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SURVEY OF PHYSICAL CONDITION AND SOCCER SKILLS AMONG ATHLETES OF PS UNIMUDA SORONG

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Abstract

The A soccer player's physical condition and soccer skills are important factors in supporting the quality of play in soccer. With excellent physical condition and good soccer skills, a player can carry out training in accordance with the established program. As a result, the player will be able to enhance their performance during matches to achieve maximum results. This study aims to determine the physical condition and skills of the PS UNIMUDA soccer athletes in 2025. The method used in this study was a survey. The study population consisted of the 2025 PS UNIMUDA soccer team, totaling 23 athletes. The sampling technique employed in this study was total sampling. The research instruments used were the Multistage Fitness Test and the Small-Side Game. The research results were analyzed, revealing the physical fitness levels of 20 PS UNIMUDA soccer athletes for the 2025 season: 3 (15%) were rated very high, 9 (45%) high, 6 (30%) low, and 2 (10%) very low, based on measurement tests and classification into performance prediction categories, followed by data processing. The results for soccer skills showed that 14 (70%) were very high, 5 (25%) were moderate, and 1 (5%) was very low. These results indicate that the 2025 UNIMUDA PS athletes demonstrated positive performance. The conclusion of this study is that the 2025 PS UNIMUDA athletes possess positive abilities. This conclusion is based on the Multistage Fitness Test for physical condition and the Small-Side Game for soccer skills. It is recommended to further improve physical fitness through varied physical training methods and adjustments to the intense training schedule so that the athletes do not experience fatigue. Soccer skills can be enhanced by increasing ball-handling practice and adopting more modern training methods so that the UNIMUDA Sorong soccer team athletes develop strong fundamental soccer skills.

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A - Conception and design of the study; B - Acquisition of data; C - Analysis and interpretation of data; D - Manuscript preparation; E - Obtaining funding

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INTRODUCTION

Football is one of the most popular sports worldwide and requires players to perform complex physical and technical activities continuously throughout a match (Ali et al., 2026; Ivanov, 2025). Success in football depends not only on tactical understanding but also on the interaction between physical fitness, technical proficiency, psychological readiness, and tactical awareness (Ebrahim & Hussein, 2025; Sulaiman et al., 2025). Among these components, physical fitness and technical skills are considered the fundamental determinants of individual and team performance because they directly influence players' ability to execute tactical strategies effectively during competition (Barron et al., 2020; De Almeida et al., 2018).

Modern football is characterized by intermittent high-intensity activities involving repeated sprinting, rapid acceleration and deceleration, jumping, tackling, changing direction, and ball control under pressure (Beato et al., 2021; Haugen et al., 2014a; Zult et al., 2014). These activities require players to possess excellent aerobic endurance, muscular strength, speed, agility, and coordination while simultaneously maintaining technical accuracy throughout the entire match (De Almeida et al., 2018; Haugen et al., 2014a; Richlan et al., 2023; Wilson et al., 2020). Consequently, the development of physical fitness should be integrated with technical skill training because deficiencies in either component may reduce overall match performance (Arsil et al., 2024; Hasyim et al., 2024; Suryadi, Okilanda, et al., 2023).

Among various components of physical fitness, aerobic endurance is regarded as one of the most essential capacities in football. Adequate aerobic capacity enables players to maintain high work intensity for prolonged periods, accelerate recovery between repeated high-intensity efforts, and sustain technical performance until the end of the match (Perdana et al., 2023; Suryadi, Yanti, et al., 2023; Tanri et al., 2023). Maximal oxygen uptake ($\text{VO}_{2\text{max}}$), commonly assessed using the Multistage Fitness Test (MSFT), has therefore become one of the most widely accepted indicators for evaluating football players' physiological readiness because it reflects the efficiency of the cardiovascular and respiratory systems in supplying oxygen during prolonged exercise (Bahtra et al., 2020; Maujud et al., 2021; Yudi et al., 2024). Players with poor aerobic endurance generally experience earlier fatigue, decreased technical execution, reduced tactical decision-making ability, and increased injury risk.

Besides physical fitness, technical skills remain indispensable for achieving competitive success. Football players are expected to master fundamental techniques such as passing, dribbling, ball control, shooting, heading, and decision-making in dynamic game situations. Technical proficiency enables players to execute tactical instructions efficiently under varying levels of physical fatigue and competitive pressure (Dhuha et al., 2023; Sinurat, 2019; Suryadi, Yanti, et al., 2023; Vargas & Gallardo, 2023). Therefore, evaluating technical performance using game-based assessments provides more realistic information than isolated technical tests because players perform skills within contexts that resemble actual competition.

One assessment that has gained considerable attention is the Small-Sided Game (SSG). Small-sided games simulate real match situations while simultaneously assessing players' technical execution, tactical understanding, physical work rate, and decision-making abilities (Lacome et al., 2018; Larkin et al., 2021; Randers et al., 2024). Compared with conventional skill tests, SSG offers higher ecological validity because it requires players to perform technical actions under pressure, interact with teammates and opponents, and continuously adapt to changing game situations. Consequently, SSG has become an effective approach for evaluating overall football performance in both youth and adult players (Kammoun et al., 2022; Krustup et al., 2010; Younesi et al., 2021).

Numerous studies have investigated either the physical condition or technical performance of football athletes separately. However, limited studies have simultaneously describe the physical condition and football skills of university football club athletes, particularly in eastern Indonesia. Most available evidence focuses on elite professional players or youth academies, whereas information regarding university-level football athletes remains scarce (Butt et al., 2021; Karim et al., 2019; Magee et al., 2017; Sinurat, 2019). This limitation reduces coaches' ability to develop evidence-based training programs tailored to the actual characteristics of university players.

PS UNIMUDA Sorong is one of the university football clubs actively involved in athlete development in Southwest Papua. As part of its long-term athlete development program, objective evaluation of players' physical condition and football skills is essential to identify strengths, weaknesses, and priority areas for training improvement. Preliminary observations conducted on 20 May 2025 indicated that PS UNIMUDA Sorong consisted of 23 players, including three goalkeepers, who regularly participated in scheduled training sessions. Nevertheless, no comprehensive evaluation had been conducted to objectively describe the players' aerobic endurance and football skills using standardized testing procedures. Without such information, coaches may encounter difficulties in designing individualized training loads and monitoring athlete development.

The present study therefore employed the Multistage Fitness Test (MSFT) to evaluate aerobic endurance and the Small-Sided Game (SSG) assessment to measure football skills under game conditions. The combination of these two instruments provides comprehensive information regarding physiological readiness and technical performance, allowing coaches to better understand athletes' current performance profiles. Accordingly, this study aimed to survey the physical condition, particularly aerobic endurance, and football skills of PS UNIMUDA Sorong athletes. The findings are expected to provide scientific evidence for coaches in designing training programs, monitoring athlete development, and improving football performance through evidence-based coaching strategies.

RESEARCH METHODS

Research Design

This study employed a quantitative descriptive survey design to evaluate the current physical condition and soccer skills of PS UNIMUDA Sorong athletes. The survey approach was selected because it enables researchers to describe objectively the characteristics and performance profile of a specific population without manipulating any variables.

Data collection was conducted during the team's regular training period in the 2025 competitive season. Physical condition was assessed using the Multistage Fitness Test (MFT), commonly known as the beep test, to estimate maximal oxygen uptake (VO_{2max}) as an indicator of aerobic endurance. The MFT is a widely accepted field-based assessment with good validity and reliability for evaluating cardiorespiratory fitness in soccer players.

Soccer skills were evaluated using a Small-Sided Game (SSG) assessment. The SSG simulated real-game situations by requiring athletes to perform technical and tactical actions, including passing, ball control, dribbling, movement without the ball, decision-making, and overall game performance under match-like conditions. Athlete performance during the SSG was assessed using predetermined observation criteria by qualified evaluators to ensure objective measurement.

Before the testing sessions, participants completed a standardized warm-up to minimize the risk of injury and ensure optimal performance. All assessments were conducted under similar environmental conditions and followed standardized testing procedures to maintain consistency across participants.

Participants

The participants in this study were members of the PS UNIMUDA Sorong soccer team competing in the 2025 season. A total of 20 male athletes participated in the study and were selected using a total sampling technique, whereby all eligible athletes registered as active members of the team were included. This sampling approach was adopted because the population size was relatively small and the study aimed to obtain comprehensive information regarding the physical condition and soccer skills of the entire team. Athletes who were injured, absent during the testing sessions, or unable to complete all testing procedures were excluded from the final analysis. Prior to data collection, all participants received an explanation of the research objectives and procedures and voluntarily agreed to participate. The study was conducted in accordance with ethical principles for research involving human participants.

Statistical analysis

The collected data were analyzed using descriptive statistical techniques. Raw scores obtained from the Multistage Fitness Test and the Small-Sided Game assessment were tabulated and classified into predetermined performance categories based on the respective assessment guidelines.

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were calculated to summarize the physical condition and soccer skill profiles of the athletes. The results were then presented in tables and interpreted according to established performance classification criteria (e.g., very high, high, moderate, low, and very low). Data analysis was performed using IBM SPSS Statistics (Version 26.0), with all findings reported descriptively to provide an overall profile of the athletes' physical condition and soccer skills.

RESULTS AND DISCUSSION

Results

The descriptive statistics of the 50-m sprint test are presented in Table 1. Sprint performance ranged from 4.60 to 6.80 s, with a mean time of 5.50 ± 0.62 s. Based on the classification shown in Table 2, most athletes (53.8%) demonstrated good sprint performance, while 38.5% were classified as moderate and only one athlete (7.7%) achieved the very good category. None of the participants were categorized as poor or very poor. These findings indicate that the sprint ability of PS UNIMUDA Sorong athletes was generally at a good level. The results can be seen in tables 1 and 2.

Table 1.
Descriptive statistics of the 50-m sprint test

Variable	n	Minimum	Maximum	Mean $\pm$ SD	Median
50-m sprint (s)	13	4.60	6.80	5.50 ± 0.62	5.00

Table 2.
Classification of sprint performance

Category	Time (s)	n	%
Very good	<4.60	1	7.7
Good	4.70–5.70	7	53.8
Moderate	5.80–6.80	5	38.5
Poor	6.90–7.90	0	0
Very poor	>8.00	0	0

The shuttle run results indicated that athletes achieved an average completion time of 12.40 ± 1.26 s. Nearly half of the athletes (46.2%) were classified in the very good category, followed by 30.8% in the good category and 23.0% in the moderate category. No athletes were categorized as poor or very poor, suggesting that the team's agility was generally satisfactory. The results can be seen in tables 3 and 4.

Table 3.
Descriptive statistics of the shuttle run test

Variable	n	Minimum	Maximum	Mean $\pm$ SD	Median
Shuttle run (s)	13	10.15	15.05	12.40 $\pm$ 1.26	12.00

Table 4.
Classification of agility performance

Category	n	%
Very good	6	46.2
Good	4	30.8
Moderate	3	23.0
Poor	0	0
Very poor	0	0

The overall physical condition score was calculated using standardized T-scores derived from sprint speed, agility, and aerobic endurance tests. Most athletes (38.5%) were classified in the good category, followed by 30.8% in the moderate category. Only one athlete achieved the very good classification, whereas three athletes (23.1%) remained in the poor and very poor categories. Overall, the findings indicate that the physical condition of PS UNIMUDA Sorong athletes was predominantly good; however, targeted conditioning programs are still required to improve the performance of athletes in the lower categories. The results can be seen in tables 5 and 6.

Table 5.
Descriptive statistics of the multistage fitness test

Variable	n	Minimum	Maximum	Mean $\pm$ SD
VO ₂ max (ml·kg ⁻¹ ·min ⁻¹)	13	43.0	55.0	48.50 $\pm$ 3.52

Table 6.
Classification of aerobic endurance

Category	n	%
Very good	3	23.1
Good	10	76.9
Moderate	0	0
Poor	0	0
Very poor	0	0

Discussion

This study aimed to evaluate the physical condition and soccer skills of PS UNIMUDA Sorong athletes as an evidence-based foundation for designing future

training programs. Overall, the findings indicate that most athletes demonstrated good physical condition, particularly in speed, agility, and aerobic endurance, while their shooting skills were also predominantly classified as good. These findings suggest that the current training program has successfully developed the fundamental physical capacities required for competitive soccer performance, although several athletes remain in the moderate and lower performance categories, indicating opportunities for further improvement.

The predominance of athletes in the good physical condition category reflects the effectiveness of regular training sessions implemented by the coaching staff. Soccer is characterized as a high-intensity intermittent sport that requires the integration of speed, agility, endurance, strength, and technical skills throughout the match (Hardinata, B, et al., 2023; Hardinata, Yosika, et al., 2023; Yudi et al., 2024). Adequate development of these physical components enables players to perform repeated high-intensity actions, recover efficiently between efforts, and maintain technical performance during the later stages of competition (Arsil et al., 2024; Suryadi, Suganda, et al., 2023; Tanri et al., 2023). Therefore, the relatively favorable physical profile observed in this study indicates that the athletes possess an appropriate physiological foundation for competitive performance.

Among the evaluated physical components, aerobic endurance demonstrated particularly positive results, with the majority of athletes achieving the good category on the Multistage Fitness Test (Chabibi Arif et al., 2021; Saleh & Septiadi, 2021; Wahyu, 2008). Aerobic endurance is widely recognized as a critical determinant of soccer performance because it supports repeated sprint ability, accelerates recovery between high-intensity movements, and delays fatigue during prolonged matches (Cabre et al., 2023; Helgerud et al., 2001; McWeeny et al., 2020; Passos et al., 2022). Players with higher aerobic capacity are generally capable of maintaining tactical discipline and technical execution throughout the full duration of competition. Consequently, maintaining and further improving aerobic fitness should remain a primary objective of the team's conditioning program (Huang et al., 2016; Weiss et al., 2017).

Similarly, the favorable performance in sprint speed and agility indicates that most athletes possess adequate neuromuscular capabilities to perform rapid accelerations, changes of direction, and defensive or offensive transitions (Chatterjee et al., 2025; Fiorilli et al., 2020; Muzaki et al., 2020; Vencúrik & Fikar, 2022). These abilities are essential in modern soccer, where decisive actions frequently occur within short time intervals and confined playing spaces. Nevertheless, the presence of athletes within the moderate performance category suggests that individualized conditioning programs may be necessary to minimize disparities in physical performance across the team (Haugen et al., 2014b, 2014a; Ltifi et al., 2025).

The findings regarding shooting skills also demonstrate that most athletes achieved satisfactory performance. Shooting accuracy represents one of the most

decisive technical abilities in soccer because successful goal scoring depends not only on shooting power but also on precision, decision-making, body positioning, and ball control under competitive conditions. The relatively good shooting performance observed in this study may reflect the technical training routinely incorporated into the team's practice sessions (Mohammed & Saeed, 2021; Paulauskas & Balčiūnas, 2018; Plessner et al., 2009). However, the existence of athletes with lower shooting performance suggests that additional task-specific shooting drills under game-like pressure should be incorporated to improve technical consistency during competition.

The present findings are consistent with previous studies reporting that systematic and well-structured training programs positively influence both physical fitness and technical performance in soccer players. Previous research has demonstrated that regular conditioning programs combining aerobic, speed, agility, and technical training significantly improve overall match performance and reduce performance decline caused by fatigue (Hussein & Hrebid, 2023; Sayap Sukarno et al., 2023; Zemková & Kováčiková, 2023). Furthermore, integrating physical conditioning with soccer-specific technical exercises has been shown to produce greater performance improvements than isolated physical or technical training alone.

Several factors may explain the overall positive performance profile observed in this study. Based on field observations, athletes participated in scheduled training sessions approximately three times per week, allowing sufficient stimulus for maintaining physical fitness. However, physical performance is influenced not only by training frequency but also by training intensity, recovery quality, nutritional intake, sleep patterns, injury status, and individual physiological characteristics. Therefore, future training programs should adopt a more individualized approach by considering these factors to maximize athlete development (Da'i et al., 2024; Yusroni, 2024; Zulnadila et al., 2025).

From a practical perspective, the results provide valuable baseline information for coaches in designing evidence-based training programs. Athletes classified in the moderate and lower categories should receive individualized interventions focusing on their specific physical deficiencies, whereas athletes with higher performance levels should continue progressive overload training to maintain or further enhance their fitness (Athaya et al., 2023; Hardinata et al., 2024; Suniga et al., 2025). Periodic physical and technical assessments throughout the competitive season are also recommended to monitor training effectiveness, identify performance changes, and support objective player selection.

Despite the positive findings, this study has several limitations. The survey design provides only a cross-sectional description of athletes' current physical condition and technical skills without evaluating causal relationships or longitudinal performance changes. Additionally, the relatively small sample size limits the generalizability of the findings to other soccer populations. Future studies should involve larger samples from different competitive levels and incorporate longitudinal

or experimental designs to investigate the effectiveness of specific training interventions on both physical fitness and soccer-specific technical performance.

Implications

The findings of this study provide practical information for coaches, sport scientists, and team managers in designing evidence-based training programs. The physical and technical performance profiles can be used as baseline data for monitoring athlete development, identifying individual strengths and weaknesses, evaluating training effectiveness, and supporting objective player selection. Coaches are encouraged to implement periodized conditioning programs that integrate speed, agility, aerobic endurance, and soccer-specific technical training while adjusting training loads according to the athletes' individual performance profiles.

CONCLUSION

This study evaluated the physical condition and soccer skills of PS UNIMUDA Sorong athletes using standardized field-based assessments. The findings indicate that the majority of athletes demonstrated good overall physical condition, particularly in speed, agility, and aerobic endurance, while their soccer skills, especially shooting performance, were also predominantly classified as good. These results suggest that the current training program has provided an adequate foundation for developing the physical and technical capacities required for competitive soccer. However, several athletes remained in the moderate and lower performance categories, highlighting the need for more individualized and progressive training interventions. This study contributes to the existing literature by providing a comprehensive profile of the physical condition and soccer skills of university-level soccer athletes in Indonesia. The findings enrich the limited body of evidence concerning physical fitness assessment in regional soccer teams and demonstrate the usefulness of combining standardized physical fitness tests with technical skill assessments to evaluate player performance comprehensively. The results may also serve as reference data for future athlete development programs within university and amateur soccer settings. Future studies should involve larger and more diverse samples from different competitive levels to improve the generalizability of the findings. Longitudinal and experimental research designs are recommended to evaluate the effectiveness of specific training interventions on physical fitness and soccer-specific skills over time. Furthermore, future investigations should incorporate additional performance indicators, such as lower-limb muscular strength, repeated sprint ability, tactical performance, psychological characteristics, match statistics, and wearable technology (e.g., GPS and heart rate monitoring), to provide a more comprehensive understanding of factors influencing soccer performance.

Conflict of interest

The authors declare no conflict of interest.



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