

Application of the Rice Method Handling Principles (Rest, Ice, Compression, Elevation) in Minor Sports Injuries

Tabah Raharja Maulana^{1A-E*}, Hesky Faisyal^{2B-D}, Farrel Andrian Priyatna^{3B-D}, Muhammad Arief Setiawan^{4B-D}

^{1,2,3,4} Sports Science Program Study, Faculty of Health Science, Singaperbangsa University Karawang, West Java, Indonesia

tabahrm88@gmail.com¹, cheskyfaisyal14@gmail.com², farreladrian801@gmail.com³, muhammad.arief@fikes.unsika.ac.id⁴

ABSTRACT

This study aims to determine the extent of understanding and application of the principles of handling minor injuries using the RICE method (Rest, Ice, Compression, Elevation) in individuals who have experienced or handled minor sports injuries. The research method used was a quantitative approach with a descriptive analysis design, which was carried out through distributing questionnaires to 25 respondents. The research instrument consisted of 20 questions that measured the respondents' understanding, attitudes, and constraints in applying the RICE principles. The results showed that the majority of respondents had a good understanding of the RICE principles, with the application of Rest, Ice, and Elevation steps being more dominant than Compression. Some respondents still experienced technical obstacles, such as limited access to elastic bandages and a lack of in-depth understanding of the duration of cold compress use. The level of agreement with the effectiveness of this method is high, with 80% of respondents choosing the answers "Agree" and "Strongly Agree". Based on these findings, it can be concluded that the RICE method is an effective and well-recognized first step in the management of minor injuries, although additional education is needed, especially in the practical aspects of its application. Increased awareness and technical skills in applying these principles are essential to optimize the recovery process and prevent further complications in sports activities.

ARTICLE HISTORY

Received: 2025/05/11

Accepted: 2025/06/03

Published: 2025/06/15

KEYWORDS

Treatment;
Principles;
Minor Injuries;
Methods;
RICE.

AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Maulana, Tabah Raharja; Faisyal, Hesky; Priyatna, Farrel Andrian; Setiawan, Muhammad Arief. (2025). Application of the Rice Method Handling Principles (Rest, Ice, Compression, Elevation) in Minor Sports Injuries. **Competitor: Jurnal Pendidikan Kepeleatihan Olahraga**. 17(2), p.732-740

INTRODUCTION

Sports injuries are an integral part of physical activity, especially in competitive and recreational sports (Usman et al., 2021). Sports injuries are something that often happens, both before doing activities or after doing activities, so sports injuries are events that can occur suddenly and are difficult to avoid (Fitriana et al., 2022). Sports injuries can cause a person to feel pain, and discomfort and inhibit the activities that are being carried out (Dewi et al., 2024). According to research conducted by Wulandari in

2013, sports *injuries* are all injuries that appear during activities or after doing activities. Sports injuries are also debilitating in the body and cause pain, heat swelling, redness and improper functioning of muscles, and tendons. Ligaments, joints and bones as a result of excessive strenuous activity (Ridha & Rachman, 2023). According to research conducted by Yusni in 2019, it is said that sports injuries are a condition in which the body experiences damage to tissues accompanied by functions caused by physical trauma directly from sports activities, both light and heavy.

Sports injuries are divided into 2 factors namely, internal factors and external factors (Ramadhan et al., 2021). Sports injuries to external factors are caused by field conditions, equipment conditions, incorrect tactics and anticipation, as well as training times that do not correspond to rest time (Nurhidayat et al., 2024). Meanwhile, sports injuries are caused by internal factors caused as poor physical condition, errors in movement techniques, excessive exercise and inadequate nutritional intake (Rezki et al., 2022). The two factors of sports injuries are in line with Bahrudin's research in 2014 which said that the causes of sports injuries have 2 factors, namely internal which comes from within, and external which comes from outside the self. Sports injuries are generally divided into 3 types, namely, level 3 injuries (severe injuries), level 2 injuries (moderate injuries), and level 1 injuries (minor injuries).

Level 1 injury (minor injury) is one of the injuries that do not experience serious complaints, and do not interfere with their activities (Akbar et al., 2021). Minor injuries do not require special treatment, they can usually heal on their own after rest. Minor injuries usually occur due to very small tears (Suyudi et al., 2022). Minor injuries often occur such as bruises caused by impacts (contact bodies) or direct blows to the surface of the skin, abrasions caused by thin layers of skin, minor *sprains* injuries caused by the pulling or tearing of ligaments (tissues that connect bones to bones) or joint capsules, or strains of the federal muscles (*strains*) that involve stretching or tearing of a muscle and tendon (muscle structure). This is due to sudden movements, the use of incorrect techniques, and a lack of physical preparation. Minor injuries are characterized by mild pain, mild swelling and limited mobility. In the case of minor injuries, quick help is required, of course, with proper handling so that the risk of more fatal injuries does not occur (Anas & Rochmania, 2019). Proper handling and treatment of minor injuries One of the widely used methods is the *RICE (Rest, Ice, Compression and Elevation) principle* (Arinda, 2014).

The RICE (Rest, Ice, Compression and Elevation) method is one of the simplest methods in first aid for injury management (Totok Budi Santoso et al., 2023). The RICE (Rest, Ice, Compression and Elevation) method can reduce swelling, and pain and prevent more fatal damage to tissues. The proper implementation of the RICE (Rest, Ice, Compression and Elevation) method can accelerate the recovery process and restore normal body function (Amrisyah & Bakti, 2022). Rest is the most important thing in the event of an injury, which is to stop the movement of the injured body when pain or pain occurs for the first time. Ice (ice) cools with ice to reduce the feeding of the affected blood vessels, with cooling causing the affected blood vessels to narrow. Compression (compressing) is applied to limit swelling, by using an elastic bandage on ice, around the injury. Elevation places the affected part higher

than the heart, working to reduce swelling through gravity, and helping to speed up the drainage of fluid that collects in the injured area. The RICE (Rest, Ice, Compression and Elevation) method is carried out for 15 – 30 minutes and is done for the first 24 hours after the injury occurs (Sidik Siregar & Nugroho, 2022).

This study shows that the proper application of the RICE (Rest, Ice, Compression and Elevation) principle can increase the effectiveness of early treatment of minor injuries. As a simple and non-invasive method, RICE (Rest, Ice, Compression and Elevation) is the top choice in emergencies before further treatment or treatment by medical personnel. However, the success of the application of this method is highly dependent on the individual's education and understanding of the correct steps. In sports, knowledge of the principles of RICE (Rest, Ice, Compression and Elevation) is essential for anyone (Pangaribuan et al., 2023). Raising awareness of the application of RICE can help reduce the risk of complications, shorten recovery time, and allow individuals to return to sports activities more quickly. However, the application of the RICE (Rest, Ice, Compression and Elevation) principle is not always a solution for all types of sports injuries. More serious injuries require in-depth medical evaluation and intervention. Therefore, it is important to understand the limitations of this method and when to seek professional help. With proper education, the RICE (Rest, Ice, Compression and Elevation) method can be an effective first step in handling minor sports injuries, and supporting sports health and safety.

METHODS

This study uses a quantitative approach with a descriptive analysis design. This approach was chosen to understand and describe the application of the RICE principle to minor sports injuries based on respondents' perceptions through structured quantitative data. The descriptive design of the analysis allows researchers to explore and analyze patterns, relationships, and tendencies in the data obtained. Data collection was carried out using a questionnaire survey distributed through *Google Forms*. This questionnaire is designed with 20 questions, consisting of 15 positive statements and 5 negative statements. Each statement is structured based on dimensions relevant to the application of the RICE principles, such as respondents' knowledge, experience, and attitudes toward this method. The questionnaire used a *rating scale* with four categories of answers, namely: strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The population in this study was as many as 25 individuals who had experienced or handled minor sports injuries, and the entire population was used as a research sample (total sampling). Thus, the number of samples in this study is 25 people, which is considered representative of achieving the research objectives. Data analysis was carried out using SPSS software version 20. Furthermore, descriptive analysis is carried out to present data in the form of tables, diagrams, and other descriptive statistics. The processed data will provide an overview of the frequency distribution and the tendency of respondents' responses to the application of the RICE principle.

RESULTS AND DISCUSSION

Result

The results of the research data obtained through the distribution of questionnaires as many of 20 questions, to 25 individuals who have experienced or handled minor sports injuries are given in the table below.

Table 1.

Characteristics of Athletes of the Persada Karawang Taekwondo Club

Characteristic	Category	Frequency	Percentage
Gender	Man	15	60%
	Woman	10	40%
Age	15 Years	6	24%
	16 Years	8	32%
	17 Years	7	28%
	18 Years	4	16%

The characteristics of the respondents of this study consisted of gender and age, which provided important insights into the demographic factors that influence the application of the RICE (*Rest, Ice, Compression, Elevation*) principle in minor sports injuries. Data analysis showed that the majority of respondents were men as many as 15 people (60%), while women amounted to 10 people (40%). In addition, the majority of respondents were in the age group of 15–16 years, with a total of 14 people (56%), compared to the age group of 17–18 years old which amounted to 11 people (44%).

In terms of gender, the dominance of male respondents can be explained by the high level of male participation in sports activities, especially those at risk of causing injury. Previous research has shown that men are more likely to engage in competitive physical activity, such as soccer, basketball, and other contact sports than women. This kind of activity tends to increase the likelihood of minor injury, so this group has hands-on experience that is more relevant to the application of the RICE method. In addition, the perception of sports injuries as part of physical activity is often more accepted among men, so they are more likely to participate in this kind of research.

The age characteristics of the respondents also show the dominance of the 15–16 year old age group. This may be due to higher levels of sports activity in this age group. Adolescents aged 15–16 years are usually at the peak of physical activity at the secondary school level, where sports are an integral part of the physical education and extracurricular curriculum. In the 17–18 age group, involvement in sports tends to decrease due to increased academic pressure leading up to school graduation. Additionally, the 15–16-year age group may be more likely to follow survey procedures due to interest in research or direct direction from a coach or exercise teacher.

Another factor influencing the dominance of this age group is the improved level of understanding and application of RICE principles among early adolescents (15–16 years). This can be related to health education provided in schools or campaigns targeting high school students. This age group may be more open to new learning and more active in implementing health information, including in the management of sports injuries (Dwi Darmawan et al., 2024).

In addition, the table below also illustrates the distribution of the application of the RICE principle to minor sports injuries, based on the results of the survey conducted.

Table 2.

Distribution of the Application of the RICE Principle in Minor Sports Injuries

Answer Criteria	Score	Frequency	Percentage
Rest	Understand	21	85%
	Lack of Understanding	4	15%
Ice	Routine Use	22	88%
	Rarely Use	3	12%
Compression	Applying Compression	20	80%
	Not Applying	5	20%
Elevation	Understanding the Importance of	23	92%
	Not always applying	2	8%

The results of the study presented in Table 2 show an overview of the application of the RICE principle (Rest, Ice, Compression, Elevation) in respondents who have experienced or handled minor sports injuries. This data provides insight into the level of understanding and habits of respondents in implementing injury management measures according to these principles.

On the principle of rest, as many as 85% of respondents stated that they understand the importance of rest to prevent injuries from getting worse. This step seems to be one of the easiest to implement because it does not require any tools and can be done at any time. However, 15% of respondents who lack understanding of this step indicate that some individuals may overlook the importance of rest to speed up a return to sports activities, which can worsen the condition of the injury (Liputo et al., 2024).

The Ice principle (cold compress) is applied regularly by 88% of respondents. This shows that the majority of respondents are aware of the benefits of ice use in reducing swelling and pain due to injury. However, there are 12% of respondents rarely use cold compresses, likely due to a lack of knowledge about how to use them or limited access to resources such as ice or cold compresses.

In the principle of compression, as many as 80% of respondents stated that they had applied this step using an elastic bandage. Compression helps limit swelling and support injured tissue, but there are still 20% of respondents who do not apply it. This may be due to a lack of skill in using elastic bandages or ignorance of the optimal duration for compression.

The Elevation principle shows the highest level of understanding and application, with 92% of respondents claiming to understand the importance of lifting injured body parts to speed up the recovery process. This step is considered simple and effective, making it easy for the majority of respondents to apply. However, there are still 8% of respondents who do not always implement it, which shows the need for further education to ensure equitable understanding.

Overall, the respondent's application of the RICE principle is at a good level. Measures such as Rest, Ice, and Elevation tend to be applied more often than Compression. This suggests that principles that require special tools or skills, such as

Compression, are still a challenge for some respondents. Therefore, there is a need to make efforts to increase education and practical training on the use of simple aids such as elastic bandages so that the application of the RICE principle can be carried out optimally by all individuals, especially in sports emergencies (Setiawan et al., 2024).

Based on the results of the questionnaire questions that have been disseminated, the following is the distribution from the assessment scale 1-4 with a total of 20 questions.

Table 3.
Overall Distribution of Respondents' Answers

Rating Scale	Answer Frequency (n)	Response Percentage (%)
1 (strongly disagree)	0	0%
2 (Disagree)	5	20%
3 (Agreed)	7	28%
4 (Strongly Agree)	13	52%
Total	25	100%

The distribution of the respondents' overall answers provides an overview of the tendency of the respondents' attitudes towards the questions asked in the questionnaire. Based on the data obtained, the majority of respondents showed a very positive response to the statements submitted, with **13 people (52%) answering "Strongly Agree"**, and **7 people (28%) answering "Agree"**. This reflects an excellent level of acceptance of the principles or ideas expressed in the questionnaire, particularly regarding the application of the RICE principle to minor sports injuries. On the other hand, there were **5 people (20%) who answered "Disagree"**, indicating that a small percentage of respondents did not agree with the statements submitted. This possible disagreement may be due to a lack of understanding of the RICE principles, different personal experiences, or limitations in applying the method practically. Interestingly, none of the respondents gave an answer on a **scale of "Strongly Disagree" (0%)**, which indicates that in general, no respondents rejected the ideas or statements put forward in the questionnaire.

The dominance of answers on the "Strongly Agree" and "Agree" scales showed that the majority of respondents had a high level of awareness and acceptance of the RICE principle as a method of handling minor sports injuries. This can also reflect that the principle is widely known and considered relevant by respondents. Factors such as health education, hands-on experience in dealing with injuries, and ease of application of the RICE principles are likely to be the main drivers for this high level of consent. Meanwhile, the existence of respondents who answered "Disagree" remains an important concern. This indicates the need for further approaches to improve understanding or improve the implementation of the RICE principles, especially for individuals or groups who may face obstacles in implementing them. More in-depth education, injury handling simulations, and adequate resource provision can help reduce disagreement and ensure that each individual can utilize these principles effectively (Sumroti & Himawan, 2021).

The table below illustrates the distribution of the level of understanding and constraints regarding the principles of applying the RICE method (*Rest Ice, Compression, Elevation*) based on the results of the survey conducted.

Table 4.
 Level of Understanding and Constraints of the RICE Method Principles

Category	Number of Respondents (n)	Response Percentage (%)
Level of Comprehension (Good)	25	100%
Constraints (Elastic Bandage Access)	3	12%
Constraints (Ice/Compression Duration)	2	8%

The distribution of answers related to the level of understanding and constraints in the application of the RICE principle to minor sports injuries reveals various important aspects of how respondents understand and implement this method. The level of understanding of most respondents tends to be quite good, as evidenced by the majority who gave positive answers to statements regarding RICE benefits and procedures. This shows that education or information about the principles of Rest, Ice, Compression, and Elevation has been effectively conveyed to most of the respondents so that they are able to understand the basic concepts and measures for handling minor injuries in general. However, certain obstacles are still obstacles to the optimal application of these principles. Some respondents indicated technical difficulties in using aids such as elastic bandages for compression, or limited access to ice for cooling procedures. In addition, some individuals also face obstacles in implementing adequate rest, especially due to the pressure to return to activities immediately, both in the context of sports and daily activities. This indicates that although the understanding of the RICE principle is quite good, the practical aspects of its application still need special attention in order for the results of injury management to be more effective (Athoillah et al., 2024).

Another obstacle that was also found was the lack of detailed knowledge regarding the duration and appropriate techniques for each component of RICE. Some respondents may only know the principles in general without a deep understanding of when and how the procedure should be performed correctly, for example, the optimal duration of ice compression or the most effective elevation position. This condition has the potential to cause improper application so it does not provide maximum results in the healing process. In addition to technical factors, motivation and awareness factors are also important aspects. Respondents who face pressure from the surrounding environment to recover quickly or return to exercise often ignore the need for rest, which is a fundamental part of the RICE principle. This shows the need for education not only on the technical aspect but also on the psychological and social aspects so that the application of this principle can run comprehensively and sustainably.

CONCLUSION

Based on the results of the study, it can be concluded that the principle of handling minor sports injuries with the RICE (Rest, Ice, Compression, Elevation) method has been understood and applied quite well by the majority of respondents. The majority of study participants, especially adolescents aged 15–16 years, showed a high awareness of the importance of measures such as rest, cold compresses, compression, and elevation in

the early treatment of injuries. The overall level of understanding of the RICE principles is in a good category, although there are still some practical constraints such as limited aids (elastic bandages), access to ice, and technical understanding of duration and correct application. These results show that basic education has been effective, but it needs to be strengthened in terms of technical application and awareness of consistency of implementation.

In order for the application of the RICE method to be more optimal in dealing with minor sports injuries, it is recommended to improve practical education that touches not only on theory but also hands-on skills such as how to use elastic bandages and compression time management. Simple training through simulations or demonstrations can help individuals understand the correct techniques, especially in school and sports club settings. In addition, it is important for coaches, exercise teachers, and health workers to continue to remember the importance of rest and encourage a culture of safety in sports, including giving young athletes an understanding not to rush back to activities before fully recovering. The provision of easily accessible first aid facilities is also a supporting factor for the successful application of this principle in the field.

REFERENCES

- Akbar, M., Perdana, D. A., Jumah, A. W. Q., Jendo, V. L., & Ansalmi, T. (2021). Workshop Penanganan Cedera Olahraga. *Jurnal Physio Education Indonesia*, 1(1), 1–3.
- Amrisyah, A. F., & Bakti, A. P. (2022). Tingkat Pemahaman Faktor Dan Jenis Cedera Olahraga Atlet Muaythai Pada Klub Knockout Surabaya. *Jurnal Kesehatan Olahraga*, 1(4), 85–92.
- Anas, A., & Rochmania, A. (2019). Survei Pengetahuan Pemain Terhadap Resiko, Pencegahan, dan Penanganan Pertama Cedera Akut Pada Club Bola Voli Junior Putri Bank Jatim. *Jurnal Prestasi Olahraga*, 2, 1–10.
<https://ejournal.unesa.ac.id/index.php/jurnal-prestasi-olahraga/article/view/26562>
- Arinda, E. N. (2014). Analisis Cedera Olahraga dan Pertolongan Pertama Pemain Sepak Bola (Studi Kasus Liga Springhill Putaran II Pengcab PSSI Surabaya 2014). *Jurnal Kesehatan Olahraga*, 2(3), 1–9.
- Athoillah, R., Azza, A., & Hamid, M. A. (2024). Pengaruh Pendidikan Kesehatan Metode Rice Terhadap Keterampilan Pertolongan Pertama Cedera Olahraga Sprain Pada Palang Merah Remaja SMA Negeri 1 Jenggawah. *Jurnal Assyifa*, 1, 267–279.
<http://assyifa.forindpress.com/index.php/assyifa/index>
- Dewi, N. M., Sutarjo, & Liskustyawati. (2024). Identifikasi Cedera Olahraga Pada Atlet Senior Bolavoli Usia 17–24 Tahun Di PBV Vita Solo Tahun 2023. *Jumper: Jurnal Mahasiswa Pendidikan Olahraga*, 4(3), 719–733.
- Dwi Darmawan, A., Kuntum Mandalawati, T., Ratna Kartini, P., Maritha, V., & T Candra, A. (2024). Developing the Physical Condition of Athletes Through the Prevention and Treatment of Sports Injuries. *GANDRUNG: Jurnal Pengabdian Kepada Masyarakat*, 5(2), 1799–1806. <https://doi.org/10.36526/gandrung.v5i2.4026>

- Fitriana, N. F., Munawaroh, N., Juwita, D. R., Suparti, S., & Ramdani, M. L. (2022). Tingkat Pengetahuan Pertolongan Pertama Penanganan Cedera Olahraga Badminton. *JK JURNAL ILMU KESEHATAN*, 6(2), 355. <https://doi.org/10.33757/jik.v6i2.600>
- Liputo, G. P., Antu, M. S., Ayun, N. R. Y., & Wulansari, I. (2024). Pengaruh Pemberian Informasi Metode Rice Terhadap Penanganan Dini Cedera Pada Pemain Futsal. *Jambura Journal of Sports Coaching*, 6(2), 98–104.
- Nurhidayat, N., Jariono, G., Warthadi, A. N., Sistiasih, V. S., & Hernawan, B. (2024). Optimalisasi Pemahaman Pemanasan dan Pendinginan untuk Mencegah Cedera pada Klub Olahraga. *Jurnal Pengabdian Masyarakat Kesehatan Dan Sains*, 2(1), 1–7. <https://doi.org/10.29407/abhipraya.v2i1.23179>
- Pangaribuan, R., Tarigan, J., Juwita, A., Rotua Lubis, C., & Atsnia. (2023). PELATIHAN PENANGANAN CEDERA RINGAN BAGI SISWA KELAS IX DI SMP NUR CAHAYA MEDAN. *Jurnal Gembira (Pengabdian Kepada Masyarakat)*, 1(4), 972–978.
- Ramadhan, R. R., Resita, C., & Yuda, A. K. (2021). Survey Pengetahuan Guru PJOK Tentang Penanganan Cedera Olahraga dengan Metode Rice. *Riyadhoh : Jurnal Pendidikan Olahraga*, 4(1), 46. <https://doi.org/10.31602/rjpo.v4i1.4379>
- Rezki, R., Jatra, R., Sari, M., Haqqi, M., & Muafa, F. F. (2022). Pentingnya Aktifitas Pemanasan Dan Pendinginan Dalam Berolahraga Pada Guru Olahraga Dayaun. *Wahana Dedikasi : Jurnal PkM Ilmu Kependidikan*, 5(1), 87. <https://doi.org/10.31851/dedikasi.v5i1.7084>
- Ridha, S., & Rachman, A. (2023). Survei Lokasi Penyebab Cedera Olahraga Pada Atlet Cabang Olahraga Permainan. *Jambura Sports Coaching Academic Journal*, 2(1).
- Setiawan, A. M., Aulia, D., Nurhadi, A. D. M., Rizky, M., & Alghifary, Z. F. (2024). Survei Tingkat Pengetahuan Siswa Ekstrakurikuler Olahraga Futsal SMAN 7 Tambun Selatan Terhadap Penanganan Cedera Ankle. *Journal of SPORT (Sport, Physical Education, Organization, Recreation, and Training)*, 8(3). <https://doi.org/https://doi.org/10.37058/sport>
- Sidik Siregar, F., & Nugroho, A. (2022). Pengetahuan Atlet Terhadap Resiko, Pencegahan, Dan Penanganan Pertama Cedera Olahraga Bola Voli. *Jurnal Olahraga dan Kesehatan Indonesia (JOKI)*, 2(2), 83–93. <https://jurnal.stokbinaguna.ac.id/index.php/jok>
- Sumroti, N. A., & Himawan, D. A. (2021). Kondisi Fisik Olahraga Bulutangkis Physical Condition of Badminton Sports. *Jurnal Ilmiah Sport Coaching and Education*, 5.
- Suyudi, I., Sahabuddin, & H. Herman. (2022). Sosialisasi Jenis Cedera dan Cara Penangannya Pada cabang Olahraga Beladiri Atlet PPLP Provinsi Sulawesi Selatan. *Jurnal Aksara Raga*, 3(2), 49–54.
- Totok Budi Santoso, Cikiesa Ilham Faiz, Desvita Savitri Kusuma Wardhani, & Novita Sri Wulandari. (2023). Edukasi Penanganan Cedera Akut Pada Komunitas Bulutangkis Di Gor Bello, Laweyan : Metode RICE. *Jurnal Pengabdian Masyarakat*, 2(2), 69–76. <https://doi.org/10.30640/abdimas45.v2i2.1695>
- Usman, Almumtahanah, Kawuryan, U., Kartika, W., Halwa, S. A., & Wuriani. (2021). Kejadian Cedera Pada Anak Usia Sekolah Dasar: Studi Deskriptif. *Jurnal Ilmu Keperawatan dan Kebidanan*, 12(1), 58–62.