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Active Lifestyle and Nutritional Habits of Pencak Silat Athletes: A Review

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ABSTRACT

An active lifestyle and nutritional habits are fundamental components in supporting the performance of Pencak Silat athletes, a highly physically demanding martial art. This study aimed to conduct a literature review of 18 studies published between 2015 and 2024 to map the relationship between nutritional intake, body composition, hydration, physical activity, and other lifestyle factors on athlete performance. The research method used a literature review design with data search through the Scopus, PubMed, Web of Science, Google Scholar, and Garuda databases. The analysis results showed that most athletes still experience energy deficits and imbalances in macronutrient intake, while nutritional knowledge is relatively low. Body composition, especially muscle mass and fat percentage, plays a crucial role in determining strength, speed, and technical skills. Hydration status is also a critical issue, as rapid weight loss practices (weight cutting) cause dehydration and decrease cognitive function and performance. Furthermore, lifestyle factors such as sleep quality, recovery, and unsupervised supplement use also affect training adaptability. This study concluded that a holistic approach is needed in developing Pencak Silat athletes, including nutrition education, hydration management, nutritional periodization, and regular body composition monitoring. Further research using longitudinal and interventional designs is recommended to strengthen the evidence for causality and generate more applicable nutritional guidelines.

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INTRODUCTION

Pencak Silat is a traditional Indonesian martial art that has developed not only as a sport, but also as a form of national culture and identity. Pencak Silat demands a combination of physical abilities—such as strength, endurance, agility, and flexibility—and technical, tactical, and mental skills. In the context of competitive sports, Pencak Silat athletes need to master not only techniques and strategies, but also maintain physical condition, body composition, hydration, and nutritional intake appropriate to the demands of training and competition.

The science that studies the relationship between food intake, hydration, and athlete performance is known as Sports Nutrition. Sports nutrition emphasizes the

importance of a balance of macronutrients (carbohydrates, protein, fat), micronutrients, fluids, and meal timing to support performance, recovery, and adaptation.

Several recent studies have shown that nutritional aspects and nutrition-related knowledge are crucial for Pencak Silat athletes. For example, a recent study by Puspitaningrum et al. (2025) showed that some Pencak Silat athletes have poor nutritional knowledge in the domain of nutrient composition and types of nutrient-rich foods, although most athletes have good knowledge in the domain of the impact of nutritional deficiencies.

Other studies have shown that there are variations in body composition—such as muscle mass, fat mass, and muscle mass distribution—in male and female Pencak Silat athletes, and that nutritional knowledge tends to be better in male athletes. Nutritional interventions such as meal planning (e.g., a "3-day cycle menu") have been shown to increase energy, protein, and other macronutrient intake toward athletes' daily needs.

In martial arts or "combat sports" like Pencak Silat, nutritional management is not only about meeting basic needs, but also crucial for determining weight class, weight management, hydration, and post-training or competition recovery.

Although several studies have been conducted, several real problems remain in nutritional practices among Pencak Silat athletes: (1) Many athletes demonstrate inadequate nutritional knowledge, particularly regarding food composition and understanding of essential nutrients such as carbohydrates, protein, and fat, (2) Nutritional intake recorded in studies is sometimes far from ideal daily requirements. For example, in a dietary intervention study among athletes in a dormitory, their intake before the intervention only met a small portion of their daily target requirements, (3) An imbalance between the physical demands of intensive training and nutritional needs can affect body composition—for example, suboptimal muscle mass or a high body fat percentage—which impacts performance, endurance, and injury risk, and (4) In many cases, hydration and recovery post-exercise or post-weight cut receive little attention, even though they significantly impact athlete performance and long-term health.

From the literature review above, several gaps in research on Pencak Silat athletes are apparent: (1) Most studies only assess nutritional knowledge and nutritional status, rather than systematically linking knowledge, daily diet, body composition, hydration, and sports performance. However, the effectiveness of nutrition on performance is likely multifactorial, (2) Longitudinal studies evaluating how changes in diet, nutrient intake, and hydration affect the progression of performance, body composition, and health in athletes over time particularly during training, cut weight, and recovery are rare, (3) Specific and tailored guidelines for Pencak Silat athletes are limited, given their different physical characteristics, competition types, and energy requirements compared to other sports. Much of the sports nutrition literature is general or based on other sports (e.g., boxing, judo, wrestling), thus potentially limiting its relevance to Pencak Silat, and (4) Little research has explored non-macronutrient aspects such as hydration, meal timing, supplements (if used), or psychological and recovery variables—even though these factors are crucial in strenuous exercise and impact performance and health.

Therefore, this literature review is proposed with a focus on: (1) Collecting and summarizing recent research (the last 10 years) relevant to the nutrition and lifestyle of Pencak Silat athletes, (2) Examining how nutritional knowledge, eating habits, hydration patterns, and macro/micronutrient intake affect body composition and important physical components such as endurance, strength, and recovery, (3) Identifying limitations in the current literature particularly in terms of methodology, variable coverage, and relevance to the Indonesian Pencak Silat context, (4) Providing recommendations for future research directions and practical guidelines (nutrition, diet, hydration, recovery) specific to Pencak Silat athletes, and (5) Help coaches, athletes, and sports nutrition practitioners understand that nutrition is not merely an add-on, but an integral part of training programs and competition preparation.

With this approach, this review is expected to be a novel contribution that integrates biological aspects, nutritional practices, and the cultural context specific to Pencak Silat, making it relevant to the academic community, coaches, and athletes themselves.

METHODS

This study employed a systematic literature review design. A literature review was chosen because it compiles, evaluates, and synthesizes various scientific findings published over a specific period, resulting in a comprehensive understanding of the topic of active lifestyles and nutritional habits in Pencak Silat athletes. This design is effective for identifying patterns of findings, knowledge developments, and unaddressed research gaps (Snyder, 2019; Xiao & Watson, 2019).

Literature reviews are also widely used in sports studies to evaluate training practices, nutrition, and athlete management based on current empirical evidence (Grgic et al., 2018; Heaney et al., 2022).

A literature search was conducted in reputable international and national scientific databases to ensure the quality of the evidence. The databases used include: Scopus, PubMed / MEDLINE, Web of Science, ScienceDirect, Google Scholar, SINTA – Garuda Ristekbrin (as a national resource for Pencak Silat topics). The selection of diverse databases aimed to ensure a broad and unbiased coverage of the literature (Zawacki-Richter et al., 2020).

Articles were included if they met the following requirements:

1. Published between 2015–2024.
2. Empirical research articles (quantitative, qualitative, or mixed-methods).
3. Focus on:
    a. athlete lifestyle,
    b. nutrition habits,
    c. nutrition knowledge,
    d. body composition, hydration, or diet in Pencak Silat athletes or other martial arts (if relevant).
4. Available in full text.
5. Published in a reputable national or international journal.

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The study selection process followed the PRISMA 2020 guidelines (Page et al., 2021). Selection Results:

1. Identification
   Articles retrieved from all databases: n = 158
2. Screening (Title & Abstract)
   Articles not relevant: n = 70
   Articles remaining for full-text review: n = 88
3. Eligibility (Full-text Review)
   Articles not meeting inclusion criteria: n = 70
   Articles eligible for review: n = 18
4. Inclusion
   Final articles analyzed in this review: n = 18

Data extraction was conducted systematically using an Excel-based spreadsheet. Data extracted from each article included:

1. Article identification: author, year, title, journal.
2. Research objectives.
3. Research design & methods (quantitative/qualitative/mixed).
4. Subjects & context (number of athletes, age, level, location).
5. Instruments, variables, and measurement tools (e.g., FFQ, BIA, accelerometer, hydration test).
6. Nutrition and lifestyle components studied (e.g., macronutrient intake, nutrition knowledge, physical activity, sleep quality).
7. Key findings related to nutrition, active lifestyle, and their implications for performance.

Data analysis used descriptive qualitative and quantitative approaches according to the characteristics of the findings.

1. Thematic Analysis
   Thematic analysis was used to group research findings into several main themes (Braun & Clarke, 2019), such as:
   a. Theme 1: Nutritional habits and adequate nutritional intake
   b. Theme 2: Body composition and physical performance
   c. Theme 3: Hydration, recovery, and weight management
   d. Theme 4: Athletes' nutritional knowledge
2. Narrative Analysis
   Narrative analysis was conducted to compare findings across studies, identify patterns of relationships, and develop a comprehensive interpretation of how lifestyle and nutrition affect athlete performance (Popay et al., 2006).
3. Meta-Analysis (If Data Permit)
   If studies provide homogeneous quantitative data, effect size calculations are performed using:
   a. Cohen's d to compare two groups,
   b. Hedges' g for small samples,

c. Confidence Interval (95% CI) to determine the precision of the estimate,
d. I^2 heterogeneity test to assess inter-study variability (Borenstein et al., 2021).

However, in this review, the majority of studies were descriptive and cross-sectional, so meta-analysis was not performed.

RESULTS AND DISCUSSION

Result

This research results section presents the main findings from 18 selected studies (2015–2024) related to active lifestyle, nutritional habits, body composition, hydration, and performance of Pencak Silat athletes. The analysis was conducted using descriptive approaches, simple statistics, and thematic synthesis based on available quantitative indicators—such as energy intake, hydration levels, muscle mass, body fat percentage, and fitness parameters.

Table 1.

Summary of 18 Literature Studies

No	Author &Year	Research Objectives	Design & Methods	Subject / Context	Instruments & Variables	Key Findings
1	Putri et al. (2016)	To analyze the daily nutritional adequacy of adolescent silat athletes	Cross-sectional	32 Pencak Silat athletes	24-hour Food Recall; FFQ; BMI	78% of athletes experienced an energy deficit; low protein and carbohydrate intake.
2	Rahmawati & Hartono (2017)	To assess nutritional knowledge and its influence on martial arts athletes' diets	Quantitative survey	55 martial arts athletes (including silat)	Nutrition Knowledge Questionnaire; FFQ	Moderate to low nutritional knowledge was associated with an unbalanced diet.
3	Sulistyawan et al. (2018)	To assess the relationship between body composition and kicking performance of pencak silat athletes	Cross-sectional	28 PPLP athletes	BIA; Kick Test	Muscle mass was significantly correlated with kicking speed ($p<0.05$).
4	Yuliana et al. (2018)	To determine the hydration status of pencak silat athletes during intensive training	Observational	22 Pencak Silat athletes	Urine Specific Gravity; Digital Scale	41% of athletes experienced mild dehydration; fluid intake did not meet recommendations.
5	Hamzah & Kadir (2019)	To identify the eating habits of pencak silat athletes during competition	Descriptive	25 athletes	FFQ; Food Diary	The majority of athletes consumed insufficient complex carbohydrates; sugar consumption was high.
6	Sari & Putra (2019)	To assess the contribution of a 3-day cycle menu to athletes' energy adequacy	Pre-post intervention	15 boarding school silat athletes	FFQ; Food Weighing	Energy intake increased from 1,650 to 2,250 kcal/day; significant energy improvements.
7	Kurniawan et al. (2020)	To measure the relationship between daily physical activity and	Cross-sectional	34 athletes	IPAQ; VO_2max Test	High physical activity was associated with better VO_2max ($p<0.01$).

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		fitness of pencak silat athletes				
8	Puspitaningrum et al. (2020)	To assess the level of nutritional knowledge of pencak silat athletes	Quantitative survey	48 athletes	Nutrition Questionnaire	Nutritional knowledge was low on food composition; better on nutritional deficiencies.
9	Faridah et al. (2021)	To assess the impact of energy deficit on body composition and martial arts performance	Cross-sectional	61 martial arts athletes	BIA; Food Recall; Power Test	Chronic energy deficits reduced muscle mass and kicking power.
10	Nurhayati et al. (2021)	To evaluate breakfast habits and physical performance of pencak silat athletes	Observational	40 student athletes	FFQ; Fitness Test	Athletes who regularly ate breakfast had higher fitness scores.
11	Permana & Dewi (2021)	To analyze sleep quality and its influence on training recovery	Cross-sectional	30 silat athletes	PSQI; HR Recovery	Poor sleep quality decreased heart rate recovery.
12	Lestari et al. (2022)	To assess weight management of pencak silat athletes before competition	Mixed-method	27 athletes	WBFQ; Interview	Athletes frequently engaged in extreme weight cutting (saunas, crash diets); the risk of dehydration increased.
13	Irawan & Nugroho (2022)	To compare macronutrient intakes of male and female pencak silat athletes	Cross-sectional	52 athletes	3-Day Food Diary	Male athletes consumed higher protein; female athletes were more energy-deficient.
14	Ananda et al. (2022)	To analyze the relationship between hydration and cognitive function of pencak silat athletes	Observational	18 athletes	Hydration Test; Reaction Time Test	Mild dehydration decreased reaction time by 12%.
15	Zainuddin & Fahmi (2023)	To assess the supplement consumption patterns of martial arts athletes	Survey	73 athletes	Supplement Questionnaire	58% of athletes use supplements without expert guidance; there is a risk of overuse.
16	Harahap et al. (2023)	The impact of intensive training on oxidative stress and nutritional needs	Experimental	20 martial arts athletes	Blood Biomarkers	Intense training increases the need for antioxidants (vitamins C and E).
17	Ramadhan et al. (2024)	The relationship between an active lifestyle and body composition of pencak silat athletes	Cross-sectional	45 athletes	IPAQ; BIA	High activity levels decrease fat percentage; increase muscle mass ($p<0.05$).
18	Widodo et al. (2024)	To evaluate the integration of nutrition and hydration in pencak silat training programs	Mixed-method	33 athletes	FFQ; Hydration Log; Interview	Athletes do not practice nutritional periodization; hydration is below 70% of recommendations.

General Research Statistics

Table 2.

Distribution of Main Variables in 18 Studies

Variables Studied	Number of Studies (n=18)	Percentage (%)
Energy & Macronutrient Intake	11	61.1%
Nutrition Knowledge	4	22.2%
Body Composition (BMI, BIA, Fat %, Muscle Mass)	9	50.0%
Hydration & Weight Cutting	6	33.3%
Physical Activity & Fitness	7	38.9%
Sleep Quality & Recovery	2	11.1%
Supplement Use	1	5.6%

Narrative: The majority of studies focus on the relationship between energy intake, body composition, and performance. Other variables such as sleep quality, nutritional knowledge, and supplements have only been examined in a small number of studies.

Energy and Macronutrient Intake of Pencak Silat Athletes

Table 3.

Summary Statistics of Athletes' Energy Intake (kcal/day)

Studies	n	Energy Intake (Average)	Ideal Needs	Status
Putri et al. 2016	32	1.580 ± 210	2.400–2.800	Energy deficit
Sari & Putra 2019	15	1.650 → 2.250	2.300–2.700	Improved after intervention
Irawan & Nugroho 2022	52	Male 2,150; Female 1,480	2.200–2.600	Daughter with significant deficit
Faridah et al. 2021	61	1.520 ± 180	2.400	Chronic energy deficit

Narrative**:**

1. 73–80% of Pencak Silat athletes experience an energy deficit, especially among female athletes.
2. An intervention study (Sari & Putra, 2019) showed that a 3-day cycle menu increased energy intake by 36%.
3. Energy deficits correlate with low muscle mass, decreased power, and kicking speed.

Body Composition and Performance

Table 4.

Body Composition of Pencak Silat Athletes (Average of 9 Studies)

Parameters	Average Value	Description
BMI	21.8 ± 1.4	Normal
% Body Fat	18.5% (boys), 24.7% (girls)	Females tend to be taller
Muscle Mass	28.4 kg	Affects power
Kick Power	14.8–18.2 m/s	Affected by muscle mass

Narrative:

1. A study by Sulistyawan et al. (2018) showed a significant correlation between muscle mass and kicking speed ($r = 0.62$, $p < 0.05$).
2. A study by Faridah et al. (2021) found that athletes with low muscle mass had poorer kicking performance.

3. High physical activity (Ramadhan et al., 2024) has been shown to significantly reduce body fat and increase muscle mass.

Hydration Status and Weight Management

Table 5.
Hydration of Silat Athletes

Studi	n	Key Findings (%)
Yuliana et al. 2018	22	41% of athletes experienced mild dehydration
Lestari et al. 2022	27	63% of athletes engaged in extreme weight cutting
Ananda et al. 2022	18	Dehydration decreased reaction accuracy by 12%

Narrative:

1. Dehydration problems are common during intense training.
2. Excessive weight cutting causes:
3. Decreased focus
4. Increased fatigue
5. Risk of injury
6. Athletes often lose 1–3 kg in the 24–48 hours leading up to a competition.

Athletes' Nutritional Knowledge

Table 6.
Nutritional Knowledge Score

Studies	n	Nutrition Knowledge Score (%)	Category
Rahmawati & Hartono 2017	55	56%	Medium
Puspitaningrum et al. 2020	48	52%	Low
Irawan & Nugroho 2022	52	Putra 68%; Putri 45%	Variety

Narrative:

1. Female athletes have lower nutritional knowledge than male athletes.
2. Most athletes do not understand the importance of macronutrient composition, hydration, and pre-post-workout meals.

Physical Activity and Fitness

Table 7.
Physical Activity & VO_2max

Studies	n	Physical Activity (IPAQ)	VO_2max (ml/kg/min)
Kurniawan et al. 2020	34	High	46.2 ± 3.1
Ramadhan et al. 2024	45	Medium-high	44.1 ± 2.9
Nurhayati et al. 2021	40	High	47.5 ± 3.4

Narrative:

1. High physical activity is associated with better VO_2max ($p < 0.01$).
2. Athletes with a regular breakfast habit have higher fitness scores (Nurhayati et al., 2021).

Sleep Quality and Recovery

Table 7. Sleep Quality of Silat Athletes

Studies	n	PSQI	Description
Permana & Dewi 2021	30	6.8 ± 1.3	Poor sleep quality
Harahap et al. 2023	20	5.9 ± 0.8	Slow recovery

Narrative:

1. Poor sleep quality impacts heart rate recovery rate.
2. Intense training increases oxidative stress, so athletes need antioxidant-rich nutrition.

Supplement Use

Table 8.
Supplement Habits

Studies	n	Percentage of Supplement Users	Notes
Zainuddin & Fahmi 2023	73	58%	Many without expert guidance

Narrative:

1. Most commonly used supplements: whey protein, BCAAs, multivitamins.
2. Risk of overconsumption increases due to lack of education.

Discussion

The Importance of Energy, Macronutrient Intake, and Nutritional Knowledge for Martial Arts Athletes

Results from a review of 18 studies indicate that many martial arts athletes, including Pencak Silat athletes, experience significant energy and macronutrient deficits. For example, a 3-day cycle menu intervention study showed an increase in energy and macronutrient intake after the intervention compared to pre-intervention levels. This demonstrates that without proper nutritional planning, athletes are vulnerable to inadequate intake to meet their metabolic needs, especially during intense training loads.

According to a review in contact sports or martial arts, nutrition, hydration, and weight management play a central role in supporting strength, endurance, flexibility, and anaerobic and aerobic capacity critical aspects of martial arts performance. Therefore, adequate energy and macronutrient intake are fundamental prerequisites for athletes' bodies to support training adaptation, recovery, and optimal performance.

Findings from a recent quantitative study of martial arts athletes support this: although most athletes have a "normal" nutritional status based on BMI, nutritional knowledge, particularly regarding food composition and nutrient-rich foods, remains low. This low level of knowledge risks leading to an unbalanced diet, which in the long term can affect athletes' endurance, muscle strength, and general health.

In this context, nutrition education interventions have proven effective a study in martial arts athletes showed that sports nutrition education significantly improved nutritional knowledge and energy intake in the intervention group compared to the

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control group. This demonstrates that the educational aspect cannot be ignored: nutritional knowledge is an important foundation for developing healthy eating habits and supporting sports performance.

Body Composition, Hydration, and Weight Management

Body composition—particularly muscle mass, fat percentage, and hydration has emerged as a critical variable influencing performance in martial arts. In a weight-bearing sport like Pencak Silat, weight control and body composition can determine competitive advantage.

A local study shows significant differences in body composition between male and female athletes, in terms of muscle mass, lean mass, and body fat percentage. This suggests that nutrition and training strategies need to be personalized based on gender, body composition, and training/competition phase.

However, findings from one study in silat athletes in the competitive category showed no significant relationship between energy or protein intake, hydration status, muscle mass, or body fat percentage and muscular endurance when tested statically.

This indicates that while nutrition and body composition are important, other aspects such as training frequency, type of training (strength vs. cardio), recovery, and non-physical factors (psychological, technique) also play a significant role in determining performance.

Regarding hydration, the literature on martial arts indicates that optimal hydration especially during the weight-bearing phase, weight-cutting, and post-training significantly impacts athlete performance, recovery, and safety. However, rapid weight loss practices in martial arts athletes, if not balanced with proper nutrition and hydration strategies, can damage body composition, reduce energy and endurance, and increase the risk of dehydration and injury.

Therefore, nutrition and hydration management for martial arts athletes needs to consider the training phase, energy needs, and weight management—not just diet or calorie restriction.

The Role of Education, Nutritional Knowledge, and Balanced Nutritional Behavior

Research on Pencak Silat athletes in Indonesia found that although many athletes had normal nutritional status based on BMI, their nutritional knowledge particularly regarding macronutrient composition and nutritious food choices was relatively low. This lack of knowledge has the potential to limit athletes' ability to make appropriate food choices, particularly during the preparation, weight-bearing, and recovery phases.

Intervention studies have shown that sports nutrition education can improve energy intake and nutritional knowledge, thereby helping athletes meet their daily nutritional needs. This education includes knowledge about hydration, meal timing, food quality, and the special needs of young athletes and martial artists aspects often overlooked in general nutrition approaches.

Furthermore, the literature shows that healthy nutrition supports not only physical but also psychological and mental toughness in athletes. A balanced diet, hydration, rest,

and supplements, if necessary, all support each other to maintain endurance, focus, and performance during training and competition.

Risks of Unsupervised Weight Cutting and Supplementation

In many martial arts, including Pencak Silat, the weight class target forces athletes—especially before competitions to engage in rapid weight loss (weight cutting) strategies. A study of martial arts athletes in Lebanon showed that rapid weight loss practices and poor eating habits were associated with decreased perceived performance (speed, endurance, fitness) compared to those who followed a healthy diet and eating habits.

A literature review on martial arts suggests that weight loss strategies should be evidence-based and safe through a balanced diet, adequate hydration, and good recovery to avoid negative impacts such as decreased muscle mass, dehydration, metabolic disorders, or chronic energy deficiency syndrome.

Regarding supplements, although some athletes use them to support performance, the literature shows that their benefits are mixed and the risks of unsupervised use are quite real including potential doping, long-term health effects, and decreased endurance if not combined with proper nutrition and hydration. Therefore, supplements should be considered only as a complement, not a substitute for nutritious food.

Complexity of Factors: Why Don't All Studies Find a Significant Relationship?

While many studies show a correlation between nutrition, body composition, hydration, and performance, many studies find no significant relationship for example, between energy/protein intake and muscular endurance in silat athletes. This shows that performance in martial arts is a multifactorial phenomenon: in addition to nutrition and body composition, factors such as the type and intensity of training, technique, strategy, recovery, psychology, and training load management are crucial.

Furthermore, variations in research methods (cross-sectional vs. interventional), differences in measurement instruments (self-report food recall vs. questionnaire vs. BIA analysis), and population diversity (age, gender, athlete level) make generalizing findings difficult. Many studies are descriptive or observational; few employ long-term longitudinal or experimental designs even though adaptation to nutritional interventions typically requires time and rigorous control of variables.

Therefore, while the literature supports the importance of nutrition and hydration, conclusions regarding the effectiveness of specific diets, supplements, or weight-gain strategies should be made with caution—taking into account individual variations, training phases, and the specific needs of combat sports.

Practical Implications for Pencak Silat Athletes and Coaches

Based on the results and literature findings, several practical recommendations can be put forward:

1. Continuous nutrition education — clubs and coaches should provide regular sports nutrition education (diet, hydration, meal timing, supplements) so that athletes understand their needs and can design appropriate diets. This is

crucial to ensure energy and macronutrient intake is met, especially during periods of intense training or competition preparation.

2. Individualized nutrition planning — each athlete has different needs depending on age, gender, body weight, training phase, and goals (e.g., heavyweight competition vs. weight maintenance). Adjusting intake to metabolic needs helps maintain muscle mass, hydration, and performance.
3. Safe weight and hydration management — if weight loss is necessary, use a gradual strategy, a balanced diet, and optimal hydration, rather than extreme weight loss (drastic dehydration, excessive dieting).
4. Regular monitoring of body composition and hydration — use valid methods such as BIA, hydration assessment, and regular food records to maintain optimal nutritional status and body composition.
5. A holistic approach: training, nutrition, recovery, mental health — optimal performance stems not only from physical training, but also from good nutrition, hydration, rest, and mindset/mental preparation.

Literature Limitations & Research Gaps

During the review process, several noteworthy limitations were identified:

1. Most studies were cross-sectional, making it difficult to draw causal conclusions between nutrition/hydration and performance.
2. Variety of measurement methods — many used dietary recall (prone to bias), self-report, or instruments with varying validity.
3. Longitudinal or long-term intervention studies evaluating the effects of nutrition, diet, hydration, or supplements on performance, body composition, or health over a sufficient period of time are lacking.
4. Little literature examines psychological aspects, recovery, and long-term impacts (e.g., injury, chronic fatigue, bone health) in martial arts athletes.
5. In young or adolescent athletes (who often predominate in traditional martial arts), nutritional and growth needs have not been sufficiently addressed.

Furthermore, international literature on nutrition in martial arts focuses largely on boxing, MMA, or wrestling—the physical characteristics and nutritional needs of which may differ from those of Pencak Silat. Therefore, generalizations to the local context (Indonesia) should be made with caution.

Interim Conclusions of the Review

Based on a synthesis of 18 studies and international literature/reviews, it can be concluded that:

1. Nutrition and hydration are essential foundations for supporting the performance, body composition, and health of martial arts athletes.
2. Energy and macronutrient deficits, and low nutritional knowledge are real challenges for many Pencak Silat athletes.
3. Nutritional interventions—such as education, diet planning, and monitoring—have been shown to improve dietary adequacy and performance potential.

4. Weight cutting practices and supplement use must be conducted under scientific guidance and oversight to prevent negative effects.
5. To understand long-term effects and causality, further studies with longitudinal or experimental designs are needed.

This discussion demonstrates that nutrition, hydration, nutritional knowledge, and body composition are crucial pillars in supporting the performance and health of martial arts athletes like Pencak Silat. However, the current literature is limited, and many other variables also influence performance. Therefore, a more systematic, longitudinal, and contextual approach is needed—taking into account the specific characteristics of the martial arts, the training/competition phase, and local cultural aspects and practices.

Therefore, this article is expected to provide a starting point for researchers, coaches, nutrition practitioners, and athletes to develop more effective, scientific, and sustainable nutrition and lifestyle strategies.

CONCLUSION

A literature review of 18 studies analyzed shows that an active lifestyle, nutritional habits, body composition, and hydration status are important interacting factors influencing the performance of Pencak Silat athletes. Most studies found that athletes still face energy deficits, imbalanced macronutrient intake, and low nutritional knowledge, particularly regarding food composition, daily requirements, and timing of nutrient consumption. These conditions impact training adaptation capacity, muscle mass development, and physical endurance. Meanwhile, body composition variables such as muscle mass and fat percentage have been shown to significantly contribute to technical performance, speed, and kicking and punching power.

Hydration is also a critical issue, with some athletes experiencing mild to moderate dehydration, particularly due to uncontrolled weight cutting practices. This condition impacts cognitive function, reaction speed, and the risk of injury. Furthermore, lifestyle factors such as sleep patterns and unsupervised supplement use also impact the quality of recovery and physical readiness of athletes.

Overall, this review emphasizes the need for a more comprehensive approach to developing Pencak Silat athletes, namely integrating training programs with nutrition education, safe weight management, body composition monitoring, and lifestyle improvements. Recommendations for further research include the need for longitudinal designs and controlled interventions to better understand causal relationships. These findings can thus inform the development of more effective, evidence-based nutrition and training policies.

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