JURNAL MASTER PENJAS & OLAHRAGA
Volume 6 | Issue 2 | October 2025 | pp. 826-831
p-ISSN: 2725-5660 | e-ISSN: 2722-1202
https://jmpo.stkippasundan.ac.id/index.php/jmpo

Physical Condition Profile of Proton FC Futsal Players

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Abstrac: This study aimed to determine the physical condition profile of Proton FC futsal players. The research employed a quantitative descriptive method with an observational descriptive design using survey techniques, tests, and measurements to describe the athletes' physical components. The population consisted of 21 Proton FC futsal players, and total sampling was applied, meaning all players were included as research participants. The instruments used included flexibility (sit and reach), speed (20-meter sprint and agility pro), lower-body strength (hop and board jump), lower-body muscular endurance (hurdle jump), and cardiovascular endurance (Yo-Yo Intermittent Recovery Test Level 2). Data analysis was conducted using descriptive statistics to determine the mean values and physical condition categories of the players. The results indicated that overall physical condition was categorized from moderate to very good. Agility and lower-body explosive power were in good to very good categories, while speed and cardiovascular endurance were in the moderate category.

Keyword: Physical Conditioning, Agility, Explosive Power, VO_2Max, Quantitative Descriptive

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ISSN 2721-5660 (Cetak)
ISSN 2722-1202 (Online)

Submitted : Oktober, 2025	Revised : October, 2025	Accepted : November, 2025	Publish : Desember, 2025

INTRODUCTION

Futsal is one of the most popular sports enjoyed by people ranging from children to adults (Syroyyudin et al., 2021). In addition, futsal has experienced rapid development not only in Indonesia but also worldwide. Futsal is a form of indoor soccer played by five players on each team, whereas association football (also called soccer) is an outdoor version played by eleven players on each side. Both are officially regulated by the Fédération Internationale de Football Association (FIFA) (Oppici et al., 2018). Similar to soccer and other team sports, futsal (5-a-side indoor soccer) is characterized as an intermittent, high-intensity sport. However, due to the smaller pitch dimensions, unlimited substitutions, and the involvement of players in both attacking and defensive roles, competitive futsal players are required to perform more frequent sprints and high-intensity activities throughout a match (Paul et al., 2014).

Futsal is a team sport that demands individual excellence within a collective structure to achieve victory. Individual performance encompasses tactical, technical, physical, and psychological abilities, all of which must be systematically developed and enhanced (Siswanto, 2015). Achieving optimal performance in sports is always the primary goal of athletic development programs. Efforts to improve sports achievement must focus on several training aspects, including physical, technical, tactical, and mental components, thereby creating a balanced and comprehensive training composition (Mubarok & Mudzakir, 2020).

Physical condition is a fundamental element and serves as the foundation for developing and improving technical skills, tactical implementation, strategic execution, and athletes' mental readiness (Mubarok & Mudzakir, 2020). Futsal players are required to possess good endurance, as endurance is one of the essential components of physical fitness to prevent early fatigue during matches (Syroyyudin et al., 2021). Factors influencing athletic performance during competition include strength, endurance, flexibility, coordination, balance, and agility (Widiastuti & Mulyani, 2017). Physical condition is a prerequisite for achieving optimal sports performance (Laelatul Arofah, 2019). Important components of physical fitness in sports include strength, flexibility, speed, agility, endurance, muscular strength, and power (Prima & Kartiko, 2022). Therefore, physical condition must be systematically developed and improved according to the specific characteristics and demands of each sport (Prima & Kartiko, 2022).

Proton FC is a futsal club based in Kuningan Regency, West Java. Since its establishment, futsal in West Java has regained momentum, particularly after the Bandung City futsal team was relegated from the professional futsal league in 2018, leaving no West Java representatives in professional competitions. Currently, Proton competes in Pro Futsal League 2 (PFL 2), which is one tier below the Pro Futsal League (PFL) Liga 1. In addition to participating in national competitions, Proton also conducts continuous development programs, not only for players but also for coaches across West Java.

In preparation for the PFL 2 competition scheduled for April 2026, the coaching staff conducted a series of physical tests for players who will compete. Therefore, this study aims to examine the physical readiness of Proton FC players ahead of the PFL 2 season from a physical fitness perspective. Based on this background, the research question of this study is: "What is the physical condition profile of Proton FC futsal players?" Accordingly, the purpose of this study is to determine the physical condition profile of Proton FC futsal players.

METHOD

This study employed a quantitative descriptive method using survey techniques, tests, and measurements to describe the physical components of the athletes. The research design was observational descriptive, aiming to provide a systematic description of a phenomenon with greater emphasis on factual data rather than drawing causal conclusions (Kanji & Nawir, 2019). According to Sugiyono, descriptive research is used to determine the value of independent variables without making comparisons with other variables.

The population refers to the entire group of research subjects, while the sample represents a portion of that population (Priadana & Denok Sunarsi, 2021). The population in this study consisted of 21 Proton FC futsal players. Total sampling was applied, meaning that all members of the population were included as research participants.

The instruments used in this study consisted of several biomotor components, including flexibility (sit-and-reach test), speed (20-meter sprint and agility pro test), strength (hop and board jump tests), lower-limb muscular endurance (hurdle jump test), and cardiovascular endurance (Yo-Yo Intermittent Recovery Test Level 2). Data were analyzed using descriptive statistics to determine the mean scores and categorize the physical condition levels of the players.

Table 1. Standart of Assessment Criteria of this Instrument Research

Score range of Sit & Reach	Score range of Sprint 20 meter	Score range of Agility	Score range of Board Jump	Score range of Huerdel Jump	Score range of VO_2Max	Category
>24 cm	< 2,89	≤ 5,10	≥ 2.54 m	103 - 119	≥ 56	Very Good
18 – 23 cm	3,18 – 2,90	5,11 – 5,50	2.26–2.53 m	87 - 102	51 – 55.9	Good
12 – 17 cm	3,33 – 3,19	5,51 – 6,00	1.97–2.25 m	70 - 86	46 – 50.9	Moderate
6 – 11cm	3,47 – 3,34	6,01 – 6,50	1.69–1.96 m	54 - 69	41 – 45.9	Poor
1 – 5 cm	>3,48	≥ 6,51	< 1.68 m	36 - 53	≤ 40	Very Poor

RESULT

The results of this study present a profile of the physical condition of Proton FC Futsal players based on measurements of several biomotor components, namely flexibility, speed, agility, leg muscle strength, leg muscle endurance, and cardiovascular endurance. Data analysis was carried out using descriptive statistics to obtain the average value and category for each test component. Based on the results of data processing, variations in the level of physical ability in each component were obtained, which are then presented in tabular form and described in detail in the following section.

Table 2. Overall Test Result of the Athlete's Physical Condittion

Category	Score range of Sit & Reach	Score range of Sprint 20 meter	Score range of Agility	Score range of Board Jump	Score range of Huerdel Jump	Score range of VO_2Max
Very Good	42.86%	4.76%	38.10%	25%	10%	21.05%
Good	19.05%	33.33%	52.38%	50%	70%	57.89%
Moderate	28.57%	23.81%	4.76%	25%	15%	21.05%
Poor	9.52%	19.05%	0%	0%	5%	0%
Very Poor	0%	19.05%	4.76%	0%	0%	0%

Based on the sit-and-reach test results, most players were classified in the very good category (42.86%), followed by moderate (28.57%), good (19.05%), and poor (9.52%), while no players were categorized as very poor (0%). These results indicate that the majority of Proton FC futsal players have good to very good flexibility levels, although some players still show moderate to low flexibility and may require improvement through appropriate flexibility training programs.

Based on the 20-meter sprint test results, most players were classified in the good category (33.33%), followed by moderate (23.81%), poor (19.05%), and very poor (19.05%), while only 4.76% of players were categorized as very good. These findings indicate that the sprint speed of Proton FC futsal players is generally moderate, suggesting that improvement in acceleration and sprint performance is still needed through specific speed training programs.

Based on the Agility Pro test results, most players were classified in the good category (52.38%), followed by very good (38.10%), while 4.76% were categorized as moderate and 4.76% as very poor. No players were classified in the poor category. These results indicate that the majority of Proton FC futsal players have good agility performance, suggesting that their ability to change direction quickly and efficiently is generally well developed.

Based on the board jump test results, most players were classified in the good category (50%), followed by very good (25%) and moderate (25%), while no players were categorized as poor or very poor. These findings indicate that the lower-body explosive power of Proton FC

futsal players is generally good, suggesting that their jumping ability and leg power are sufficient to support performance in futsal activities such as sprinting, jumping, and rapid changes of direction.

Based on the hurdle jump test results, most players were classified in the good category (70%), followed by moderate (15%), very good (10%), and poor (5%), while no players were categorized as very poor. These findings indicate that the lower-limb muscular endurance of Proton FC futsal players is generally good, suggesting that their ability to perform repeated jumping movements is adequate to support high-intensity activities during futsal matches.

Based on the VO_2max test results, most players were classified in the good category (57.89%), followed by very good (21.05%) and moderate (21.05%), while no players were categorized as poor or very poor. These results indicate that the cardiovascular endurance of Proton FC futsal players is generally good, suggesting that most players possess adequate aerobic capacity to support high-intensity and intermittent activities during futsal matches.

Table 3. Average Overall Test Result of Athletes' Physical Condition

No	Physical Condition Component	Average	Criteria
1	Sit and Reach (cm)	20,6	Good
2	20 M Sprint (second)	3,3	Moderate
3	Agility Pro / T-Test (second)	5,2	Very Good
4	Broad Jump (m)	2,4	Good
5	Hurdle Jump (Total)	93,8	Good
6	VO_2max (ml/kg/minutes)	50,8	Moderate

Based on the mean test results of the physical condition components, the Proton FC futsal players demonstrated good flexibility (20.6 cm), good lower-body explosive power in the broad jump (2.4 m), and good lower-limb muscular endurance in the hurdle jump (93.8 repetitions). The agility performance showed a very good category with a mean time of 5.2 seconds in the Agility Pro / T-Test. Meanwhile, speed in the 20-meter sprint (3.3 seconds) and cardiovascular endurance measured by VO_2max (50.8 ml/kg/min) were categorized as moderate. Overall, these results indicate that the physical condition of Proton FC futsal players is generally adequate to good, with agility being the strongest component, while improvements are still needed in sprint speed and cardiovascular endurance to further enhance overall performance.

DISCUSSION

The results of the physical condition profiling of Proton FC futsal players indicate that cardiovascular capacity, as measured by VO_2max, falls within the moderate category, with a mean value of 50.8 ml/kg/min. This value reflects an adequate aerobic capacity for futsal, which is characterized as an intermittent high-intensity sport requiring repeated short sprints and intense activities throughout a match (da Cruz Barbosa, 2023; Ohmuro et al., 2020). These findings are consistent with previous research demonstrating that VO_2max is positively correlated with physiological performance in futsal athletes and can be significantly improved through high-intensity training programs (Tavares, 2025; Wijaya et al., 2023).

The 20-meter sprint test produced a mean time of 3.3 seconds, indicating moderately good acceleration ability compared to reference standards for youth and adult athletes. Short-distance sprinting is a critical component in futsal, as most match situations involve rapid movements within distances of 5–20 meters (Naser & Ali, 2020; Suarez-Navarro et al., 2021). This result aligns with recent findings suggesting that short sprint performance significantly contributes to offensive effectiveness and defensive transitions during futsal matches (Spyrou et al., 2022; Torres-López et al., 2023).

The agility test (Agility Pro / T-Test) showed a mean time of 5.2 seconds, which falls into the very good category, reflecting superior change-of-direction ability among the players. Agility is a fundamental motor skill required to cope with dynamic match situations, particularly involving lateral movements, rapid accelerations, and sudden decelerations (Wijaya & Hafid, 2024; Zheng et al., 2025). Recent studies further indicate that higher agility levels are strongly

associated with improved technical and tactical performance in modern futsal (Gomes et al., 2024; Loturco et al., 2019).

Lower-limb explosive power, assessed through the broad jump (2.4 m), 3 hop jump (6.5 m), and hurdle jump (93.8 repetitions), was categorized as good. Explosive muscle power plays a crucial role in supporting sprinting, jumping, and rapid directional changes (Margiyan & Wijaya, 2025; Naser & Ali, 2016; Slimani et al., 2016). Repeated plyometric ability, as reflected in the hurdle jump test, has been shown to correlate with sprint and agility performance, providing physiological advantages for futsal players (Zheng et al., 2025).

Flexibility, measured using the sit-and-reach test, yielded a mean score of 20.6 cm and was categorized as good, indicating adequate muscle range of motion, particularly in the hamstrings and lower back. Good flexibility is essential for injury prevention and for optimizing movement efficiency during directional changes and ball control (Nakatani et al., 2012). Previous research has also demonstrated that structured flexibility programs can reduce injury risk and enhance technical performance in futsal athletes (Parnell et al., 2015).

Overall, the physical condition profile of Proton FC futsal players demonstrates a moderate level of readiness to support competitive performance, particularly in agility and explosive power. Although certain components, such as sprint speed and VO_2max, remain in the moderate category, these aspects can be further optimized through specific training interventions, including interval running, plyometric training, and small-sided games, which have been shown to effectively improve aerobic capacity, speed, and muscular strength in futsal players.

CONCLUSION

Based on the results of the study, it can be concluded that the overall physical condition profile of Proton FC futsal players ranges from moderate to very good. The agility component demonstrated a very good result, while lower-limb explosive power and flexibility were categorized as good, indicating that the players' physical abilities adequately support the fast and dynamic characteristics of futsal. Meanwhile, sprint speed and cardiovascular endurance (VO_2max) were classified in the moderate category, suggesting that these components require further improvement through more targeted and structured training programs. Overall, the players' physical condition is considered sufficient to support match performance; however, optimization of speed and aerobic endurance remains necessary to enhance the team's competitive performance.

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