Jurnal Gizi Prima (Frime Nutrition Journal)
Vol 10, Edisi 2, September 2025, pp. 72-77
ISSN: 2656 - 2480 (Online)
ISSN: 2355 - 1364 (Print)
Website: http://jgp.poltekkes-mataram.ac.id/index.php/home

The Effect of Nutrition Education for Athletes Using Video Media on The Knowledge and Nutrition Intake of Pencak Silat Athletes

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Article Info

Article history:
Received May 8th, 2025
Revised July 20th, 2025
Accepte September 26th, 2025

Keyword:
Athletes; Knowledge; Nutrition Education; Nutritional Intake; Video;

ABSTRACT

Background: *Nutrition education enhances athletic performance by improving knowledge and dietary intake. According to the Ministry of Youth and Sports, approximately 60% of athletes in Indonesia, including pencak silat athletes, have not received adequate nutrition education, leading to unplanned and unbalanced dietary patterns.*

Research Methods: *This research employed a pre-experimental design with a one-group pretest-posttest approach. A total of 43 athletes were selected using purposive sampling. The intervention involved providing nutrition education through video media. Data were analysed using the Wilcoxon signed rank test.*

Research Result: *There was an increase in athletes' nutrition knowledge, with the average pre-test score rising from 64.51 to 90.32. The Wilcoxon test showed a significant result with a p-value of 0.000 ($p < 0.05$). Additionally, there was an increase in the average energy intake by 714.20 kcal, protein by 9.86 grams, fat by 45.87 grams, and carbohydrates by 85.58 grams after the nutrition education. All changes were statistically significant ($p = 0.000$; $p < 0.05$). These findings indicate that nutrition education using video media effectively improves knowledge and nutrient intake among pencak silat athletes.*

Conclusion: *Video media can be an efficient and applicable method for nutrition improvement programmes among athletes.*

BACKGROUND

Athletes are skilled in a particular sport and compete to achieve excellence. In Indonesia, athletes require more attention because their achievements can bring pride to the nation (Pratiwi, 2021). One of Indonesia's indigenous sports that plays an important role is pencak silat (Kriswanto, 2020). However, many pencak silat athletes have not received adequate nutrition education and rely on an unbalanced diet (Kemenpora, 2022).

Approximately 55% of athletes do not meet the recommended daily calorie intake, and their consumption of fruits and vegetables is still low, while high-fat fast food is still frequently consumed (Dispora NTB, 2022). Poor nutritional knowledge can lead to inappropriate food choices, affecting athletes' performance on the field. Good nutrition education can help athletes maintain weight, build muscle mass, and support their mental performance (Kristiono, 2017).

Balanced nutrition intake affects athletes' performance, but many still follow old eating patterns without considering their specific needs as athletes (Muchtadi et al., 2018). To overcome this, attractive and

practical nutrition education through video media is needed, which has been proven to increase participants' understanding and engagement (Mayer, 2009; Kurniasari et al., 2023).

Based on initial observations and interviews at the INOGA Academy in Mataram City, it was found that 11.62% of athletes were malnourished and 7% were overnourished. This problem was also experienced first-hand in Pencak Silat championships, which is why this research was conducted. This study aims to determine the effect of nutrition education through video media on the knowledge and nutritional intake of Pencak Silat athletes. It is a basis for developing more effective and sustainable nutrition education programmes.

RESEARCH METHODS

This study was conducted at the Inoga Pencak Silat Academy in Mataram City from 21 January to 7 February 2025. The research method used was pre-experimental with a one-group pretest-posttest design. The population in this study consisted of 43 pencak silat athletes aged 15–18 years, all of whom were sampled using a total sampling technique. The data collected included respondent characteristics such as age, gender, education, and nutritional status based on BMI/U, nutritional knowledge data using a pre-post test questionnaire, and macronutrient intake data, namely energy, protein, fat, and carbohydrates, using a 24-hour recall method conducted at the pre-test and post-test stages. Data analysis was performed univariately for the distribution of characteristics, knowledge, and nutritional intake, and bivariately to examine differences in pre-test and post-test values using the Wilcoxon test because the data were not normally distributed.

RESULT

Characteristics of Pencak Silat Athletes

Table 1. Distribution of Characteristics of Pencak Silat Athletes at INOGA Mataram University

Variable	Number	
	n	%
Age		
15 years	24	55.8
16 years	10	23.3
17 years	4	9.3
18 years old	5	11.6
Gender		
Female	20	46.5
Male	23	53.5
Education		
Junior High School	22	51.2
Senior High School	21	48.8
Nutritional status *pre-test* and *post-test*		
Malnutrition (-3SD to <-2SD)	1	2.3
Good Nutrition (-2SD to +1SD)	42	97.7

Based on Table 1, it can be seen that the majority of pencak silat athletes are 15 years old (55.8%), and the fewest are 17 years old (9.3%). Based on gender, male athletes (53.5%) are slightly more numerous than female athletes (46.5%). The respondents' educational levels were almost equal, with 51.2% completing junior high school and 48.8% completing senior high school. The results of nutritional status calculations based on BMI/U at the pre-test and post-test showed that most athletes had good nutritional status (97.7%). In comparison, only one athlete (2.3%) was classified as malnourished.

Nutrition Knowledge Level of Athletes

Table 2. Distribution of Athletes' Knowledge Levels Before and After Education

Level of knowledge	Before		After	
	n	%	n	%
Good	4	9.3	43	100
Moderate	31	72.1	0	0
Less	8	18.6	0	0
Total	43	100	43	100

Table 2 shows that before nutrition education using video media, the majority of athletes had a moderate level of knowledge (72.1%), and only 9.3% had a good level of knowledge. After receiving education, all athletes (100%) achieved good knowledge. This shows a significant increase in knowledge levels after nutrition education intervention using video media.

Macronutrient Intake of Athletes

Table 3. Average Nutrient Intake of Athletes Compared to the Recommended Daily Allowance (RDA)

Knowledge	Knowledge Score		Difference
	Pre-test	Post-test	
Average	64.51	90.32	25.81
Minimum	46.00	80.00	42.00
Maximum	90.00	98.00	4.00
Standard Deviation	8.97	4.36	8.24
p-value	0.000		

Based on Table 4, athletes' average nutritional knowledge score increased from 64.51 in the pre-test to 90.32 in the post-test, with an increase of 25.81. The minimum score also increased from 46.00 to 80.00, while the maximum score increased from 90.00 to 98.00. The Wilcoxon test results showed a p-value of 0.000 ($p < 0.05$), meaning there was a significant difference in athletes' nutritional knowledge before and after education through video media.

The Effect of Nutrition Education Using Video Media on Athletes' Nutrient Intake

Table 5. Wilcoxon Test Results for Athletes' Nutrient Intake Before and After Education

Intake	Pre-test		Post-test		p-value
	Mean	SD	Mean	SD	
Energy	1,158.73	458.10	1,872.93	503.13	0.000
Protein	45.75	15.81	55.61	9.22	0.000
Fat	33.05	11.77	54.86	9.39	0.000
Carbohydrates	163.33	83.83	248.91	71.28	0.00

Based on Table 5, the average energy intake of athletes increased from 1,158.73 kcal at the pre-test to 1,872.93 kcal at the post-test. Protein intake increased from 45.75 grams to 55.61 grams, and fat intake increased from 33.05 grams to 54.86 grams. Carbohydrate intake also increased from 163.33 grams at the pre-test to 248.91 grams at the post-test. The Wilcoxon test results showed that nutritional intake had a significance value of $p=0.000$ ($p < 0.05$), which means that the increase in nutritional intake in athletes before and after the education had a statistically significant difference.

DISCUSSION

Characteristics of Pencak Silat Athletes

Age is one factor that influences an individual's nutritional needs, including those of athletes, due to physiological changes that affect growth, metabolism, recovery, and physical performance with age. Adolescence, from 12 to 18, is a critical period in athlete development, so adequate nutrition is important to support health, growth, and optimal performance. Nutritional deficiencies during this period can hinder growth, reduce performance, and increase the risk of injury (Zahra & Muhlisin, 2020).

In terms of gender, the number of male and female athletes in this study was pretty balanced. Gender can affect nutritional needs, eating behaviour, and response to nutrition education in athletes. Physiological differences such as body composition, metabolism, and energy requirements make nutritional intake recommendations different between males and females. Females tend to be more conscious in choosing healthy foods, but are prone to energy, iron, and eating disorders. At the same time, male athletes require higher energy and protein to maintain muscle mass, but often neglect micronutrients. Nutrition education should be tailored, emphasizing adequate energy, iron, and calcium for women and macronutrient and hydration fulfillment for men to support optimal nutritional status and performance.

Education is important in shaping healthy lifestyle behaviours, including nutritional understanding among athletes. In this study, 48.8% of athletes were high school graduates and 51.2% were junior high school graduates. Educational level influences understanding of nutritional needs, which impacts performance, recovery, and injury prevention. A lack of understanding of nutritional needs can lead to an imbalance in energy intake, either deficiency or excess, ultimately affecting nutritional status. Nutrition education for junior high and high school adolescents needs to be delivered using engaging methods, such as short videos, so that the information is easier to understand and nutritional knowledge increases (Nugroho *et al.,* 2021).

One important factor that needs attention in supporting athletes' performance is nutritional status, which is influenced by nutrient consumption, absorption, and metabolism. In this study, 97.7% of adolescent pencak silat athletes had good nutritional status, and 2.3% were malnourished (BMI/U). Martial arts, including pencak silat, often face weight issues due to competition class requirements, which affect athletes' nutritional status (Faizal & Hadi, 2019). Nutritional knowledge is closely related to nutritional status; the higher the knowledge, the better the awareness and behaviour of consuming nutritious foods. Conversely, incorrect food choices and a lack of understanding can trigger nutritional problems that interfere with athletes' performance (Meganingrum & Budiono, 2023).

The Effect of Nutrition Education through Video Media on Athletes' Nutrition Knowledge

Nutritional knowledge plays an important role for athletes, including pencak silat athletes, as it helps improve performance by planning intake according to energy and metabolic needs, increasing endurance, maintaining ideal body weight, reducing the risk of injury, and speeding up post-match recovery (Zahra & Muhlisin, 2020). In this study, before nutrition education using video media, most respondents were in the moderate knowledge category (71.2%), followed by the poor category (18.6%) and the good category (13.3%). After the intervention, all respondents (100%) reached the good knowledge category.

This shows a difference in the knowledge level of pencak silat athletes before and after nutrition education using video media, with a Wilcoxon test result of $p=0.000$ ($p<0.05$). This significant increase shows that nutrition education using video media effectively increases athletes' knowledge. These results are supported by the research of Afriani *et al.* (2021), where providing nutrition education to football athletes using video media can increase knowledge scores from 50.31 ± 15.75 to 74.38 ± 15.59 with a p-value of 0.001 ($p < 0.05$).

Nutrition education systematically improves knowledge, attitudes, and behaviours about fulfilling balanced nutritional needs (Nurkhoiriyah et al., 2024). Video media is an effective tool because it combines visual, audio, and text elements that stimulate multiple senses, making information easier to understand, remember, and apply. For adolescent athletes who are highly physically active, this method helps them understand their nutritional needs to support performance, speed up recovery, and prevent injury. Delivering

information through short videos allows the material to be absorbed quickly, making it relevant and practical to apply in everyday life (Nugroho et al., 2021).

The Effect of Nutrition Education Using Video Media on Athletes' Nutrient Intake

The results of this study show a significant difference based on the Wilcoxon test, p=0.000 (p<0.05), in the variables of energy, protein, fat, and carbohydrate intake of athletes before and after nutrition education using video media. After the education, nutrient intake increased significantly, in line with the research by Mentari et al. (2022), which found an increase in energy, protein, fat, and carbohydrate intake after video intervention in non-athlete adolescent girls with a value of p=0.000 (p<0.05). This increase demonstrates the effectiveness of video media in enhancing knowledge while promoting changes in eating behaviour. Nutrition education is an important intervention to help athletes meet their appropriate nutritional needs, directly impacting performance, recovery, and injury prevention. Changes in food consumption behaviour are closely related to Knowledge, Attitude, and Practice (KAP), where increased knowledge can shape positive attitudes and encourage healthy food consumption practices appropriate for training and competition needs.

Balanced nutrition is crucial for adolescent athletes to support growth, maintain health, improve performance, and reduce fatigue and injury risk. Protein is important in building and maintaining body tissue, and fat is an energy source. It helps absorb fat-soluble vitamins, and carbohydrates are the primary source of energy that must be fulfilled to avoid the risk of Protein Energy Malnutrition (PEM). Excessive or insufficient consumption of any nutrient can have adverse effects, ranging from obesity and muscle mass loss to metabolic disorders. Therefore, a balanced protein, fat, carbohydrate, vitamins, minerals, and fluid intake is necessary to ensure optimal growth and development, increased endurance, and sustained athletic performance (Meganingrum & Budiono, 2023).

CONCLUSIONS

The conclusions drawn from this study are as follows: (1) This study involved 43 pencak silat athletes aged 15–18 years, consisting of 23 males and 20 females, with 22 being junior high school students and 21 being senior high school students. The majority of athletes had normal nutritional status (97.7%). (2) Before nutrition education using video media, only four people (9.3%) had good nutritional knowledge. After education, all respondents (100%) achieved the good knowledge category. (3) Before education, most energy and macro nutrients (protein, fat, and carbohydrates) were severely deficient. After the education, there was an increase in intake to the suitable category for energy intake. (4) Nutrition education using video media has been proven to significantly increase the average knowledge score of athletes (p=0.000; p<0.05) at the Inoga Mataram Pencak Silat Academy. (5) Nutrition education using video media also significantly increased the average energy and nutrient intake (protein, fat, and carbohydrates) (p=0.000; p<0.05) at the Inoga Mataram Pencak Silat Academy.

RECOMMENDATION

For adolescent pencak silat athletes, video media can be used to understand balanced eating patterns and proper food selection, as well as maintain energy and carbohydrate intake so that nutritional status and performance remain optimal. Pencak silat institutions can use this video as a reference for teaching nutrition to athletes. Future researchers are advised to investigate other variables such as hydration status, physical activity, sleep quality, micronutrient intake, and fluid balance, using a more thorough recall method.

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