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# Level of Knowledge of The Rice Method In Handling Injury In Taekwondo Athletes In Sarolangun Regency

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## ABSTRACT

This study aims to determine the level of knowledge of the RICE method in treating injuries among Taekwondo athletes in Sarolangun Regency. The athletes' knowledge level is assessed using several indicators: factual, structural, procedural, and metacognitive. This study was conducted from June 9-16, 2025, in Sarolangun Regency. The literature review emphasized that athletes, including those involved in martial arts disciplines such as taekwondo, need adequate knowledge of first aid. This knowledge should include a thorough understanding of the RICE method, given its vital role as an initial treatment procedure for managing acute injuries. The method used was a descriptive quantitative survey technique. Data were collected through a questionnaire that had been tested for validity, with a total of 15 athletes responding. The results showed that the athletes' level of knowledge regarding the RICE method in treating injuries was 75.43%, which falls into the "Good" category.

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A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
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## INTRODUCTION

Taekwondo is a martial art originating from South Korea, and its meaning is derived from the Korean language. The origin of the word Taekwondo can be explained as follows: "Tae" refers to the act of striking with the feet, "Kwon" refers to striking with the hands, and "Do" refers to the way of the art (Maelan and Purnomo, 2021). Therefore, the overall meaning of Taekwondo is the art of using the feet or hands as tools for self-defense.

As a contact sport, Taekwondo is prone to injuries. Many athletes experience injuries during training and competition. Injuries can be caused by both internal and external factors. Internal factors originate from the athlete themselves, such as poor posture, poor physical condition, muscle weakness, and ligament problems. External factors originate from outside, such as tackling, impacts, equipment, and poor field

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conditions. Taekwondo is an international martial art practiced in 210 countries worldwide as an official Olympic sport (Kim & Nam, 2021). Taekwondo offers advantages beyond physical aspects. In addition to combat skills, discipline is also applied in Taekwondo. Thus, the mental and ethical aspects of athletes are developed in Taekwondo.

A sports injury is any activity that exceeds the body's limits due to exercise. Physiologically, sports injuries are caused by an imbalance between the workload and the body's tissue capacity to perform the activity. Some causes of sports injuries include inadequate warm-up, collisions between athletes, incorrect footing after kicking, and pushing the body beyond its pre-exercise limits, especially during comparisons. Because very high intensity and frequent collisions are the main factors in their occurrence, (Graha, 2019: 93) states that learning about injury prevention from previous injuries is an early step in preventing sports injuries. Therefore, it is crucial for athletes and sports practitioners to understand injury prevention.

Injuries can occur from sports activities, whether from falls, impacts, or incorrect movements. These injuries can occur in the form of strains or sprains. A sprain is a tear or stretching of a muscle, ligament, or joint, while a strain is a painful condition in a muscle caused by excessive pulling on the muscle. Injuries are characterized by pain, swelling, cramping, bruising, stiffness, and limited joint movement and reduced strength in the injured area. Before going to the hospital, first aid should include an initial evaluation of the patient's general condition to determine if there are any life-threatening conditions. Some causes of sports injuries include excessive training or physical impact with opponents (Arieputra et al., 2023). Meanwhile, external factors are factors that originate from outside, such as tackling, collisions, equipment and poor field conditions (Pristianto et al., 2023).

The RICE method is an injury management method that uses ice to prevent further injury and reduce pain. Where R = rest, I = ice, C = compression, E = elevation (M., & Noor, H.Z., 2020). RICE is a generally accepted method for treating inflammation after trauma, such as acute ankle sprains. Inflammation causes pain, edema, hyperalgesia, and erythema, all of which can limit a patient's ability to perform the rehabilitation necessary for proper healing. The RICE method is a first-line treatment for sports injuries that must be applied to prevent the athlete's injury from worsening.

According to (Herlina, dkk., 2023) the RICE method is one of the injury management methods that aims to prevent further injury and reduce pain. It is concluded that the meaning of the RICE method is an injury management protocol consisting of four main components: Rest, Ice, Compression, and Elevation. This method aims to prevent injuries from getting worse, reduce pain, and overcome inflammation after trauma, such as in cases of acute ankle sprains. In general, RICE is used as an effective approach in first aid for musculoskeletal injuries, with mechanisms that include reducing swelling, stabilizing the injured area, and increasing blood flow through elevation.

An athlete must understand how to manage their injury. Knowledge of injury management is essential for all athletes, especially taekwondo athletes who frequently

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experience physical contact and high-intensity sports. High-intensity sports and frequent physical contact make athletes susceptible to injury. The results of my initial observations are: (1) There are still many athletes who ignore or do not know the dangers if the injuries experienced by athletes are not quickly and properly treated. (2) Athletes do not know how to treat the injuries they experience. (3) When experiencing injuries, there are still many athletes who simply ignore their injuries, due to a lack of understanding of injury treatment.

## METHODS

The research approach used a quantitative approach, with a descriptive quantitative survey. According to (Sugiyono 2018), a research method is defined as a scientific way to obtain data for a specific purpose and purpose. The method used in this study was a survey, with a questionnaire as the data collection technique. For correct questions, please mark with a checklist (√). This study aimed to determine the level of athletes' knowledge of the rice method in treating injuries in taekwondo athletes in Sarolangun Regency. The population in this study was 30 taekwondo athletes from Sarolangun Regency. Therefore, the sample size was 15. The sample used in this study were taekwondo athletes aged 18-26 years old, actively participating in training, and having participated in official taekwondo championships.

According to (Sugiyono 2019), a research instrument is a tool used to measure observed natural and social phenomena. According to (Sugiyono 2018), the Guttman scale is used to obtain firm and definite answers from respondents, namely only two answer choices. This scale is compiled cumulatively and is used to determine the level of clarity of respondents' attitudes or perceptions. "The Guttman scale is a scale that only provides two answer choices, namely 'true' or 'false', which are arranged in such a way that they are cumulative." The Guttman scale in this study was because it wanted to obtain a firm answer about the presence or absence of possible risks to vital archives. This study used a questionnaire with 35 questions. The assessment on this research instrument was that correct answers were scored 1 and incorrect answers were scored 0. The instrument used by the researcher consisted of negative and positive statements placed randomly. This research uses a survey method while the data collection technique uses a questionnaire.

To analyze the collected data, the study used quantitative analysis. The knowledge test results were then categorized into five categories based on the following criteria:

**Table 1.**
criteria suitability category

| Score Range | Category |
|---|---|
| 29-35 | Excellent |
| 22-28 | Good |
| 15-21 | Fair |
| 8-14 | Poor |
| 0-7 | Very Poor |

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**Table 2.**
percentage of test score categories

| Score Range | Category | Presentage Range |
|---|---|---|
| 29-35 | Excellent | 82.86 - 100.00% |
| 22-28 | Good | 62.86 - 82.85% |
| 15-21 | Fair | 42.86 - 62.85% |
| 8-14 | Poor | 22.86 - 42.85% |
| 0-7 | Very Poor | 0.00 - 22.85% |

## RESULTS AND DISCUSSION

This study obtained data through a questionnaire distributed to all taekwondo athletes in Sarolangun Regency with 35 questions and a total of 15 respondents. In the process of filling out the questionnaire, students were asked to write their identity and put a checklist in the statement column of the questionnaire sheet provided by the researcher according to the student's actual condition.

The analysis was conducted by calculating the correlation between the score of each statement item and the total score using the Pearson product moment formula using Microsoft Excel or SPSS. The obtained correlation value (calculated r) was then compared with the table r value at a significance level of 5% and the number of trial respondents (n=15). Based on df=N–2=15–2=13, the table r value was 5.14.

The results of research on athletes' knowledge regarding the RICE method in treating injuries are presented as follows:

**Table 3.**
Calculation of Athlete Knowledge Regarding the RICE Method in Injury Management

| Data | Score |
|---|---|
| Minimum Value | 20.00 |
| Maximum Value | 97.14 |
| Mean | 75.80 |
| Median | 82.86 |
| Mode | 88.57 |
| Standard Deviation | 24.94 |

Athletes' knowledge of sports injury management using the RICE method achieved a maximum score of 97.14, a minimum score of 20.00, a mean score of 82.86, a mode of 88.57, and a standard deviation (SD) of 24.94. The data obtained in this study were in the form of scores obtained from a questionnaire instrument regarding athletes' knowledge of the RICE method in injury management. The next step, after data on RICE method knowledge in injury management was obtained, was to convert it into five categories.

The distribution table data for categorizing athletes' knowledge about handling sports injuries using the RICE method is as follows:

**Table 4**.
Distribution of Athlete Knowledge about handling sports injuries using the RICE method

| Category | Interval | Frequency | % |
|---|---|---|---|
| Excellent | 29-35 | 8 | 53,3 |
| Good | 22-28 | 5 | 33.3 |
| Fair | 15-21 | 0 | 0 |
| Poor | 8-14 | 1 | 6.7 |
| Very Poor | 0-7 | 1 | 6.7 |
| **Amount** | | **15** | **100** |

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Based on the distribution table of athlete knowledge categorization about the RICE method in handling injuries, there are 8 athletes (53.3%) in the very good category, 5 athletes (33.3%) in the good category, 0 athletes in the sufficient category (0%), 1 athlete in the less category (6.7%), and 1 athlete in the very less category (6.7%). Based on descriptive statistical analysis, the average level of knowledge of athletes in Sarolangun Regency regarding the RICE Method is (75.43%). This value is in the range of 62.86% - 80.00%, which indicates that collectively, the level of athlete knowledge is in the Good category.

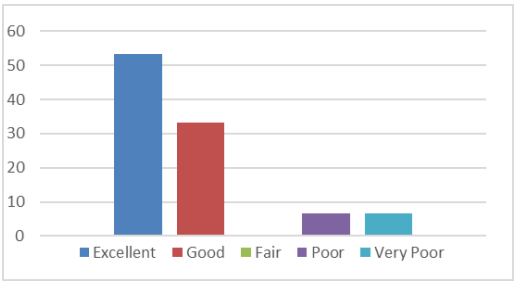


**Figure 1.**
Athletes' Knowledge About the RICE Method in Injury Treatment

Bar Chart Categorizing Data on Athlete Knowledge About the RICE Method in Handling Injuries In this research questionnaire, I used four indicators based on Bloom's taxonomy: factual, structural, procedural, and metacognitive. The results of the research on the level of knowledge at each stage are presented below:

## Factual

Distribution of athletes' knowledge about sports injury management using the RICE method, specifically on the factual indicator, showed that 8 athletes (53.3%) were in the Very Good (VG) category, 5 athletes (33.3%) were in the Good (G) category, 0 athletes (0%) were in the Fair (F) category, 1 athlete (6.7%) was in the Poor (P) category, and 1 athlete (6.7%) in the Very Poor (VP) category. Athletes' knowledge of sports injury management using the RICE method, particularly the factual indicator, was predominantly "Good" when viewed from the mean value of 68.72, which falls into the "Good" category.

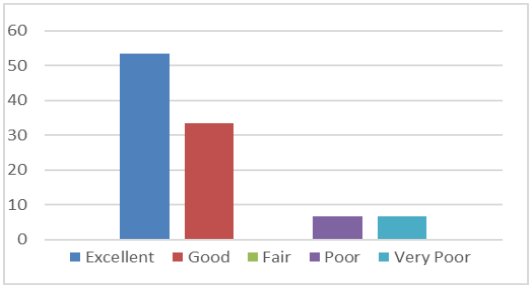


**Figure 2.**
Athletes' Knowledge Data on Sports Injury Treatment Using the RICE Method, Specifically Factual Indicators

## Structural

The structural indicator aims to understand why an action is taken (basic principle) and to classify the types of injuries or tools used. Based on the distribution table of athletes' knowledge about sports injury treatment using the RICE method, specifically on

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the structural indicator, 5 athletes (33.3%) were in the Very Good (VG) category, 5 athletes (33.3%) were in the Good (G) category, 2 athletes (13.3%) 1 athlete (6.7%) in the Fair (F) category, 1 athlete (6.7%) in the Poor (P) category, and 2 athletes (13.3%) in the Very Poor (VP) category. Athletes' knowledge of sports injury management using the RICE method, particularly structural indicators, was predominantly "Fair" when viewed from the mean value of 60%, which falls into the "Fair" category.

To clarify further, this will be presented in the following bar chart:

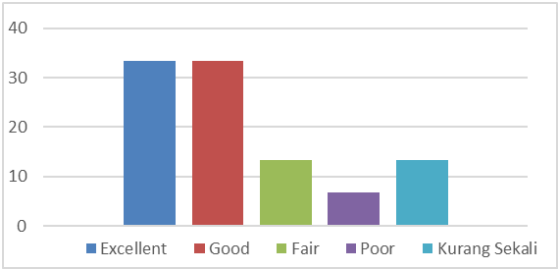


**Figure 3.**
Athletes' Knowledge about Sports Injury Treatment Using the RICE Method, Specifically Structural Indicators

**Procedural**

The procedural indicator aims to assess athletes' ability to remember and understand the correct stages, sequence, and technical methods in applying the RICE method. Based on the distribution table categorizing athletes' knowledge of sports injury management using the RICE method, specifically on the procedural indicator, 13 athletes (86.7%) were in the Very Good (VG) category, 0 athletes (0%) were in the Good (G) category, 0 athletes (0%) were in the Fair (F) category, 1 athlete (6.7%) was in the Poor (P) category, and 1 athlete (6.7%) in the Very Poor (VP) category. Athletes' knowledge of sports injury management using the RICE method, particularly the structural indicator, was predominantly "Good" when viewed from the mean value of 75.56%, which falls into the "Good" category.

To clarify further, this will be presented in the following bar chart:

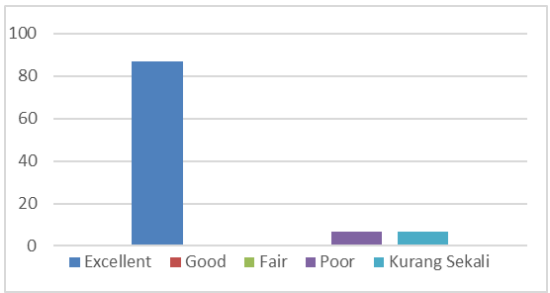


**Figure 4**.
Athletes' knowledge data on sports injury treatment using the RICE method, particularly procedural indicators

**Metacognitive**

The procedural indicator aims to assess athletes' ability to remember and understand the correct stages, sequence, and technical methods in applying the RICE method. Based on the distribution table categorizing athletes' knowledge of sports injury management using the

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RICE method, specifically on the procedural indicator, 11 athletes (73.3%) were in the Very Good (VG) category, 1 athlete (6.7%) was in the Good (G) category, 1 athlete (6.7%) was in the Fair (F) category, 0 athletes (0%) were in the Poor (P) category, and 2 athletes (13.3%) in the Very Poor (VP) category. Athletes' knowledge of sports injury management using the RICE method, particularly the structural indicator, was predominantly "Good" when viewed from the mean value of 78.67%, which falls into the "Good" category.

To clarify further, the following bar chart is presented:

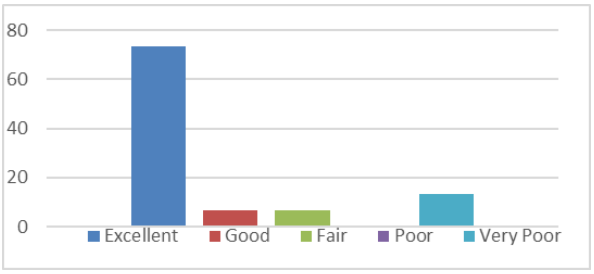


**Figure 5**.
Categorization of Athletes' Knowledge Data on Sports Injury Management Using the RICE Method, Specifically Meta-Cognitive Indicators.

The fourth indicator is that the level of knowledge of Taekwondo athletes in Sarolangun Regency regarding the RICE method is in the Good category with a total mastery percentage of 75.43%. This finding is supported by the fact that the majority of athletes (86.6%) have scores in the Good and Very Good categories, with procedural (75.56%) Good category being the strongest area, indicating the athletes' ability to quickly and correctly master the sequence of technical steps for handling injuries in the field, and metacognitive (78.67%) Good category being the indicator with the highest percentage, indicating the athletes' ability to reflect, evaluate, and make further decisions related to injury management.

This study focuses on the level of knowledge of taekwondo athletes in Sarolangun Regency regarding early treatment of sports injuries, namely using the RICE method (Rest, Ice, Compression, Elevation). Mastery of this knowledge and skills is a crucial factor for athletes, especially in high-impact sports such as Taekwondo, which are prone to sudden injuries. Good knowledge and skills in RICE enable athletes to treat injuries quickly and appropriately as first aid.

Field conditions often present limitations in access to medical personnel, doctors, or professional therapists during training sessions and regular competitions, making RICE knowledge a mandatory skill to know and master. This ability allows every athlete to help themselves or provide essential first aid to their teammates immediately after an injury occurs to prevent unwanted consequences before further medical treatment.

This confirms that the injury education program received by Sarolangun Taekwondo athletes has succeeded in building practical (procedural) skills and self-awareness (metacognitive), but has failed to provide a strong theoretical foundation (structural). Therefore, the percentage of knowledge of the RICE method in handling injuries among Taekwondo athletes in Sarolangun Regency shows a "Good" category of 75.43%.

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## CONCLUSION

From this study, it can be concluded after analyzing data on the level of knowledge of the RICE method in treating injuries in taekwondo athletes in Sarolangun Regency. The percentage results obtained from several indicators, namely the factual indicator, were in the "Good" category with a percentage of 68.72%, the structural indicator showed the 'Fair' category with a percentage of 60.00%, the procedural indicator showed the "Good" category with a percentage of 75.56%, and the metacognitive indicator showed the "Good" category with a percentage of 78.67%. Therefore, it can be concluded that the level of knowledge of the RICE method in handling injuries in athletes in Sarolangun Regency has been able to master the RICE method well, as seen from the average percentage of indicators that fall into the "Good" category.

Although the overall results were good, analysis of each indicator of Bloom's Taxonomy showed significant disparities between dimensions. Athletes demonstrated strong mastery of procedural (75.56%) and metacognitive (78.67%) indicators. This indicates that athletes excel in technical skills (RICE sequence) and independent decision-making (self-regulation) on the field. However, the structural dimension is the weakest indicator, falling into the Fair category with a mastery percentage of 60.00%. This weakness indicates that athletes have difficulty understanding the principles, concepts, and scientific basis (why) for each step of RICE, even though they know how to do it.

It can be concluded that the knowledge of Taekwondo athletes in Sarolangun Regency is practical and action-centered. They are able to respond to injuries quickly in the correct order, but are prone to errors if they have to adjust the injury treatment (e.g., differences in compression duration) due to a lack of in-depth understanding of the RICE method mechanism.

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