**The Effect of Shred Injuries Soccer on General Injuries of Futsal Athletes**

**Achmad Fauzan Alfaz1, Prisca Widiawati2, Muhammad Putra Ramadhan3**

*1Departement Sport Coaching, University of Malang State, Malang, Indonesia*

*2Departement Sport Coaching, University of Malang State, Malang, Indonesia*

*3Departement Sport Coaching, University of Malang State, Malang, Indonesia*

*\*achmad.fauzan.2106316@students.um.ac.id*

**Abstract**

This study aims to determine the effect of shred injuries soccer on the risk of general injuries in Malang State University (UM) futsal club athletes. This research method uses an experimental approach with the subject of the UM futsal club which will take part in the Euro 2024 regional orphan competition. The results of this study indicate that the results of the FMS Funcional Movement Screen test) using shred injuries on UM futsal club athletes obtained an average pre-test value of 16.27, while during the post-test the average value was 17.90. The pre-test normality test result is 0.074 indicating normal data distribution, while the post-test obtained a value of 0.023 which indicates abnormal data distribution, so that comparative analysis can be carried out using the Wilcoxon T-test to determine the effect of the treatment given. The results of the analysis with the Wilcoxon test showed a significant effect between the pre-test and post-test values with a p value = 0.008. So it can be concluded that this study has a significant effect on the application of shred injuries to general injuries in UM futsal club athletes

**Keywords:** futsal; shred injuries soccer; general injuries

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# INTRODUCTION

Exercise is a physical activity that is done to improve health and physical and spiritual fitness. Exercise has many benefits for the body, such as increasing stamina, muscle strength, and flexibility, as well as helping to maintain ideal body weight and heart health (Rasyidi et al., 2023). One type of sport that is popular in Indonesia is Futsal. Futsal athletes at the UM Futsal Club must be in top condition to avoid injuries that can interfere with performance. Regular training and a good recovery program will be an integral part of their routine, ensuring optimal fitness and consistent performance on the field. In this environment, the athletes' condition will remain optimal, allowing them to play at full intensity and achieve the desired results. A structured training program supported by an effective recovery program can help reduce the risk of injury and improve athlete performance. Injuries to muscles and tendons are one of the most common types of injuries in soccer and futsal (Ekstrand et al., 2020). Data obtained at the UM Futsal Club shows that athletes often face the risk of injury, including soccer shred injuries, due to high physical stress and load during training and matches. Factors such as fatigue, lack of adequate warm-up, or poor technique can increase the risk of injury. As a result, some athletes may experience a decline in general injuries, which can hinder their ability to play futsal optimally (Ekstrand et al., 2020). Research by Villa et al (2021) highlights the importance of identifying risk factors related to injuries to muscles and tendons to develop effective prevention strategies. Wang et al (2024) also found that effective injury management requires a holistic approach, including evaluation of posture and training techniques.

The urgency of research on the effect of soccer shred injuries on the risk of general injuries in athletes at the UM Futsal Club is that by understanding the impact of injuries, coaches and medical staff can develop more effective prevention strategies and appropriate rehabilitation programs. This will not only help reduce the number of injuries that occur, but will also ensure that athletes can maintain or improve their strength and performance on the field (Lopez et al., 2020). According to research by Rasyidi et al (2023) a holistic approach to injury management, which includes prevention, diagnosis and rehabilitation, is important to support athlete health and performance. Bizzini and Dvorak (2015) also emphasized the importance of a multidisciplinary approach in sports injury management to maximize outcomes.

Recent research by Ekstrand et al (2023) has revealed various findings related to the effect of soccer shred injuries on the risk of general injuries in futsal and soccer athletes. These studies have highlighted the importance of timely and comprehensive rehabilitation in addressing these injuries, as well as the critical role of injury prevention through adequate warm-up and correct training techniques. In addition, technological developments in the field of performance monitoring and recovery have also provided new opportunities in injury management and maintenance of athlete fitness.

This study aims to examine the effect of shred injuries soccer on the risk of general injuries in athletes at the UM futsal club. In-depth research on injury mechanisms, associated risk factors, and effective rehabilitation strategies will help provide an understanding of this problem and produce more detailed recommendations for preventing and effectively managing these injuries in the future (Wang et al., 2024). According to a study by Soligard et al (2017), continued research in this area will help fill knowledge gaps and pave the way for innovation in sports injury management. Ardern et al (2018) also emphasized the importance of ongoing research in developing new evidence to support best clinical practice in injury management. Novelty in this study is that there is no previous research that takes data or analyzes the effect of soccer shred injuries on the risk of general injuries in athletes at the UM Futsal Club.

**METHOD**

This type of research is experimental. The design used in this research is “One-group pre-test post-test design”, which is a one-group research design that has a pre-test before being treated and a post-test after being treated. The design can be seen in the table below:

**Table 1.** Research Design One-Group Pre-test Post-test Design (Sugiyono, 2013).

|  |  |  |  |
| --- | --- | --- | --- |
| **Subject** | **Pre-test** | **Treatment** | **Post-test** |
| R | O1 | X | O2 |

**Description:**

R : UM Futsal Athletes

O1 : Pre-test

X : Treatment using shred injuries

O2 : Post-test

In the one-group pre-test post-test design above, the researcher first pretested the experimental group using the FMS (Funcional Movement Screen) test to determine the results of the general injuries test before being given treatment. Functional Movement Screen (FMS) is an assessment method used to identify injury risk and assess basic movement patterns in individuals. In this study, the FMS process is based on the involvement of one expert, namely Mr. Ahmad Abdullah, M.Kes. who has competence in the field of movement analysis. The expert is tasked with assessing the results of the pre-test and post-test scores, as well as assisting in making decisions on FMS scores, to ensure accurate and reliable results.

The Functional Movement Screen (FMS) procedure begins with an explanation to the participant about the purpose of the test and how to perform each movement. The test includes seven basic movements: Deep Squat, Hurdle Step, Inline Lunge, Shoulder Mobility, Active Straight-Leg Raise, Trunk Stability Push-Up, and Rotary Stability. Each movement aims to assess mobility, stability, or body control, and is scored on a 0-3 scale. A score of 3 means perfect movement, a score of 2 a slight compensation, a score of 1 the movement cannot be completed, and a score of 0 if there is pain. The maximum total score is 21, which is used to assess the risk of injury and determine the intervention needed.

After the pre-test, the researcher gave treatment using shred injuries to give treatment to the experimental group. This research was conducted at the UM futsal field in front of the Faculty of Medicine. The research was conducted for 16 meetings, consisting of 14 sessions of giving treatment, and 2 pre-test post-test sessions (Yudiana et al., 2012). The population of this study were all athletes of the UM Futsal Club with a total sampling technique of athletes who participated in the Euro 2024 competition as many as 14 male athletes. The data analysis of this study used univariate analysis using the number and percentage (%) and bivariate using the Paired Sample T-test.

**RESULT**

The results of this study are determined based on data that has been collected through pre-test and post-test regarding the effect of soccer shred injuries on the risk of general injuries of Malang State University futsal athletes with the following data results:

Tabel 2. Respondent Characteristics Based on Age

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics** | **Mean** | **Minimal** | **Maximal** | **Std. Deviation** |
| Age | 21.18 | 19.00 | 23.00 | 1.078 |

In the data table above, it can be concluded that the average age of respondents is 21.18 years, with the youngest age being 19 years old and the oldest being 23 years old.

Tabel 3. Characteristics of Respondents Based on FMS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics** | **n** | **Mean** | **Min-Max** | **Std. Deviation** |
| Pre-test | 11 | 16.27 | 15-19 | 1.348 |
| Post-test | 11 | 17.90 | 17-20 | 1.044 |

Based on the table above, the average pretest score is 16.27 and posttest score is 17.90, with the lowest pret-test score of 15 and the highest score of 19, while the lowest posttest score is 17 and the highest score is 20.

Tabel 4. Normality Test Result

|  |  |  |
| --- | --- | --- |
| **Variable** | **Normality Results** | **Description** |
| Pre-test | 0.074 | Normal Distribution |
| Post-test | 0.023 | Abnormal Distribution |

The results of the data normality test on the pre-test variable show normal data distribution and the post-test shows abnormal data distribution because the value is less than α = 0.05 so that comparative analysis can be done using the Wilcoxon t-test.

Tabel 5. Wilcoxon T-test

|  |  |
| --- | --- |
| **Variable** | **P value** |
| FMS pre-test post-test | 0.008\* |

Based on the table above, the results of the analysis with the Wilcoxon test showed a significant relationship between pre-test and post-test FMS values (p value = 0.008).

**DISCUSSION**

This study aims to determine the effect of shred injuries soccer on the risk of general injuries in athletes at the State University of Malang (UM) futsal club. This effort is made as an alternative to preventing warm-up injuries so that it can help improve muscle readiness before training or competition. The results showed that the results of the general injuries test on athletes at the UM Futsal Club had an average pretest value of 16.27 and postest value of 17.90, with the lowest value at pretest 16 and the highest value 19, while the lowest value at posttest 17 and postest highest value 20. The significant value of 0.008 for pretest and postest, means that there is a significant difference between the conditions before and after the intervention. This means that there is a positive effect of prevention efforts through the shred injuries program on the risk of general injuries to athletes at the UM Futsal Club. The right warm-up method has proven effective in reducing the risk of general injury and increasing muscle readiness before training or competition.

The decline in performance of one athlete in the posttest data was caused by various factors, one of which was injury or physical trauma experienced before data collection. The first athlete experienced a drop in post-test scores due to a collision with a friend during training the day before. Collisions like this can cause pain, bruising, or even mild to moderate injuries, which can affect the physical ability to give their best performance during the test. This is in accordance with research entitled “Analysis of Injury Risk Factors in Futsal Athletes at Champion Futsal Tlogomas Malang” which reveals that injuries experienced by athletes cause their performance to drop. This is because injuries can interfere with the athlete's physical and mental functions, so that the athlete's ability to play optimally decreases (Sumadi et al., 2018).

Based on the results of this study, it was found that the application of shred injuries as a warm-up injury prevention method can significantly accelerate the process of warming up muscles before performing physical activities, such as training or matches. Shred Injuries proved to be very effective in helping the soccer team at the UM Futsal Club to improve the efficiency of athletes' muscle warm-up, important before training sessions or competitions. Faster and optimized muscle warm-up then athletes can be more physically prepared, so they can undergo training with a higher and more consistent level of effectiveness. The application of shred injuries also serves to reduce the risk of general injuries that have the potential to interfere with athlete performance during competition or training. This reduction in injury risk is very important, as injuries that occur can affect the athlete's performance in the long term. This finding is supported by evidence from the men's soccer team, which shows a significant effect of using shred injuries in preventing warm-up injuries on reducing the number of general injuries which ultimately improves the overall quality and quantity of training that athletes can undergo.

Research into the effectiveness of warm-ups such as “Shred Injuries” is supported by studies into other injury prevention methods, such as the FIFA 11+ program. This program is designed to reduce the risk of injury to football players through a structured set of warm-up exercises. The research shows that the implementation of FIFA 11 can reduce the risk of injury by 30% to 70% across different groups of players, both amateur and professional. Regular warm-ups with this method also improve neuromuscular performance and motor performance, thus helping athletes to be more physically prepared before matches or intensive training (Barengo et al., 2014). This shows the effectiveness of a planned warm-up in preventing injuries, in line with the findings on the “Shred Injuries” method applied at the UM Futsal Club.

Common types of sports injuries among soccer players are myorexia, muscle spasms and muscle bruises. These are caused by the large amount of contact between players, long periods of time in each half of the match, and lack of sufficient warm-up. The most commonly injured body parts were the ankles, thighs and feet. Researchers attribute these findings to the nature of team play, where the ankle is exposed to great stress, as it is closer to direct contact with the opponent and the ground; also, the nature of ankle joint function requires more effort. The common causes of sports injuries among soccer players are lack of gradation in increasing the training load with (18.96%), lack of sufficient warm-up (11%), and invalid devices used (6.88%) of the total injuries (Shatnawi, 2022).

Specific research on the effect of shred injuries on the risk of general injuries does not exist. Most research on injuries focuses on the long-term physical and psychological health aspects of injuries in general. Research similar to this study on injury prevention programs in futsal noted that exercises such as neuromuscular strengthening and Nordic hamstring can help reduce the incidence of injuries among futsal athletes (Oliveira et al., 2024). Another study in the Journal of Human Sport and Exercise also noted the importance of specialized training and monitoring of athletes' workload to reduce the risk of common injuries associated with the intensity and repetition of movements in sports (Serra et al., 2024).

The limitations of this study lie in the futsal field facilities which are not roofed, so that when it rains the field is slippery and difficult to use, hampering data collection. In addition, the small number of samples or not diverse limits the results of the study to represent the population at large. Participants' physical and psychological conditions, such as fatigue or lack of motivation, can also affect test results and the validity of the study.

**CONCLUSIONS**

The application of Shred Injuries has a significant effect in reducing the risk of general injuries in Malang State University futsal athletes. The pre-test and post-test results indicated an increase in muscle readiness and a decrease in injury risk. Factors such as previous physical injury can affect performance, as indicated by a decrease in the performance of one athlete in the posttest. Common injuries in futsal often result from a lack of warm-up, physical contact, or excessive training load. Future research is recommended to explore the effect of shred injuries in various sports other than futsal, to determine its effectiveness in preventing injuries in a broader context. Future research could also include populations of athletes with varying fitness levels and ages to identify other factors that influence outcomes

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