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Physical Condition Profile: Measurements On Badminton Athletes At PB Saka Club

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ABSTRACT

This research is motivated by the importance of physical condition in supporting the performance of badminton athletes. Good physical condition will help athletes in carrying out optimal techniques and game strategies and maintaining performance during the match. However, the absence of data that objectively describes the physical condition of badminton athletes at the PB SAKA Club, Bangkalan Regency is a problem in preparing an appropriate training program. This study aims to determine the physical condition profile of badminton athletes at the PB SAKA Club, Bangkalan Regency. The research method used is descriptive quantitative. With a sample of 20 athletes and using Purposive Sampling techniques. The research subjects were badminton athletes who actively train at the PB SAKA Club. The research instrument used a physical condition test that included strength, speed, endurance, agility, explosive power, balance, and flexibility. The data analysis technique used descriptive statistics in the form of averages, minimum and maximum values, and assessment.

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INTRODUCTION

Sports play a vital role in developing healthy, resilient, and highly competitive human resources. Through sports, individuals not only achieve physical fitness but also develop the values of discipline, hard work, and sportsmanship. One of the most popular and successful sports in Indonesia is badminton. Indonesia is known as a country with a strong tradition in this sport, as evidenced by the numerous athletes who have achieved international success, such as winning gold medals at the Olympics, the Thomas Cup, and the All England (Miko, 2019). Badminton is a sport that requires a combination of technical, tactical, mental, and physical abilities. Of these four aspects, physical fitness is the main foundation for an athlete's success in achieving optimal performance. According to Valincus (2023), good physical fitness allows athletes to efficiently display techniques and strategies and maintain high performance over a long period. The

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dominant physical components in badminton include strength, speed, endurance, agility, and flexibility (Kosasih, 2025).

The physical condition of young athletes often does not receive optimal attention because the focus of training tends to be directed more towards mastering techniques and achieving short-term achievements. However, during the developmental stage, physical abilities such as endurance, strength, speed, agility, and coordination are crucial for the quality of an athlete's future performance. Lack of measurable physical condition monitoring can lead to imbalances in athlete abilities, an increased risk of injury, excessive fatigue, and even hampered performance development. Therefore, physical condition profiling is crucial for coaches as a basis for objectively determining each athlete's ability level. Through physical profiling, coaches can develop more targeted training programs, adjust training intensity to the athlete's needs, periodically evaluate physical condition development, and determine effective coaching strategies to support optimal performance improvement in young athletes.

METHODS

This study used a quantitative approach with descriptive methods, aiming to describe the physical condition of badminton athletes without providing any special treatment. The study at the PB SAKA Club in Bangkalan Regency. The study population consisted of all 20 active athletes training at the PB SAKA Club. The sample was drawn using a purposive sampling technique with the following criteria: high-achieving athletes (aged 15-16 years). All individuals meeting the criteria were included in the total sample (total sampling). However, the limited sample size was a limitation of this study. The research instrument used a series of standardized physical tests relevant to the sport of badminton (Widiastuti, 2017).

RESULTS AND DISCUSSION

Result

This study involved 20 badminton athletes from the PB SAKA Club aged 15-16. All athletes successfully completed a series of physical tests. A summary of the results of the descriptive statistical analysis is presented in

Table 1.
Descriptive Statistical

Component Physique	Unit	Minimum	Maximum	Average	Standard Deviation
Push up	Repetition	15	24	19.4	3.05
Sit up	Repetition	20	29	24.0	3.16
Vertical jump	Cm	39	52	45.1	4.31
30 m sprint	Second	4.9	5.7	5.3	0.26
Shuttle run	Second	12.1	13.1	12.6	0.33
Cooper test	Meter	1900	2300	2095	125.83
Stork Stand	Second	24	36	29.7	3.73
Sit & reach	Cm	15	21	17.9	1.68

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Table 2.
Percentage of Physical Condition Categorization of PB SAKA Athletes

Component Physique	Good (%)	Enough (%)	Not enough (%)
Strength arms (push up)	35	50	15
Strength stomach (sit ups)	40	45	15
Explosive power legs (vertical jump)	30	55	15
Speed (30m sprint)	45	40	15
Agility (shuttle run)	40	45	15
Durability aerobic (cooper test)	25	50	25
Balance (Stork Stand)	35	45	20
Flexibility (sit & reach)	30	50	20

Based on the table above, the results of arm strength using the push up test are in the good category of 35%, sufficient 50%, and less than 15%; the results of abdominal strength using the sit up test are in the good category of 40%, sufficient 45%, and less than 15%; the results of leg explosive power using the vertical jump test are in the good category of 30%, sufficient 55%, and less than 15%; the results of speed using the 30 m sprint test are in the good category of 45%, sufficient 40%, and less than 15%; the results of agility using the shuttle run test are in the good category of 40%, sufficient 45%, and less than 15%; the results of aerobic endurance using the cooper test are in the good category of 25%, sufficient 50%, and less than 25%; the results of balance using the stroke stand test are in the good category of 35%, sufficient 45%, and less than 20%; the results of flexibility using the sit & reach test are in the good category of 30%, sufficient 50%, and less than 20%.

Discussion

The results of the study indicate that the physical condition profile of badminton athletes at the PB SAKA Club is generally in the fair to good category. This finding aligns with research by Putra et al. (2023), which reported that most badminton athletes in Malang City are in good physical condition, particularly in terms of speed and agility. However, there is still significant variation among athletes, particularly in the components of aerobic endurance and flexibility.

The speed component (30 m sprint) showed the best results with 45% of athletes in the good category (average 5.3±0.26 seconds). This supports the statement of Paterson et al. (2016) that speed is a key component in badminton due to the demands of quick response to the shuttlecock and position changes on the court. Similarly, agility (shuttle run 12.6±0.33 seconds) with 40% in the good category indicates that PB SAKA athletes have adequate ability in changing direction of movement.

The aerobic endurance component (Cooper test) showed an average distance of 2095±125.83 meters, with 25% of athletes still in the poor category. These results are relevant to the findings of Pamungkas et al. (2022) who stated that endurance is a major factor influencing the performance of junior badminton athletes during matches. The low endurance of some athletes is thought to be caused by a lack of programmed aerobic training such as interval training or continuous running. Kosasih, (2025) emphasized that athletes with good endurance are able to last until the third set at high intensity.

Arm muscle strength (push-ups 19.4±3.05 repetitions) and abdominal muscle strength (sit-ups 24.0±3.16 repetitions) showed quite good results. Leg explosive power (vertical jump 45.1±4.31 cm) also showed 30% of athletes in the good category. This is in line with Herianto et al. (2021) who found a positive relationship between leg muscle strength and badminton athletes' smashing ability. Athletes with good leg explosive power tend to be more explosive in their jump smashes and fast footwork.

Static balance (Stork Stand 29.7±3.73 seconds) and flexibility (sit and reach 17.9±1.68 cm) showed a relatively high percentage of deficiencies (20%). According to Rahman & Islam (2020), poor flexibility can limit joint movement and increase the risk of injury, especially when reaching the shuttlecock in the corner of the court. Therefore, stretching exercises need to be included in the daily training program.

The implication of this study is that PB SAKA Club coaches can use physical condition profile data as a basis for developing more structured training programs tailored to athletes' needs. Werkiani et al. (2012) emphasized that developing a physical condition profile is very useful for coaches in identifying athletes' strengths, weaknesses, and training needs. Periodic evaluations are necessary to continuously monitor athletes' physical development.

This study is limited by its relatively small sample size and its limited scope at one badminton club, so the results cannot be widely generalized. Further research is recommended involving a larger sample size and covering a wider area.

CONCLUSION

Based on the research results, it can be concluded that the physical condition profile of badminton athletes at the PB SAKA Club is generally in the fair to good category. Speed (45%) and abdominal muscle strength (40%) showed the best results. Conversely, aerobic endurance (25% deficient) and flexibility (20% deficient) still require special attention in training programs.

Suggestions for PB SAKA Club coaches include increasing the portion of aerobic endurance training (interval running, fartlek, continuous running) at least 2-3 times per week, adding flexibility training (dynamic and static stretching) to each training session, and conducting regular physical condition evaluations every 3 months. Future researchers are advised to conduct experimental research to examine the effect of specific training programs on improving athletes' physical condition and to expand the sample to several other badminton clubs in Bangkalan Regency.

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