
Identification of Sports Injuries in Athletes of Puslatkab PORPROV XVI Jepara

Nopitasari Yuniarsih^{1,*}, Khoiril Anam², Anies Setiowati³

¹Semarang State University, Sekaran, Gunungpati, Semarang City, Central Java 50229, Indonesia

¹nopitayusuf@students.unnes.ac.id *; ²khoiril.ikor@mail.unnes.ac.id ; ³setiowatianies@mail.unnes.ac.id

*corresponding author

ABSTRACT

Problems with athletes at the PORPROV parts of the body that hurt are caused by several factors, including sports facilities, equipment, weather and training programs. This research method uses non-experimental quantitative descriptive research with descriptive survey methods. The sample in this study was 130 Jepara PORPROV XVI Puslatkab athletes from 23 sports. Using survey method instruments with questionnaires. The data analysis technique uses descriptive research in the form of percentages. The results of the research on the type of injury based on time are the low category with a percentage of 43.8%, the type of injury to the tissue affected is the medium category with a percentage of 53.1%, and the injury based on location in the upper extremities is the low category with a percentage of 63.8, and in the lower extremities, it is in the low category with a percentage of 48.5%. The conclusion about the type of injury based on the time when the incident most often occurs is chronic injury. The most common type of injury based on the tissue affected is bone tissue. The most common location of injury is in the lower extremities in the calf.

Keywords: Sports injuries, achievement sports, jepara puslatkab athletes

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Correspondence Address:

Nopitasari Yuniarsih

Department of Sport Science/Semarang State University

Sekaran, Gunungpati, Semarang City, Central Java 50229, Indonesia

E-mail: nopitayusuf@students.unnes.ac.id

INTRODUCTION

Physical activity and sport play a role in maintaining health until adulthood becomes an increasingly high concern. Sports are known for their extraordinary and competitive physical activities/exercises ([Borge, 2021](#)). Sport has become a mandatory need for every human being for the good of his life and the quality of one's health ([Lema, 2019](#)). In accordance with the Law concerning the National Sports System No. 3 of 2005 article 17 which states that there are 3 domains, namely (1) sports related to education, (2) sports related to recreation, and (3) sports related to achievement ([UU. No. 11, 2022](#)). Achievement in sports aims to develop the potential of sportsmen or athletes to achieve the highest performance in a planned, systematic and sustainable manner in order to support the best achievements at both regional and international levels ([Nurcahyo et al., 2014](#)). PORPROV (Province Sports Week) is an achievement in sports competition that is routinely held every 4 years, which is a competition for high prestige for athletes between cities/districts in the province. To prepare to compete in the PORPROV XVI event in 2023, It is necessary to create a training program that has a higher intensity as the day

before the competition will be held ([Durahim & Awal, 2022](#); [Setyaningrum, 2019](#)). This is also accompanied by an increasing number of possible injuries that can occur to athletes during the training period. Repetitive movements carried out by athletes carry the risk of chronic injury ([Lestari et al., 2021](#); [Sanusi, 2019](#)). Acute injuries can occur because the body's muscular and skeletal systems move suddenly ([Eddy Yunus et al., 2020](#)). For athletes who suffer injuries, they will be forced to miss training, may be prevented from participating in matches, and even disrupt their daily activities. Injuries can occur due to many factors ranging from the facilities & infrastructure used during training, weather, training program, understanding of techniques, and so on. Lack of protective equipment such as in roller skating can cause bruising, abrasions and abrasions on the skin ([Prasalita, 2020](#)).

During observations along with physical tests organized by KONI Jepara, several athletes were unable to display their best performance when undergoing physical tests. Some of them experienced injuries, such as karate athletes who had just a few days ago undergone ACL surgery on their knees, petanque athletes experienced pain in the back of their hands and fingers, sepak takraw athletes experienced pain in their legs, and most athletes from other sports experienced pain. muscle and joint injuries.

The causes of injury in sports that use body contact with opponents such as futsal, football, taekwondo, karate, handball, wrestling, hapkido, hockey, kick boxing, boxing, and sepak takraw often occur due to physical collisions with opponents during matches which are dominated by involving the lower limbs ([Chussurur, 2015](#); [Massa et al., 2022](#); [Syam, 2019](#)). In martial arts sports such as taekwondo, karate, wrestling, hapkido and boxing, injuries to the head and face often occur accompanied by abrasions in these areas ([Astuti et al., 2022](#); [Khasanah, 2021](#)). Meanwhile, sports that use equipment such as weight lifting, athletics, rowing, hockey, petanque, diving, bicycle racing, motorbike racing, rock climbing and woodball often cause injuries due to the sports equipment causing bruises, abrasions, pain and minor to severe injuries ([Brzezińska et al., 2022](#); [Changstrom et al., 2022](#); [Cole et al., 2020](#); [O'dowd et al., 2013](#); [Schäfer et al., 2023](#)).

Sports injuries are one of the things that an athlete needs to avoid because they can interfere with their performance in their goal of achieving achievements. Prevention is prioritized over treatment which has been explained from a health science perspective ([Setiawan & Rustiana, 2014](#)). Recognizing parts of the body that are at risk of injury and knowing the causes of injury are ways to overcome injuries ([Sardiman et al., 2022](#)). Apart from that, knowing the cause of the injury will make it easier to provide appropriate treatment and

the healing process can also be accelerated. Based on the injuries that occurred, it is necessary to identify the type and location of injuries experienced by Jepara Regency Puslatkab athletes. Sports identification is used to recognize injuries that occur due to sports activities both in general and other factors or symptoms.

METHODS

This research uses a survey method. Research that uses a cross-sectional survey method is research that collects research data at one time for a sample ([Creswell, 2018](#)). Researchers distributed questionnaires to respondents in collecting research data. The research will be directed at describing important information from Jepara Regency PORPROV XVI Puslatkab athletes regarding the injuries they experienced. The population used in this research were athletes from Jepara Regency. Samples that comply with the criteria created by the researcher will be selected to become research objects. The sample in this study was 130 athletes from 23 sports. In this research, purposive sampling techniques were used. This sampling technique was chosen because its determination is in accordance with the researcher's objectives, namely sampling which aims to identify a case with the phenomenon of interest ([Palinkas et al., 2015](#)). The samples that will be used in this research are those that meet the inclusion criteria and exclusion criteria. The inclusion criteria for this study are: 1) Jepara Regency PORPROV XVI Puslatkab athlete, 2) Passed to take part in PORPROV XVI, 3) Willing to be a research subject, and 4) Athletes with at least 2 athletes in each sport. The exclusion criteria for this study were 1) Athletes who did not pass the selection/resigned, 2) Did not fill out the questionnaire completely, and 3) Athletes where there was only 1 athlete in a sport in Puslatkab XVI Jepara Regency.

This research uses an instrument in the form of a questionnaire ([Suharsimi, 2020](#)). The questions or statements in the questionnaire use short answers or use one of the alternative answers that the respondent can choose from each available question. Respondents were asked to choose and answer the questionnaire according to their own wishes according to their respective circumstances. The instruments used are also tested for validity first through expert judgment who are experts in their field to construct the aspects that need to be measured according to certain theories. The grid of the instrument questionnaire in research on identifying sports injuries in athletes of Puslatkab PORPROV XVI Jepara is divided into 2, namely the type of injury and the location of the injury. There are 2 types of injury, namely based on time (acute and chronic) and based on the tissue affected (skin, muscles, joints, bones and blood vessels). The location of the injury is divided into 2, namely the upper extremities

(face, shoulders, upper arms, elbows, forearms, wrists and waist) and lower extremities (hip, thigh, knee, calf, ankle). Then from the grid it was made into 27 questions.

The instrument was tested using validity and reliability tests which were tested on 30 respondents from handball club Pati. The validity test uses Pearson product correlation with a significance level of 0.05 with $r \text{ table} \geq 0.361$. The results show that 27 questions show a calculated r value $\geq r \text{ table}$. Thus 27 questions were declared valid. For reliability testing, use Cronbach's Alpha. The Cronbach's Alpha value of the 27 questions is 0.866, which means it is greater than the $r \text{ table}$ value (0.361) and each question is also ≥ 0.361 .

The data analysis technique used is descriptive research in the form of percentages with the aim of identifying injury categories and locations of sports injuries for PORPROV XVI Puslatkab athletes in Jepara Regency. Data analysis after data collection is in principle continuous with the previous analysis to explain the data systematically and ensure the positions, hypotheses, concepts or patterns that have been built according to field data ([Firman & Rahayu, 2020](#)). Each respondent's answer will be converted based on the normal distribution model category. The subject's score in a group is an estimate of the normal score of the subject in the population. The following data categories use 3 criteria:

Table 1. Table Injury Category Table

Identification	
Low	: $X < M - 1 \text{ SD}$ (1)
Medium	: $M - 1 \text{ SD} \leq X < M + 1 \text{ SD}$ (2)
High	: $M + 1 \text{ SD} \leq X$ (3)

Information :

SD : Standard Deviation

M : Mean

RESULTS AND DISCUSSION

Results

Data was obtained through an injury identification research instrument filled in by 130 athletes on Google form online to determine the incidence of injuries that occurred in PORPROV XVI athletes in Jepara Regency in 2023. The data obtained was then processed using the SPSS version 25 application.

1. Research Results Based on Time of Event

Table 2. Categorization of Injury Data Based on Time of Event

<i>Frequency</i>	<i>Percentage (%)</i>	<i>Category</i>
27	20.8	High
46	35.4	Medium
57	43.8	Low

The table above shows that there were 27 athletes who suffered injuries based on the time of occurrence in the high category (20.8%), 46 people in the medium category (35.4%), and 57 people in the low category (43.8%).

The distribution of injury frequency based on time of occurrence can be seen in the picture below:

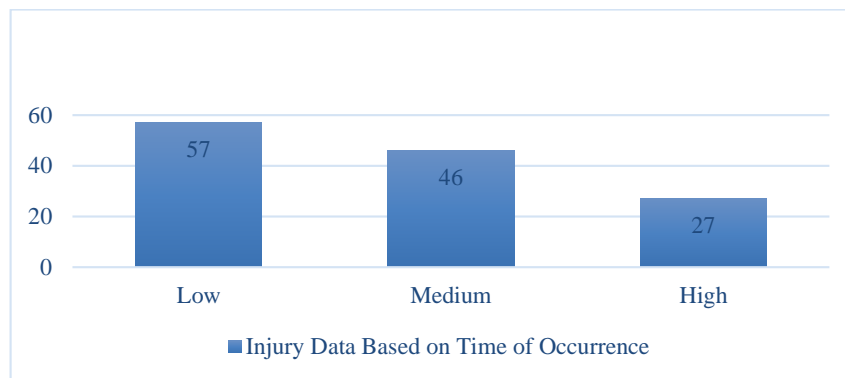


Figure 1. Injury Data Based on Time of Event

Based on the histogram graph above, it can be concluded that injuries based on the time they occur are in the low category.

2. Research Results Based on Affected Tissues

Table 3. Categorization of Injury Data on Affected Tissues

<i>Frequency</i>	<i>Percentage (%)</i>	<i>Category</i>
14	10.8	High
69	53.1	Medium
47	36.2	Low

The table above explains that there are 47 people with a percentage of 36.2% in the low category, in the medium category there are 69 people with a percentage of 53.1% and 14 people with a percentage of 10.8% in the high category.

The frequency distribution of injuries to the affected tissue can be seen in the image below:

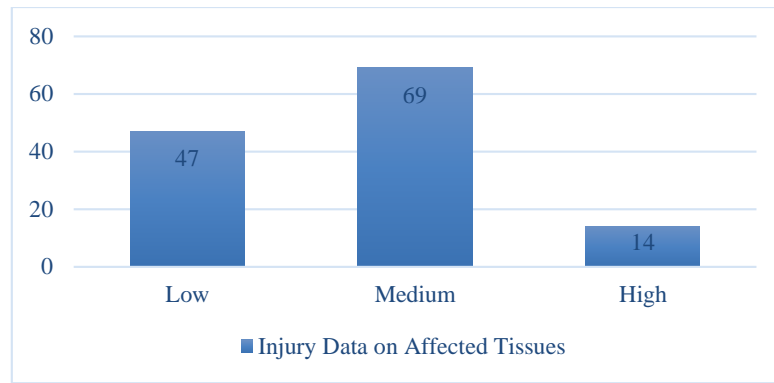


Figure 2. Injury Data Based on Affected Tissues

From this categorization, it can be seen that the incidence of injury based on the tissue affected in Jepara PORPROV XVI Puslatkab athletes is in the medium category.

3. Research Results Based on Location

Table 4. Categorization of Upper Extremity Injury Data

<i>Frequency</i>	<i>Percentage (%)</i>	<i>Category</i>
18	13.8	High
29	22.3	Medium
83	63.8	Low

The table above explains that there are 18 people with a percentage of 13.8% in the low category, in the medium category there are 29 people with a percentage of 22.3% and 83 people with a percentage of 63.8% in the high category.

The frequency distribution of injuries to the affected tissue can be seen in the image below:

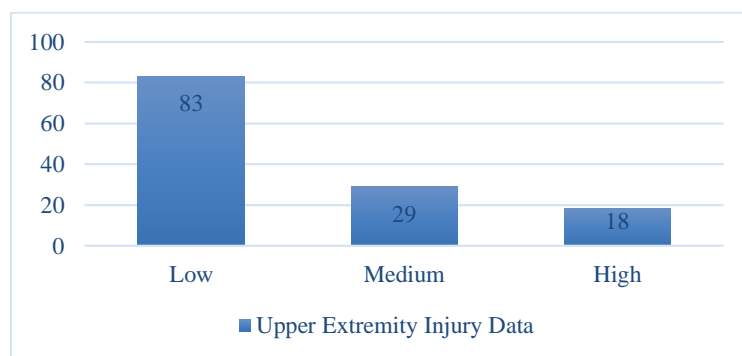


Figure 3. Upper Extremity Injury Data

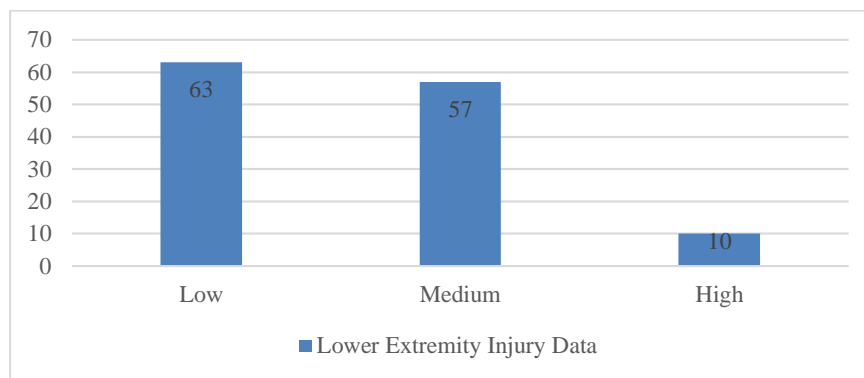
From this categorization, it can be seen that the incidence of upper extremity injuries in Jepara PORPROV XVI Puslatkab athletes is in the low category.

Table 5. Categorization of Lower Extremity Injury Data

<i>Frequency</i>	<i>Percentage (%)</i>	<i>Category</i>
10	7.7	High
57	43.8	Medium
63	48.5	Low

The table above explains that there are 63 people with a percentage of 48.5% in the low category, in the medium category there are 57 people with a percentage of 43.8% and 10 people with a percentage of 7.7% in the high category.

The frequency distribution of injuries to the affected tissue can be seen in the image below:



From this categorization, it can be seen that the incidence of lower extremity injuries in Jepara PORPROV XVI Puslatkab athletes is in the low category.

Discussion

From the results of data analysis of types of injuries based on time that occurred in PORPROV XVI Jepara Puslatkab athletes It is known that there are 40 athletes who have experienced acute injuries with a percentage of 30.8% and 60 people who have experienced chronic injuries with a percentage of 46.2%. Sports that have experienced acute injuries include weight lifting, motorbike racing, bicycle racing, hockey, rock climbing, petanque, diving, sepak takraw, and woodball. This can occur as a result of falling or colliding with other players during sports such as throwing sports (handball and volleyball), artistic sports (swimming, diving, gymnastics, rowing), and extreme sports (martial arts, boxing, weight lifting, motorbike racing and bicycle racing) The absence of experts in the first treatment when an athlete sprains or experiences a muscle tear causes acute injury ([Doyscher et al., 2014](#)). The absence of experts in the first treatment when an athlete sprains or experiences a muscle tear causes acute injury ([Muhibbi et al., 2023](#)). Injuries that occur due to slow development as a result of excessive,

repetitive and long-term use of body parts are called chronic injuries. The load on body parts that occurs is not as big as the load, where the accumulation of the load has the potential to cause injury to a tissue ([Pol et al., 2019](#)). The increasing amount of training carried out along with scheduled match days causes chronic injuries to appear. From the data it was concluded that there were 60 athletes from 23 sports who had experienced chronic injuries. The large amount of body contact with others or infrastructure is the reason for the emergence of these chronic injuries. The sport where no injury occurs based on the time it occurs is chess.

From the results of data analysis on types of injuries to body tissue, there were 47 people with a percentage of 36.2% in the low category, in the medium category there were 69 people with a percentage of 53.1% and 14 people with a percentage of 10.8% in the high category. Musculoskeletal injuries occur in sports that involve running at high speeds ([De Vos et al., 2014](#)). Apart from that, the training location or terrain used when competing affects the injuries that occur. For example, motorbike racing and bicycle racing can cause friction on the ground if they fall and cause abrasions, martial arts sports cause friction with the opponent's skin if they come into contact and can cause bruising. Muscle injuries account for up to 46% of all injuries occurring in professional football athletes ([Rollo et al., 2020](#)). It was concluded that the type of tissue injury that occurred more frequently in Jepara PORPROV XVI Puslatkab athletes was in the low category of bone tissue. A sport that does not cause injury to body tissue is chess.

The results of the analysis of the location of upper extremity injuries in Jepara PORPROV XVI Puslatkab athlete 26.9%, on the elbow there were 19 people with a percentage of 14.6%, on the wrist there were 54 people with 41.5%, and on the waist there were 29 people with 22.3%. It was concluded that the location of upper extremity injuries that often occurred in Jepara PORPROV XVI Puslatkab athletes was the face. Sports with a high category of upper extremity injuries include handball, rowing, wrestling, hockey, karate, rock climbing, taekwondo and boxing, where these sports predominantly use the upper limbs. The majority of injuries are caused by contact with other players on the upper extremities, especially bruising on the head ([Vila et al., 2022](#)). On research [Brzezińska et al., \(2022\)](#) it was explained that the injuries that occurred were mostly caused by inappropriate training methods, exercises that were not appropriate to the athlete's fitness level.

The results of the analysis of the location of lower extremity injuries in Jepara PORPROV XVI Puslatkab athlete 6%, in the calf section there were 91 people with a percentage of 70%, and in the ankle section there were 63 people with a percentage of 48.5%. It was concluded

that the location of lower extremity injuries that often occurred in Jepara PORPROV XVI Puslatkab athletes was the calf. The presence of physical impacts and the use of lower limbs during matches with higher intensity increases the risk of injury, such as in athletics, bicycle racing, handball, rowing, futsal, wrestling, hockey, karate, rock climbing, diving, football, sepak takraw, taekwondo, and boxing. On research [Martín-Guzón et al. \(2022\)](#) showed that the high incidence of lower extremity injuries in handball athletes amounted to 4,483 out of a total sample of 7,110. The causes of injuries in games such as futsal, football, taekwondo, karate and sepak takraw often occur due to physical collisions with opponents or other objects during competition which predominantly involve the lower limbs ([Chussurur, 2015](#); [Massa et al., 2022](#); [Syam, 2019](#)). Lower extremity injuries vary depending on the characteristics of each country. The sport of chess has no history of injury based on its location.

CONCLUSION

From the results of the research and discussion in the previous chapter, it has been concluded that the type of injury based on the time of incident that often occurs in PORPROV XVI Puslatkab athletes in Jepara Regency is chronic injury. The type of injury based on the tissue affected which often occurs in PORPROV XVI Puslatkab athletes in Jepara Regency is bone tissue. The most common location of injury was in PORPROV XVI Puslatkab athletes in Jepara Regency, namely in the lower extremities in the calf.

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