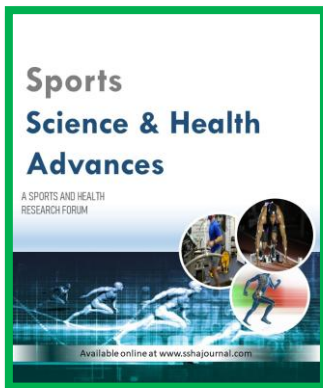


Original Article

# Athletic Performance Development in Ethiopia: Coaching Quality, Training Practices, Facilities, and Institutional Support as Predictors: A Cross-Sectional Mixed-Methods Study

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## Abstract

**Background:** Athletic performance development depends on the effective interaction of facilities, training practices, coaching quality, institutional support, and environmental conditions. In Ethiopia, despite international success in athletics, many regions remain underdeveloped due to systemic challenges related to inadequate infrastructure, weak coaching capacity, poorly structured training programs, and insufficient institutional support. These constraints limit athlete development and hinder the emergence of competitive performance at regional and national levels. **Study purpose:** This study assessed the multifactorial determinants affecting athletic performance in selected districts of the Kelleme Wollega Zone, Western Ethiopia, with specific focus on athletics facilities, training practices, coaching quality, sports office support, and environmental conditions. **Methods:** A descriptive cross-sectional mixed-methods design was employed. Quantitative data were collected from 66 athletes using a validated 46-item questionnaire covering four domains: Athletics Facilities, Athletes' Training Practices, Coaching Quality, and Sports Office Support. The instrument demonstrated satisfactory to excellent internal consistency (overall  $\alpha = 0.862$ ). Qualitative data were gathered through semi-structured interviews with coaches and technical specialists, along with structured facility observations. Descriptive statistics, Pearson correlation analysis, one-way ANOVA, and multiple linear regression were conducted using SPSS version 26 at a significance level of  $p < 0.05$ . **Results:** Athletes reported very low levels of satisfaction across athletics facilities ( $M = 1.42$ ), training practices ( $M = 1.72$ ), coaching quality ( $M = 1.23$ ), and sports office support ( $M = 1.36$ ), indicating widespread structural and institutional deficiencies.

Pearson correlation analysis revealed strong, positive, and statistically significant relationships between athletic performance and coaching quality ( $r = 0.812$ ), training practices ( $r = 0.764$ ), athletics facilities ( $r = 0.733$ ), and sports office support ( $r = 0.709$ ). Multiple regression analysis identified coaching quality ( $\beta = 0.681$ ) as the strongest predictor of athletic performance, followed by training practices ( $\beta = 0.549$ ), athletics facilities ( $\beta = 0.512$ ), and sports office support ( $\beta = 0.438$ ). Collectively, these factors explained 74.3% of the variance in athletic performance ( $R^2 = 0.743$ ,  $p < 0.001$ ). **Conclusions:** Athletic performance development in the Kellem Wollega Zone is constrained primarily by interconnected deficiencies in coaching capacity, training systems, infrastructure, and institutional support rather than by a lack of athlete potential. Enhancing coaching quality, strengthening training structures, investing in basic athletics facilities, improving institutional coordination, and effectively leveraging available environmental conditions are essential for sustainable athletic performance development. An integrated, evidence-based approach is critical to improving long-term performance outcomes in the region.

**Keywords:** athletic performance, athletics facilities, training practices, coaching quality

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### Introduction

Athletics stands as one of humanity's oldest and most fundamental forms of competitive sport, encompassing running, jumping, and throwing. Unlike many contemporary sports that require sophisticated equipment, athletics is distinguished by its reliance on innate human physical capabilities (Mesfen & Timerga, 2016). This inherent simplicity enables participation across diverse socioeconomic contexts, making it a viable pathway for athletic achievement in resource-constrained settings where technological support is minimal (Gokhan & Hacer, 2016).

On a global scale, contemporary sports science recognizes that high-level performance results from a sophisticated integration of intrinsic and extrinsic factors. Intrinsic determinants include genetic endowment, cardiovascular efficiency, and psychological resilience, while extrinsic factors comprise training methodologies, nutritional adequacy, and socioeconomic support systems (Jayaraman, 2019). Excellence in athletics is rarely the result of a single variable; rather, it emerges from the synergistic interaction of these elements (Stone et al., 2022).

In the African context, the continent has become synonymous with middle- and long-distance running excellence. Since the landmark 1968 Mexico City Olympics, East African nations, specifically Ethiopia and Kenya have established a remarkable dominance in international competitions (Wilber & Pitsiladis, 2012). This sustained success has been attributed to a complex interplay of favorable genetic predispositions, optimal physiological traits, and a profound socioeconomic motivation to transcend poverty through sport (Jayaraman, 2019).

Ethiopia, in particular, has produced an illustrious lineage of Olympic and World Championship medalists since the 1990s. The nation has demonstrated a unique capacity to identify and nurture elite endurance runners who consistently achieve extraordinary success in global cross-country and road racing events (Gizaw, 2013; Assefa et al., 2017). However, the literature suggests that this success is heavily reliant on specific environmental and institutional conditions that may not be uniform across the country.

One critical environmental factor is altitude exposure. Training at moderate to high altitudes (above 2,000 meters) induces beneficial physiological adaptations, such as increased red blood cell mass and enhanced oxygen transport capacity (Saunders et al., 2009; Derby & deWeber, 2010; Singh et al., 2024). While Ethiopia's central and northern highlands offer these natural advantages, regions with lower elevations may face physiological constraints that limit the competitive development of their athletes.

Beyond geography, the quality of structured and periodized training remains a cornerstone of performance enhancement. Evidence-based regimens, incorporating

interval training and strength conditioning must be individualized to meet the physiological requirements of the athlete (Singh et al., 2024; Boullosa et al., 2020). Without systematically designed training programs, even the most naturally gifted athletes may fail to reach their peak potential (Mola et al., 2025; Xiao et al., 2021).

The role of the coach is equally pivotal. Coaches serve as mentors, technical instructors, and motivators who fundamentally shape an athlete's physical and mental trajectory (Vallée & Bloom, 2005). Effective coaching involves not only designing training programs but also fostering supportive environments that build self-confidence and resilience (Potts et al., 2023). Conversely, a lack of coaching expertise can serve as a significant barrier to elite performance.

Furthermore, the availability of sports facilities and institutional resources constitutes a fundamental prerequisite for development. Access to appropriate training venues and support services is essential for progressive skill acquisition. Research consistently demonstrates that a lack of facilities substantially limits the effectiveness of training interventions and constrains an athlete's potential to excel (Girma et al., 2017; Wicker et al., 2013).

Despite Ethiopia's global reputation in athletics, significant geographical disparities persist in athlete representation, with regions such as the Kellem Wollega Zone in Western Ethiopia remaining underrepresented in national talent pathways. This underrepresentation is attributed to context-specific challenges, including limited access to athletics facilities, inadequate coaching professional development, and suboptimal utilization of environmental conditions compared with the country's traditional highland training hubs. The absence of systematic, region-level research on how these multifactorial determinants interact has constrained evidence-based policy formulation and effective resource allocation. Accordingly, this study aims to assess the key determinants influencing athletic performance in selected districts of the Kellem Wollega Zone by examining facilities, training practices, coaching competence, and environmental factors, thereby generating empirical evidence to inform inclusive talent development strategies and extend Ethiopia's athletic excellence across all regions.

## 2. Materials and Methods

### *Study Design and Participants*

This study employed a mixed-methods research design to comprehensively evaluate the determinants of athletic performance in the Kellem Wollega Zone. A purposive sampling technique was utilized to recruit athletes, coaches, and sports administrators actively involved in training and facility management. Ethical standards were strictly maintained; all participants provided informed consent after being briefed on the study's objectives, confidentiality, and voluntary nature.

### *2.2 Data Collection Instruments*

Data were gathered using three primary tools: a structured questionnaire, semi-structured interviews, and an observation checklist.

•**Structured Questionnaire:** A 46-item instrument was adapted from validated sources, including the Sports Facilities Assessment Tool (Alexander & Hedrick, 1996), Coaching Efficacy Scale (Feltz et al., 1999), and the Athlete Support and Environment Scale (Rees & Hardy, 2000). All items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). To ensure linguistic equivalence, the tool was translated into Amharic and Afan Oromo via a rigorous forward-backward translation procedure.

•**Interviews and Observation:** Semi-structured interview guides were developed for coaches and specialists to explore training barriers and institutional support. Additionally, a structured observation checklist was used across 10 training sites to document facility conditions and equipment availability.

### *2.3 Reliability and Validity*

The content validity of the instrument was established through evaluation by a panel of three experts in sports science. A pilot study was subsequently conducted with 15 athletes from a district not included in the main sample to assess item clarity, relevance,

and completion time, leading to minor refinements of the instrument. Consistent with the findings of the previous study by [Mola and Shaw \(2024\)](#), the final instrument demonstrated strong internal consistency, as presented in Table 1

**Table 1** Reliability of Measurement Scales

Variable / Domain	Cronbach's $\alpha$	Number of Items
Sports Facility	0.804	12
Athletes' Training Practices	0.954	15
Coaching Quality	0.964	14
Sports Office Support	0.725	6
Overall	0.862	46

### 2.4 Procedure and Statistical Analysis

Questionnaires were administered in person during training sessions and institutional workshops to ensure a high response rate and minimize bias. Quantitative data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics (mean, standard deviation, and percentages) were used for demographic and domain profiling. Inferential statistics, including Pearson correlation, one-way ANOVA, and multiple linear regression, were employed to examine the predictive relationships between the four domains and overall athletic performance. Qualitative data from interviews and observations were transcribed and analyzed thematically to triangulate the quantitative findings. A significance level of  $p < 0.05$  was applied to all tests.

### Results

**Table 2** Socio-demographic characteristics of athletes, coaches, and zonal sports office experts

Variable	Category	Athletes (N = 66)	Coaches (N = 12)	Zonal Experts (N = 2)
		n (%)	n	n
Sex	Male	40 (60.61)	10	2
	Female	26 (39.39)	2	–
Age (years)	< 20	24 (36.36)	–	–
	21–25	28 (42.42)	1	–
	26–30	10 (15.15)	4	–
	> 30	4 (6.06)	7	2
Marital status	Unmarried	61 (92.42)	5	–
	Married	5 (7.58)	7	2
Educational level	Primary school	20 (30.30)	–	–
	Secondary school	39 (59.09)	–	–
	Diploma	7 (10.61)	3	2

**Note.** Values are presented as frequency and percentage where applicable.

Table 2 shows that the athlete sample was predominantly young and male, with most athletes aged between 21–25 years and unmarried. Coaches and zonal sports office experts were generally older, predominantly male, and more likely to be married. Most athletes had secondary-level education, while coaches showed comparatively higher educational attainment. Overall, the profile reflects a young athlete population supported by older coaching and administrative personnel.

Results in Table 3 indicate very low perceptions of the adequacy and quality of athletics facilities. The overall mean score ( $M = 1.42$ ) reflects strong dissatisfaction with infrastructure, equipment availability, maintenance, safety, and support services. Access to nutrition and financial support was particularly limited, highlighting serious infrastructural and institutional shortcomings affecting training environments.

**Table 3** Athletes' perceptions of adequacy and condition of athletics facilities

Item	Facility-related statement	Mean (M)	SD
1	District is adequately equipped with athletics facilities	1.36	0.92
2	Facilities meet athletes' expectations and needs	1.45	1.00
3	Sports office prioritizes facility development	1.33	0.77
4	Sufficient equipment is available	2.00	1.02
5	Training areas are adequate and accessible	1.55	0.83
6	Access to nutrition support	1.12	0.48
7	Financial support is provided	1.42	0.56
8	Facilities are clean, safe, and maintained	1.06	0.35
9	Sports field is in good condition	1.21	0.69
10	Sufficient space for training	2.00	0.96
11	Basic amenities are sufficient	1.12	0.73
12	Overall satisfaction with facilities	1.41	0.53
Overall		1.42	0.82

**Table 4** Athletes' perceptions of training practices and performance support

Item	Training practice statement	Mean (M)	SD
1	Structured training schedule	1.85	0.93
2	Proper warm-up and cool-down	1.58	0.61
3	Balanced strength and endurance training	1.94	0.96
4	Supervision by qualified coach	2.21	1.42
5	Regular monitoring of progress	1.42	0.50
6	Adequate rest and recovery	1.48	0.56
7	Attention to nutrition	1.09	0.38
8	Injury prevention practices	1.82	0.94
9	Clear performance goals	1.55	0.61
10	Training consistency	2.21	1.42
11	Training plan review	1.41	0.86
12	Early involvement in training	1.82	0.64
13	Competition participation	1.54	0.65
14	Conducive training environment	2.21	1.43
15	Training motivation	1.82	0.91
Overall		1.72	0.84

Table 4 reveals generally poor training practices among athletes (overall M = 1.72). Respondents reported weak training structure, limited supervision, inadequate recovery, poor nutrition attention, and insufficient performance monitoring. These findings indicate a lack of systematic, evidence-based training programs and developmental continuity.

**Table 5** Athletes' perceptions of coaching quality

Item	Coaching quality indicator	Mean (M)	SD
1	Communication of goals	1.55	0.71
2	Performance feedback	1.12	0.41
3	Technical knowledge	1.12	0.41
4	Motivation	1.58	0.70
5	Fair treatment	1.24	0.61
6	Encouragement of discipline	1.12	0.41
7	Emotional support	1.15	0.44
8	Training supervision	1.18	0.46
9	Performance monitoring	1.30	0.68
10	Instruction clarity	1.12	0.41
11	Skill demonstration	1.18	0.46
12	Athlete-coach relationship	1.23	0.49
13	Institutional support for coaches	1.21	0.48
14	Overall coaching satisfaction	1.15	0.44

Overall	1.23	0.51
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The results in Table 5 show low athlete satisfaction with coaching quality (overall  $M = 1.23$ ). Athletes reported deficiencies in technical knowledge, feedback, motivation, planning, supervision, and emotional support. Limited institutional support for coaches was also noted, suggesting weaknesses in both coaching competence and support systems.

**Table 6** Athletes' perceptions of sports office support

Item	Support indicator	Mean (M)	SD
1	Provision of equipment	1.26	0.51
2	Travel and competition support	1.73	1.17
3	Communication effectiveness	1.15	0.44
4	Organization of competitions	1.21	0.48
5	Budget allocation	1.18	0.46
6	Overall satisfaction	1.64	1.15
Overall		1.36	0.70

Table 6 demonstrates low levels of perceived institutional support from sports offices (overall  $M = 1.36$ ). Athletes reported inadequate provision of equipment, poor communication, insufficient budget allocation, and limited organization of competitions. These results highlight gaps in administrative and resource support that may hinder athlete development.

**Table 7** Altitudinal and temperature profiles of selected districts

District	Altitude (m.a.s.l.)	Temperature (°C)	Direction
Dambi Dollo	1,701–1,827	15–31	Central
Anfilo	500–2,600	25–38	North
Yamalogi Walal	1,853–2,007	13–24	East
Dale Wabara	1,784–3,408	15–25	East
Dale Sadi	1,300–2,000	23–34	East
Lalo Kile	500–1,800	15–32	South

Table 7 shows substantial variation in altitude and temperature across districts in the Kellem Wollega Zone. Some districts possess elevations suitable for endurance training, while others are located at lower altitudes with higher temperatures. These environmental differences provide important context for interpreting disparities in training adaptation and performance potential.

**Table 8** Pearson correlation matrix among athletic performance determinants

Variable	AF	TP	CQ	SOS	AP
AF	1				
TP	.684**	1			
CQ	.701**	.742**	1		
SOS	.656**	.698**	.721**	1	
AP	.733**	.764**	.812**	.709**	1

Note. \* $p < .05$ . AF = Athletics Facilities; TP = Training Practices; CQ = Coaching Quality; SOS = Sports Office Support; AP = Athletic Performance.

The correlation analysis revealed strong, positive, and statistically significant relationships among all key variables. Athletic performance was most strongly correlated with coaching quality and training practices, followed by facilities and sports office support. These results confirm that athletic performance is influenced by interconnected structural, technical, and institutional factors.

**Table 9** Multiple regression coefficients predicting athletic performance

Predictor	B	SE	$\beta$	t	p
Constant	2.184	0.914	—	2.390	.020
Athletics facilities	0.436	0.061	0.512	7.148	.000
Training practices	0.482	0.068	0.549	7.087	.000
Coaching quality	0.611	0.072	0.681	8.486	.000
Sports office support	0.397	0.083	0.438	4.783	.000

Regression analysis identified coaching quality as the strongest predictor of athletic performance, followed by training practices, athletics facilities, and sports office support. All predictors made statistically significant contributions, indicating that improvements in these areas are likely to enhance performance outcomes.

**Table 10** Model summary and ANOVA for regression analysis

R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SEE
0.862	0.743	0.729	0.512

The model summary indicates strong explanatory power ( $R^2 = 0.743$ ), showing that the predictor variables collectively explain 74.3% of the variance in athletic performance. This demonstrates that performance is largely determined by modifiable organizational and structural factors.

**Table 11** Model summary and ANOVA for regression analysis

Source	SS	df	MS	F	p
Regression	128.742	4	32.186	38.514	.000
Residual	52.091	61	0.854		
Total	180.833	65			

The ANOVA results confirm that the regression model is statistically significant, indicating that the combined effects of facilities, training practices, coaching quality, and sports office support reliably explain variations in athletic performance.

**Table 12. Thematic Analysis of Interview Data**

Theme	Sub-themes / Categories	Key Descriptions from Participants
Inadequate Facilities	Lack of standard tracks; absence of gym equipment	Athletes and coaches reported training on uneven grounds with no access to standard tracks or strength-training facilities.
Weak Institutional Support	Limited funding; delayed administrative processes	Participants highlighted insufficient financial support, poor follow-up from sports offices, and delays in decision-making.
Training Program Implementation	Individualized plans with weak execution	Although training plans existed, their implementation was constrained by facility shortages and lack of monitoring tools.
Nutrition and Recovery Support	Absence of structured nutrition programs	Athletes reported no access to professional nutritional guidance or recovery services, negatively affecting training quality.
Environmental Utilization	Underuse of altitude advantages	Coaches acknowledged limited planning and expertise to effectively utilize high-altitude environments for endurance adaptation.

Interview findings reveal that inadequate facilities, weak institutional support, and limited resources significantly constrain training quality and intensity. Although training programs were reportedly individualized, their implementation was hindered by infrastructure shortages, delayed administrative processes, and lack of nutrition and recovery support.

**Table 13** Observation Checklist of Training Environment and Support Systems

Observed Domain	Indicators Assessed	Observed Condition
Training Facilities	Track quality; equipment availability; safety	Facilities were largely non-standard, poorly maintained, and lacked essential equipment.
Training Organization	Session structure; supervision; discipline	Training sessions were moderately organized but lacked consistency and scientific structure.
Coaching Practice	Instruction quality; athlete supervision	Coaches demonstrated commitment but were constrained by limited resources and technical tools.
Institutional Support	Administrative presence; logistical support	Minimal on-site administrative support and limited provision of training materials were observed.
Environmental Conditions	Altitude exposure; weather suitability	Environmental conditions were potentially favorable, but not strategically integrated into training plans.

Observation results confirm poor facility conditions, suboptimal equipment availability, weak environmental conditions, and limited access to essential resources. While training organization and administrative structures were rated moderate, they were insufficient to compensate for infrastructural and resource deficiencies.

#### 4. Discussion

The purpose of this study was to examine the multifactorial determinants influencing athletic performance in selected districts of the Kellem Wollega Zone, with a focus on coaching quality, training practices, athletics facilities, sports office support, and environmental conditions. The findings confirm that athletic performance development in the zone is primarily constrained by systemic and interrelated deficiencies rather than by a lack of athlete talent. The discussion below interprets these findings in relation to existing literature, the study objectives, and relevant theoretical frameworks of athlete development.

Consistent with the study's primary objective, coaching quality emerged as the strongest predictor of athletic performance. Athletes reported critically low satisfaction with coaching support, indicating deficiencies in technical instruction, motivation, performance feedback, and long-term planning. This finding aligns with previous research emphasizing that coaching leadership plays a central role in athlete development by mediating motivation, resilience, and skill acquisition (Mola & Shaw, 2024; Côté & Gilbert, 2009; Liu et al., 2025). Effective coaching is essential for transforming physiological potential into competitive performance through evidence-based training design, monitoring, and individualized feedback. In the absence of structured coach education, certification pathways, and performance evaluation systems, coaching practices tend to rely on intuition rather than scientific principles (Taye et al., 2025). This limitation likely explains why talented athletes in the Kellem Wollega Zone struggle to progress to higher performance levels, despite Ethiopia's global success in athletics.

Training practices showed a strong positive association with athletic performance, directly addressing the study's objective of assessing training-related factors. However, low satisfaction ratings indicate weak implementation of core sport science principles, including periodization, workload regulation, and recovery management. Similar findings have been reported in developing athletic systems, where inadequate planning increases the risk of overtraining, injury, and performance stagnation (Haugen et al., 2022; Mola & Shaw, 2024). The absence of structured training is further compounded by limited nutritional knowledge and support. Nutritional adequacy is a critical component of endurance performance, influencing energy availability, recovery, and physiological adaptation (Burke et al., 2019). In the Ethiopian context, nutritional awareness has been shown to significantly predict aerobic capacity and training sustainability (Taye & Singh, 2025; Taye et al., 2024). Without integrating nutrition and recovery into training systems, athlete preparation remains fragmented and inefficient.

Environmental conditions, particularly high-altitude availability, represent a strategic advantage that remains largely underutilized in the Kellem Wollega Zone. Despite the presence of highland areas exceeding 3,000 meters above sea level, the majority of athletes

trained at low altitudes. This finding contradicts extensive evidence demonstrating that altitude exposure enhances erythropoietin production, hemoglobin mass, and endurance performance (Saunders et al., 2009; Millet et al., 2019; Singh et al., 2024). The international success of Ethiopian athletes from traditional high-altitude regions such as Bekoji and Sululta has been strongly linked to long-term altitude adaptation (Wilber & Pitsiladis, 2012). The failure to incorporate altitude-based training strategies in Kellem Wollega reflects gaps in planning, coaching expertise, and institutional coordination, ultimately limiting athletes' physiological readiness for elite competition (Hamlin et al., 2018).

The study also sought to examine the role of athletics facilities in performance development. The very low satisfaction ratings reported by athletes indicate severe infrastructural deficiencies, including the absence of standard running tracks, strength-training facilities, and basic equipment. Facilities are foundational to technical skill acquisition, biomechanical efficiency, and injury prevention (De Bosscher et al., 2015). Poor infrastructure restricts training quality and undermines long-term athlete development, particularly in technically demanding events such as middle- and long-distance running. International models of talent development emphasize that even minimal but standardized facilities significantly enhance training consistency and performance outcomes (Balyi et al., 2013).

Sports office support demonstrated a significant relationship with performance, highlighting the importance of institutional governance in athletic development. Athletes reported minimal financial assistance, limited administrative follow-up, and weak organizational coordination. These findings align with literature indicating that sustainable athletic success depends on coordinated governance, adequate funding, and accountability mechanisms (Thompson et al., 2022). Low budget allocation and limited policy attention suggest that athletics is not prioritized at the district level, despite its national and international significance. Similar institutional weaknesses have been reported in other regions of Ethiopia, pointing to a broader systemic challenge in decentralized sports management (Siyum, 2019).

From a theoretical perspective, the findings strongly align with the Long-Term Athlete Development (LTAD) model, which emphasizes age-appropriate coaching, progressive training structure, and supportive environments across development stages (Balyi et al., 2013; Mola & Shaw, 2024). The results also correspond with the SPLISS framework, which identifies coaching quality, training systems, facilities, and institutional governance as core pillars of international sporting success (De Bosscher et al., 2015). Furthermore, the ecological model of athlete development supports the conclusion that performance outcomes are shaped by dynamic interactions between individual, environmental, organizational, and policy-level factors. The interconnected deficiencies observed in the Kellem Wollega Zone illustrate how weaknesses at multiple ecological levels collectively constrain athletic performance.

In line with the purpose of the study, the findings demonstrate that athletic performance in the Kellem Wollega Zone is shaped by interconnected deficiencies in coaching quality, training practices, environmental utilization, facilities, and institutional support. Coaching quality emerged as the most critical determinant, while the underutilization of high-altitude environments represents a significant missed opportunity for physiological optimization. Addressing these challenges requires an integrated, evidence-based approach that combines coach education, structured training systems, infrastructural investment, and effective institutional governance.

Taken together, and consistent with LTAD, SPLISS, and ecological sport development models, the findings demonstrate that athletic performance in the Kellem Wollega Zone is constrained by interconnected deficiencies in coaching quality, training practices, environmental utilization, facilities, institutional governance, and broader social conditions. Evidence from entrepreneurship (Fitrianto et al., 2026), training intervention research (Oljirra et al., 2026), and leisure behavior analysis (Maciel et al., 2024) collectively supports the conclusion that sustainable sport development requires an

integrated, evidence-based, and context-sensitive approach rather than isolated performance interventions.

### 5. Conclusion

This study investigated the multifactorial determinants of athletic performance in selected districts of the Kellem Wollega Zone, Western Ethiopia, with emphasis on coaching quality, training practices, athletics facilities, institutional support, and environmental conditions. The findings indicate that athletic performance in the zone is constrained primarily by systemic and interrelated weaknesses rather than by a shortage of athlete potential. Coaching quality emerged as the most influential determinant of performance, while inadequate training organization, insufficient facilities, weak institutional support, and the underutilization of high-altitude environments collectively limit athletes' technical, physiological, and competitive development. These results underscore the need for an integrated, evidence-based athlete development strategy that prioritizes coach education and certification, scientifically structured training systems, strategic investment in essential athletics infrastructure, strengthened institutional governance, and effective utilization of environmental advantages to support sustainable athletic performance development and long-term competitive success.

### Conflict of Interest

No conflict of interest was declared among authors.

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