati, C., Papalia, R., Pigozzi, F., Grigioni, F. — Effects of Environmental Conditions on Athlete's Cardiovascular System (2024).

[19] Real, M. E. D., & Ofrin, D. D. (2024). *Facets of motivation towards physical well-being and psychosocial performance of student-athletes. International Journal of Social Science, Humanity & Management Research*, *3*(7), 969–977. https://doi.org/10.58806/ijsshmr.2024.v3i7n19

Biography

Girma Bikila Banti was born on May 16, 1994 G. C. in Mida kegn Wereda, West Showa Zone, Oromia Regional State. I attended primary and junior school at Goda Arba Primary School, and I attended secondary school at Balemi High School and preparatory school. Then I joined Metu University, natural and computational science faculty, in 2006 E. C. and graduated with a Bachelor of Sport Science (B. Sc.) in 2008 E. C. After I graduated from Metu University, I joined Wellega University for PDGJ training in 2009. And also I joined Jimma University, Department of Sport Science, to pursue a master's in coaching athletics in 2010 E. C. I have been teaching since 2019 at Dembidollo University (2019-2020) and at Metu University 2020 and still as a lecturer and Head of Sport Science at Metu University. The second author biography; My name is Alemi Medeksa Deressa. I was born on june 5, 1994 G. C. in Mida kegn Wereda, West Showa Zone, Oromia Regional State. I attended primary and junior school at Kegn Primary School, and I attended secondary school at Balemi High School and preparatory school. And also I joined Jimma University, Department of Sport Science, to pursue a master's in coaching athletics in 2010 E. C. I am lecturer in Metu University