# Analysis of The Nutritional Status of Trengginas Badminton Athletes

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**Abstract**

Nutritional status reflects the balance between nutrient intake and the body's needs. In athletes, nutritional status is an important indicator in assessing physical readiness and the body's ability to cope with training loads. Suboptimal nutritional status can lead to various negative impacts, such as decreased endurance, muscle strength, reaction speed, and consistent performance during matches. This study aims to analyze the nutritional status of badminton athletes from the PB Trengginas Ungaran club. This study is a quantitative descriptive study with a cross-sectional design. The sample size for this study was 7 athletes using a total sampling technique. The instruments used in this study included a weighing scale for weighing, a microtoice for measuring height, and the Body Mass Index formula (BW (kg) / BH (m2)) to determine nutritional status. The results of this study include: 5 athletes (71.4%) were categorized as underweight, 1 athlete (14.3%) was categorized as normal, and 1 athlete (14.3%) was categorized as overweight. The conclusion of this study is that the majority of athletes are underweight.

## Introduction

Nutritional status is an important indicator reflecting the balance between nutrient intake and body needs. In athletes, nutritional status plays a crucial role because it is directly related to performance, endurance, recovery, and injury prevention (Amin, 2018). Athletes with good nutritional status tend to demonstrate optimal performance compared to those with nutritional deficiencies or excesses (Thomas, Erdman, & Burke, 2016; Close et al., 2019). Recent research has shown that meeting proper nutritional needs is a key factor in supporting training adaptation and increasing athletes' physical capacity (Kerksick et al., 2021). Badminton is a high-intensity sport that requires a combination of speed, agility, strength, and endurance. The high level of physical activity in badminton athletes results in greater energy and nutrient requirements than in non-athletes. Therefore, proper nutritional management is essential for athletes to maintain performance during training and matches (Santos et al., 2020). Furthermore, an imbalance in nutritional status can have negative impacts, such as fatigue, decreased performance, and an increased risk of injury (Heikura et al., 2020).

Athletes' nutritional status can be assessed using various methods, such as measuring body mass index (BMI), body fat percentage, and analyzing food intake. Using the right method is crucial for obtaining an accurate picture of an athlete's nutritional status (Ackland et al., 2012; Burke et al., 2021). In the context of sports development, regular nutritional status evaluation is a crucial part of training programs to ensure that athletes' nutritional needs are optimally met. PB Trengginas Ungaran is a badminton club actively involved in developing young athletes. However, to date, there has been little research specifically examining the nutritional status of athletes at the club. Yet, information on nutritional status is crucial for planning training programs and appropriate nutritional interventions. Therefore, this study aims to analyze the nutritional status of badminton athletes at PB Trengginas Ungaran to provide an overview of their nutritional status and inform decision-making regarding sports performance development.

## Methods

This study used a quantitative descriptive method with a cross-sectional design. Data collection was conducted at a specific point in time to analyze the nutritional status of athletes from the PB Trengginas Ungaran club in 2026. The sample consisted of seven athletes from

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the PB Trengginas Ungaran club. The sampling technique used total sampling, with athletes meeting the criteria for being research subjects, such as being in good health and willing to undergo all measurements.

Nutritional status was measured using the Body Mass Index (BMI). Weight was measured using a digital scale, while height was measured using a microtoise. BMI was calculated by dividing weight (kg) by height squared ($m^2$), then categorized according to standards into underweight, normal, and overweight categories. Nutritional status can be calculated using the following formula: BMI = Body Weight (kg) / (Height (m)$^2$

This study adhered to ethical research principles by obtaining permission from the PB Trengginas Ungaran management and obtaining informed consent from respondents. The confidentiality of respondent data is maintained and is only used for scientific purposes.

**Results and Discussion**

Based on measurements of seven male athletes from the 2026 Ungaran PB Trengginas Club, variations in Body Mass Index (BMI) were obtained, ranging from underweight, normal, to overweight. These results indicate differences in nutritional status among students, which can be explained by their respective BMI values.

**Table 1. Characteristics of Respondent**

| Variable (N=29) | Min | Max | Mean ± SD |
|---|---|---|---|
| **Aged (years)** | 6 | 16 | 12.85 ± 3.8 |
| **Weight (kg)** | 18.5 | 69.9 | 42.3 ± 16.5 |
| **Height (cm)** | 108 | 172 | 149.14 ± 23.9 |

**Table 2. Analysis of Nutritional Status of The Respondent**

| Classification | Total | Percent (%) |
|---|---|---|
| **Underweight** | 5 | 71.4 |
| **Normal** | 1 | 14.3 |
| **Overweight** | 1 | 14.3 |

The results of the study showed that five badminton athletes from the PB Trengginas Ungaran Club (71.4%) were underweight. This indicates that most athletes have a nutritional status below the ideal standard based on BMI calculations.

Poor nutritional status in athletes can be caused by several factors, such as insufficient daily energy intake, an unbalanced diet, or high levels of training activity that are not balanced with adequate nutritional needs. In the context of badminton athletes, this condition requires serious attention because this sport requires an optimal combination of strength, speed, agility, and endurance.

Athletes with an underweight nutritional status are at risk of experiencing decreased performance, such as fatigue, decreased muscle strength, and slow recovery after training. This can impact the quality of training and performance during matches. Meanwhile, one athlete (14.3%) was in the normal category, indicating that only a small proportion of athletes maintain a balance between nutritional intake and energy needs. Athletes with a normal nutritional status generally have a more stable physical condition, making them better prepared to optimally undertake training programs.

On the other hand, there was also 1 athlete in the overweight category (14.3%). This condition can affect the decline in agility and speed of movement, which are important components in badminton. In addition, being overweight can also increase the risk of fatigue during training and matches. Overall, the results of this study indicate that the distribution of nutritional status of athletes is still dominated by less than ideal conditions, namely underweight at 71.4%. Other research on the nutritional status of athletes also indicates that some athletes specifically 6 (2%) of them are underweight (Ahmad et al, 2024). This emphasizes the importance of interventions in the form of nutritional education, regulating diet patterns, and monitoring nutritional status regularly for athletes. Thus, good management of nutritional status is expected to improve the physical quality of athletes so that it can support increased sports achievements, especially in badminton.

**Conclusion and Recommendations**

Based on the results of a study on the nutritional status of badminton athletes from the PB Trengginas Ungaran Club, involving seven athletes, the Body Mass Index (BMI) analysis showed that five athletes were underweight (71.4%), one athlete was in the normal weight category (14.3%), and one athlete was overweight (14.3%). Therefore, it can be concluded that the nutritional status of badminton athletes from the PB Trengginas Ungaran Club is predominantly underweight, indicating that most athletes still have less than ideal nutritional conditions. This condition requires attention in efforts to improve the nutritional quality of athletes to support optimal athletic performance and achievement.

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