

Analysis of Hand-Eye Coordination and the Concentration Level in the Accuracy of Shooting Petanque Athletes Pelatda Pon Aceh 2024

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Abstract. Aceh is one of the provinces considered in Petanque sports achievements. On this basis, the Petanque sport in Aceh continues to be fostered and trained so that it can maintain the achievements that have been achieved. As for one of the factors considered in shooting ability, hand-eye coordination, concentration, and balance based on experience and survey results conducted, there are several athletes whose hand-eye coordination, concentration, and balance are good and can be seen from the results of the match so far. Still, there are also athletes whose achievements are not improved with the same training program and treatment. The purpose of this study was to determine hand-eye coordination in Petanque athletes, to determine the level of concentration in Petanque athletes, to determine the accuracy of shooting in Petanque athletes and analyse hand-eye coordination and concentration levels, the accuracy of shooting in Petanque athletes. This study uses a quantitative approach. The design of this study is done by determining the population and the sample, namely Petanque athletes PON Aceh 2024, which amounted to 12 people. Data collection is done using hand-eye coordination tests, balance tests, concentration tests, and shooting accuracy tests. Based on the results of data analysis conducted with the help of SPSS V27 on the variables of concentration and hand-eye coordination on shooting ability, the R2 result was 0.700 at the confidence level of 0.05. So it can be concluded that concentration and hand-eye coordination are significantly related to shooting ability in Aceh PON Platda Pétanque athletes.

Keywords: Hand-Eye Coordination; Concentration; Petanque Shooting.

INTRODUCTION

Petanque sport is a traditional sport originating from France. Over time, it was developed as an achievement sport, a traditional game with the parent of the International Petanque sport called Federation Internationale de Petanque et Jeu Provençal (FIPJP), founded in Marseille, France, in 1958. Petanque is an iron ball game whose game aims to throw an iron ball as close as possible to a wooden ball target, commonly called Boka / Joke. And the foot must step on a small circle. Confederation Mondiale Sport Boules, Petanque is a form of boules game whose goal is to throw an iron ball (bosi) as close as possible to a wooden ball called a jack, and both feet must be in a small circle. There are also special competitions for shooting. The character of Petanque sports tends to require accuracy and concentration when playing this sport. Petanque sports can

be played by anyone, from children to adults. Several numbers are competed in Petanque sports, such as men's and women's triple, mixed triple, men's and women's double, mixed double, men's and women's single, and men's and women's shooting. There are two types of throws in Petanque sports: pointing and shooting.

Pointing is a throw approaching the target boka closer than the opponent's bosu, which begins the Petanque game strategy in the match. Pointing in Petanque matches is a strategy for defence. Usually, novice athletes use this strategy: shooting, a throw to repel the opponent's bosu from the target boka. Shooting is the most essential part of the Petanque game. If, in 1 team, the athlete's shooting ability is weak, the team will have difficulty attacking the opponent's ball. Shooting match numbers are carried out at a distance of six meters, seven meters, eight meters, and nine

meters with points that can be obtained: 0 points, 1 point, 3 points, and 5 points per successful shooting. Shooters are only allowed to shoot once per given discipline distance. The author [1], based on the purpose of its main mechanics, Petanque games are included in sports that aim to achieve maximum accuracy. This means the throws must be right on specific targets to get the winning points.

Concentration is a significant factor in sports, especially in the sport of Petanque. In sports, especially sports achievement, a factor plays a vital role in supporting or hindering an athlete's accomplishments. Authors [2] suggest that concentration is critical for an athlete performing in the field. The main component of concentration is the ability to focus on a particular thing and not be distracted by irrelevant internal or external stimuli.

Coordination is essential in the game of Petanque because good coordination will get the right throw; with balanced coordination carried out, the efficiency of the throw is also greater. According to [3], coordination is a complex motor skill for high performance. Coordination is a complex skill needed for high performance, meaning that an athlete will efficiently perform and observe a series of skills through good coordination.

The Indonesian Petanque Sports Federation, abbreviated as FOPI, was formed on March 18, 2011. In the same year, November participated in the Sea Games 2011 event in Palembang, Indonesia. Since then, KONI has better developed Petanque Indonesia by preparing the Training Center for athletes and building Petanque into a national sport. Furthermore, in 2015, Petanque was introduced in Aceh Province in conjunction with the National Student Sports Week (POMNAS) XIV 2015 in Banda Aceh.

Petanque sports in Aceh began to develop, especially among students. Although at that time, the sport of Petanque was still widespread, with time, Petanque started to be recognised among students. In 2017, PB FOPI held the National Student Championship throughout Indonesia at STOK Bina Guna Medan; with extraordinary determination, the USK Petanque team won the overall championship after obtaining three gold medals, one silver medal and two bronze. The Petanque sports branch began to develop and made many achievements in every national and international championship. Petanque sports include accuracy sports, which require Kosetrasi

and coordination. In addition, several factors greatly influence the sport of Petanque, including hand-eye coordination, concentration, and balance. The author [4] states that the character of Petanque sports tends to require accuracy. Anyone who wants to play Petanque, no matter what age, position, or gender, is allowed to play this sport.

Aceh is one of the provinces considered in Petanque sports achievements. On this basis, the Petanque sport in Aceh continues to be fostered and trained so that it can maintain the achievements that have been achieved. As one of the factors considered in shooting ability is hand-eye coordination, concentration, and balance based on experience and survey results conducted, there are several athletes whose hand-eye coordination, concentration, and balance are good and can be seen from the results of the match so far. Still, there are also athletes whose achievements are not improved with the same training program and treatment.

METHOD

The approach in this study is quantitative because this research is presented with numbers. This follows the opinion [5] that quantitative research is a research approach that is widely required to use numbers, starting from data collection, interpretation of the data, and the appearance of the results. The research method that the author uses is the quantitative descriptive research method. The descriptive method is used to describe or analyse a research result but not to make broader conclusions. The research location is where researchers conduct research, especially in capturing phenomena or research from the object under study to obtain accurate research data. Determination of the research location is done deliberately. The research was carried out in the USK FKIP Petanque field.

The population of this study consisted of KONI-assisted athletes, totalling 12 people. According to [5], the sample is representative of the population studied. The sample is part of the number and characteristics possessed by the population, while the sampling technique is called the sampling technique. The sampling technique in this study was total sampling. Total sampling is a sampling technique where the number of samples is the same as the population. The total sampling is taken because the population is less than

100. So, the number of participants in this study was 12.

The data collection techniques in this study are:

- 1) The hand-eye coordination test is done by throwing a tennis ball against the wall for 30 seconds;
- 2) The concentration test in this study was done using the grip conversion test. The grid concentration test is adopted from the thesis [6]. In carrying out this test, it is necessary to have 100 boxes containing numbers from 00 to 99 randomly.
- 3) Game shooting test – the steps taken to analyse the data are calculating the average value, correlation and Multiple Correlation.

RESULTS AND DISCUSSION

This study aims to determine the ability of hand-eye coordination and the concentration level on shooting accuracy in Petanque athletes PON Aceh 2024. Analysis requires tests or measurements of hand-eye coordination, concentration, and shooting accuracy. This involves a series of tests to get the results of the data obtained from each sample.

Data Description Analysis. The data were analysed using SPSS to find the Mean, Std. Deviation and two-way regression analysis. The analysis data can be seen in the following description analysis (Table).

Table

No	Name	Gender	Concentration (Quantity)	Hand-eye coordination (Frequency)	Shooting Ability (Total)
1	Agus Maulizar	Male	20	37	58
2	Ali Arwansyah	Male	17	37	49
3	Putra Sukma Cahyadi	Male	18	35	58
4	Aulia Akbar	Male	19	30	35
5	M. Khalil Qurdawi	Male	14	27	36
6	Alfianda Kenusi	Male	20	36	42
7	M. Muhlis Hariza	Male	22	38	62
8	Novi Lidya Isdarianti	Women	22	32	53
9	Rani Amellia	Women	18	30	42
10	Kurnia Eliyanti	Women	17	24	51
11	Nur Afni Rhamadayanti	Women	13	25	35
12	Neni Armaza	Women	17	20	40

Based on the data display of the results of the SPSS V27 analysis, it is known that the average value of concentration for all Aceh Pétanque athletes is 18.08, the average value of hand-eye coordination is 30.92, and the average value of athletes' shooting ability is 46.75.

Correlation / Regression Analysis

a. Regression Analysis of Concentration with Hand-Eye Coordination. The value of the regression analysis results or correlation between concentration and hand-eye coordination is 0.613 at the confidence level of 0.05. So thus, it can be said that $r\text{-count} < 0.05$, then it can be concluded that concentration significantly correlates with hand-eye coordination in Aceh Pétanque athletes.

b. Regression Analysis of Concentration with Shooting Ability. The value of the regression anal-

ysis results or correlation between concentration and shooting ability is 0.640 at 0.05. So, it can be said that $r\text{-count} < 0.05$. Then it can be concluded that concentration is significantly related to shooting ability in Aceh Pétanque athletes.

In Petanque shooting, eye-hand coordination is also related to technique and correct body position. The eyes must focus on the target while the hands execute the appropriate movements with the chosen method to achieve the desired result. Eye-hand coordination helps players respond quickly to changes in the environment, such as wind direction and speed or court surface conditions. It allows players to adjust their throws to remain accurate amidst such variability.

Thus, hand-eye coordination is vital in the ability to shoot in Petanque. Players who can develop and maintain good coordination between their

eyes and hands tend to be more successful in hitting targets and improving performance.

c. Regression Analysis of Hand-Eye Coordination with Shooting Ability. The value of regression analysis results or correlation between hand-eye coordination and shooting ability is 0.617 at the confidence level of 0.05. So it can be said that the R^2 0.617 < 0.05, then it can be concluded that hand-eye coordination is significantly related to shooting ability in Aceh Pétanque athletes.

Concentration in the game of Pétanque has a speciality that is quite important in producing points through shooting techniques. Petanque games are included in sports that aim to achieve optimal accuracy. This means that Petanque is a game that requires maximum precision and accuracy.

d. Regression Analysis of Concentration and Hand-Eye Coordination on Shooting Ability. The value of multiple regression analysis results between concentration and hand-eye coordination on shooting ability in Acehnese Petanque athletes is 0.700 at the confidence level of 0.05. So thus, it can be said that R^2 0.700 < 0.05. then it can be concluded that concentration and hand-eye coordination are significantly related to shooting ability in Acehnese Pétanque athletes.

In line with concentration, hand-eye coordination is the ability to control hand movements accurately according to instructions from the brain. Without good hand-eye coordination, athletes aren't expected to be able to shoot well and be right on target. Good hand-eye coordination positively impacts shooting Pétanque. In Petanque shooting, hand-eye coordination is essential to throw the ball with the precision needed to hit the target. This involves precise control over the force and direction of the throw. Various throwing techniques in Petanque require good hand-eye coordination. For example, in the "tir au fer" (no-step throw), players need to precisely control their hand movements to throw the ball directly at the target without any additional footsteps. Such techniques require good eye-hand coordination.

e. Hypothesis Test. The data shows that the significance score of 0.198 is greater than the α -value score (0.198 > 0.05). So, it can be said that con-

centration and Pétanque shooting ability are influenced. Furthermore, the significant value of X^2 is 0.262. the data shows that the significance score is 0.262 greater than the α value score, namely (0.262 > 0.05), so thus it can be said that there is an influence between hand-eye coordination and Pétanque shooting ability.

CONCLUSIONS

Based on the research, it can be concluded that hand-eye coordination has a significant relationship to shooting ability in Aceh Pétanque athletes, with an R^2 of 0.617 at the level of 0.05. Concentration is significantly related to shooting ability in Acehnese Pétanque athletes, with an R-value of 0.640 at 0.05. Concentration and hand-eye coordination are related considerably to shooting ability in Acehnese Pétanque athletes, with an R^2 of 0.700 at 0.05. There is an influence between concentration and Pétanque shooting ability with a T-score of 0.198, more significant than the α -value (0.198 > 0.05). Hand-eye coordination influences Pétanque shooting ability, with a T-score of 0.262 more critical than the α -value score (0.262 > 0.05). Concentration and hand-eye coordination have an essential relationship or interaction with the shooting ability of Pétanque sports, with an F-value of 0.004. the data shows that the significance score is 0.004 smaller than the α value score, which is (0.004 > 0.05) and the F-value (4.334) > F-table (4.103).

Based on the results of the above research, suggestions that can be proposed in this study for coaches, considering that concentration and hand-eye coordination have a relationship with each other on shooting ability, then they should be in coaching or training consistent with the development of these components by paying attention to variations and improvisation of training models. For research institutions, this research hopes to contribute valuable knowledge to improve Pétanque shooting ability and achieve better results. For sports students, it is expected that they can continue more comprehensive study in terms of population and variables, especially in the sport of Pétanque.

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