The influence of catching ball reaction speed training on the reaction speed of the goal keepers

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Abstract

This study aims to determine the effect of ball catching reaction speed training on goalkeepers for Islamic Attaraqqie students in Malang City. In this study, 16 meetings were held over 6 weeks, and 2 meetings were held for the pretest and posttest. The research was carried out at Madrasah Ibtidaiyah Attaraqqie and the pretest and posttest were carried out on the Malang State University campus. The samples taken were 5 goalkeepers from the Islamic Attaraqqie school, Malang City using the total sampling size. The method used in this research is an experimental method using the normality test and t test. The instrument used is a whole body reaction tool. For analysis, the normality test and T test were used. The results of data analysis obtained a value of $0.012 > 0.05$, which means the value is significant. Based on the results of the data analysis carried out, it was stated that there was a significant increase in ball catching reaction speed training on the goalkeeper's reaction speed among Islamic Attaraqqie students in Malang City.

Keywords: Training; Reaction Speed; Goal Keeper

INTRODUCTION

Sport is a form of body exercise or physical activity that is planned in a structured manner that involves repeated body movements with the aim of maintaining and improving physical and mental health to increase a sense of togetherness and a sense of competition in order to gain achievements (Ulfiansyah et al., 2015). Achievement sports include sports that aim to get a certain achievement. Achievement sports have a goal, namely, to achieve good results in competitions, both district, city, provincial, national, or international competitions. Football is a very lively professional sport in the world (Tarigan & Siregar, 2021). The game of football is a professional team sport that everyone likes the most. Football is also a very well-known sport, such as in Europe, America and Asia, football is very well known in Asia, especially in Indonesia. Football is a national sport, everyone can play soccer, both in official and regular soccer matches, with their feet, children play soccer both in cities and in rural areas. Football has now developed in many circles from small and large who play soccer. Football is played by 2 teams against each other on one field to win, each soccer club has 11 players and 1 player as a goalkeeper (Ulfiansyah et al., 2015). Goalkeepers must be smart and be able to make good decisions. Goalkeepers must be able to make the right decisions in any situation. Time in a fast match requires good movement from the goalkeeper. Nice precision and determination to do it. Goalkeepers must also have accurate vision of long balls, read the

direction of the ball, and most importantly read the movement of a free kick from an opposing striker (J. B. Saputra et al., 2017). It is not easy for someone to become a professional goalkeeper, it really takes a very long time to be able to have skills such as jumping, diving to save, these are skills that require serious practice. A goalkeeper must be able to maintain a perfect body position and must always be ready to face the ball from the opponent. A good position of a goalkeeper will determine the save movement of a goalkeeper, a good position will determine a goalkeeper can concentrate more. The various techniques that a goalkeeper must master are standing saves, diving saves and acrobatic saves (Andrianto & Widodo, 2021). With this technique, it is hoped that the goalkeeper will be able to master and make a good contribution to the team, because the goalkeeper is required to be able to face problems when he is facing an opponent while on the field. In general, a goalkeeper usually has the necessary talents such as strength, speed, accuracy, reaction speed, agility, and other abilities (Syahni et al., 2021).

Therefore, goalkeepers are required to master good movement speed to be able to block the ball. One of the exercises that can help goalkeepers practice catching the ball is reaction speed training (Apriliyanto, 2020). The ability to speed up a reaction is a trait that makes it possible to initiate a response quickly after obtaining a stimulus. The limitations that exist for this goalkeeper are the ability to react quickly and his appearance in matches is rare, which is caused by a lack of change or training model. The goalkeeper is the person the coach really relies on to guard the team's goal and protect against the opponent's attacks. The goalkeeper is the last bastion of a soccer team that can prevent the opposing team from scoring goals. The goalkeeper must have good posture and speed of reaction, because when the goalkeeper faces an opponent in front of the penalty box, hand speed is needed to block the ball so that the ball cannot enter the goal. One of the most important factors that every player needs is to have skill in every match. Football is a game that can change from time to time, the ball is always changing places quickly so that players can get opportunities to score goals. Therefore, skills are needed by every player to get good performance, especially for a goalkeeper (Rusmani, 2015). To keep the goalkeeper performing consistently and well during the game, the goalkeeper must have a good physique, including: 1) Explosive leg muscles. 2) Muscle strength. 3) Speed. 4) Balance. 5) Coordination (Eyes and hands) (Setioko & Purnomo, 2018). In addition, there is also a biomotor component that plays an important role in the goalkeeper's performance, namely the ability to react quickly. The time between receiving a stimulus and the emergence of a good response with a short time is usually called the reaction speed (Fauzi et al., 2021). Therefore, goalkeepers must be able and able to have all these components by

means of repeated training to be able to improve physical or reaction speed abilities (M. H. Saputra, 2017). A goalkeeper must be able to react quickly and precisely so that he can easily read the direction of movement of the ball that will be shot by the opponent. According to the analysis above, a problem was found with the goalkeeper. Goalkeepers at the school still don't have good reaction speed (Wicaksono & Kusuma, 2021). Therefore, what becomes difficult for goalkeepers is the skill to react quickly to be able to see and block the ball because they rarely do reaction speed exercises. There are still very few trainings using a variety of training models, therefore goalkeepers rarely do reaction speed exercises. A goalkeeper will find it difficult to react to headers or other balls, and if the goalkeeper does not have good reaction speed and concentration, the goalkeeper will find it difficult to face opponents during the match (Hidayat et al., 2022). In this regard, the researcher is interested in researching the effect of ball catching reaction speed training on the reaction speed of the Islamic Attaraqqie student goalkeeper in Malang City.

METHOD

This research is called experimental design research. This study uses a systematic method that is useful for eliciting relationships involving cause and effect phenomena (Jones, 2012). This research is to try an event, then see the results of the consequences, in other words, this research aims to try to identify several factors that will arise from a treatment given intentionally. This research was conducted with the aim of obtaining results during the treatment at the time of research (M. H. Saputra, 2017). The design in this study uses the one group pretest-post-test design method, namely the sample group which will all be given training, which will start with an initial test, and continue to provide treatment to the sample with a training load (treatment) for approximately 16 times. meeting, and later when the treatment period is over it will end with the final test. The population in this study were Islamic Attaraqqie goalkeepers aged 9-12 years in Malang City with a total of 5 children with the position goalkeepers. The technique for taking samples was carried out using total sampling, namely taking all samples with the goalkeepers who had been selected at the Islamic Attaraqqie Malang City school, so that students who participated in the training with a total of 5 children, this research was included in the population research category. The instrument in this study used the Whole-Body Reaction tool, then to find data it would use two tests, namely at the time of the initial test and the post test, which when carrying out the test students would be given 3 repetitions. The training will be carried out 16 times with a total of 3 exercises per week with 90-120 minutes each exercise.

The test that will be given is the goalkeeper's reaction speed test. To obtain some data at the time of the study, the researcher must conduct a test first to find out the ability of the sample so that they know how many portions of the exercise will be given. After being given a test, the sample was given treatment for 16 meetings with a training load. When you have finished giving the treatment, it will be followed by a final test in the hope that you can find out the results of the treatment. This test is useful to see the goalkeeper's ability to speed up the reaction by using a whole-body reaction test. Then the value will be taken from the best to the less good data at the time of the test. The following is an example of a tool image for measuring reaction speed (Whole Body Reaction).

Table 1. Whole Body Reaction Time Test Norms for men

No	Category	Time*
1	Spesial	0.001- 0.100
2	Very Good	0.101 – 0.200
3	Good	0.201 – 0.300
4	Fair/Moderate	0.301 – 0.400
5	Not enough	0.401 – 0.500
6	Less	0.501 – upp

*The tool unit is seconds (Ihsan et al., 2018)

The data collection technique for this study is by finding and obtaining objective and accurate data results from the results of the ball catching reaction speed exercise. This measurement test can be obtained by using the help of a measuring tool to help collect data results that will be carried out using the help of a measuring tool. The characteristics of the measurement results are expressed as a quantitative score that can be further processed statistically. With the help of these measurements we can get objective information to determine a person's achievement at a certain time. In this study, tests and measurements were carried out to obtain information about the goalkeeper's reaction speed through two tests, namely the test before treatment and after treatment by reading units. Data analysis was carried out, namely to verify the hypotheses that had been formulated. The hypothesis test is t-test. Data analysis uses SPSS to determine the results of the t-test, normality.

RESULTS AND DISCUSSION

This study aims to see the effect of ball catching reaction speed training on Islamic Attaraqqie goalkeeper Malang City. The results of the data that have been obtained during the pre-test and post-test are obtained based on the reaction speed ability of the Islamic Attaraqqie goalkeeper Malang City. This research was conducted from 17 December 2022 to 10 February 2023. The treatment was conducted in 16 meetings and had 5 respondents who obtained the data results which have been described as follows:

Table 2. Results of hand reaction tests on goalkeepers at Islamic Attaraqqqie Malang City students

No	Name	Pretest	Post test	Category / time	Decrease Results
1.	AZ	0.227	0.200	Second	0.27
2.	MF	0.500	0.294	Second	0.206
3.	SH	0.502	0.360	Second	0.142
4.	AM	0.358	0.217	Second	0.141
5.	AK	0.515	0.306	Second	0.206

In the initial test of this study, the sample was given a goalkeeper's reaction speed test, so that in this test the sample was not given reaction speed training to goalkeepers at Islamic Attaraqqie Malang City. At the time of the initial test, the results obtained from the reaction speed test for the goalkeeper of Islamic Attaraqqie Malang City students were the value of seconds, therefore the average reaction speed of Islamic Attaraqqie Malang City students was 0.4204 seconds.

In the final test of this study, the goalkeepers at Islamic Attraqqie Malang City had been given treatment or given a training load, therefore in this final research test the goalkeepers would know whether by doing the exercises given by the researchers their abilities were increasing or not. At the time of the final research test, the results of the reaction speed data for the goalkeeper of Islamic Attaraqqie Malang City students were seconds, therefore it can be seen that the average reaction speed for the goalkeeper Islamic Attaraqqie Malang City was 0.2754 seconds.

For the results of the analysis of the normality test for the distribution of variables, it is carried out using various exercises on reaction speed with the initial test data and the final test which are analyzed with the normality test statistics which have been described in the table below:

Table 3. Normality Test Results

Data type	Test Statistic	Asymp. Sig. (2-tailed)	Decision
Pretest hand reaction	0.337	0.066	Failed to reject H0
Post test hand reaction	0.211	0.2	Failed to reject H0

Based on the results obtained, namely the asymp.sig.(2-tailed) value for all data is greater than the significance level (0.05) so that the data used is normally distributed. Therefore the requirements or assumptions of normality in the paired sample t test have been fulfilled. Then a paired t test is given with the following hypothesis. Then by using SPSS the results of the paired sample t test test were obtained with the following results:

Table 4. T test results

test type	t	df	Sig. (2-tailed)	Decision
pretest dan posttest hand reaction	4.395	4	0.012	Reject H0

The t-test was used to test the hypothesis which reads "there is an increase in the reaction speed of catching the ball on the Islamic Attaraqqie goalkeeper Malang City", according to the results of the test data that has been carried out. If the results of the data analysis prove that there is a significant change, then the target has had an effect on increasing the reaction speed skills of the goalkeeper. If the t count > t table and the sig value is less than 0.05 (Sig < 0.05).

Based on the results above, it shows that the goalkeeper of Islamic Attaraqqie students in Malang who took part in the ball catching reaction speed exercise using various variations of the exercise experienced a significant increase. The increase in reaction speed was the result of treatment for 1 and a half months. The goalkeepers who took part in the ball catching reaction speed training used various variations of the exercise 16 times in meetings and 2 of them, namely the in pretest and the posttest experienced a gradual increase at the time the practice was carried out.

Basically reaction speed is a human skill that produces a response after receiving a stimulus. One of the elements that every football and futsal goalkeeper must have is to have good reaction speed. Not having good reaction skills, it is impossible for a goalkeeper to be able to put in a good performance to be able to stop the opponent's kicks. To increase the speed of a good reaction, namely by doing various ball catching reaction speed exercises (Wicaksono & Kusuma, 2021).

Different forms of exercise are different forms of exercise movement. Starting from the movement of the light, moderate, to the movement of the most difficult. Goalkeepers can also make one move into a series of moves depending on the situation at the time of the match. According to the results of the research data, it can be seen that there is an increase in the reaction speed of catching the ball training on the reaction speed of the goalkeeper at Islamic Attaraqqie Malang City. These results can be known by the description of the data as follows: The statistical value shows the T test sig. (2-tailed) with the results obtained 0.014, so the value of sig. (2-tailed) obtained >0.05.
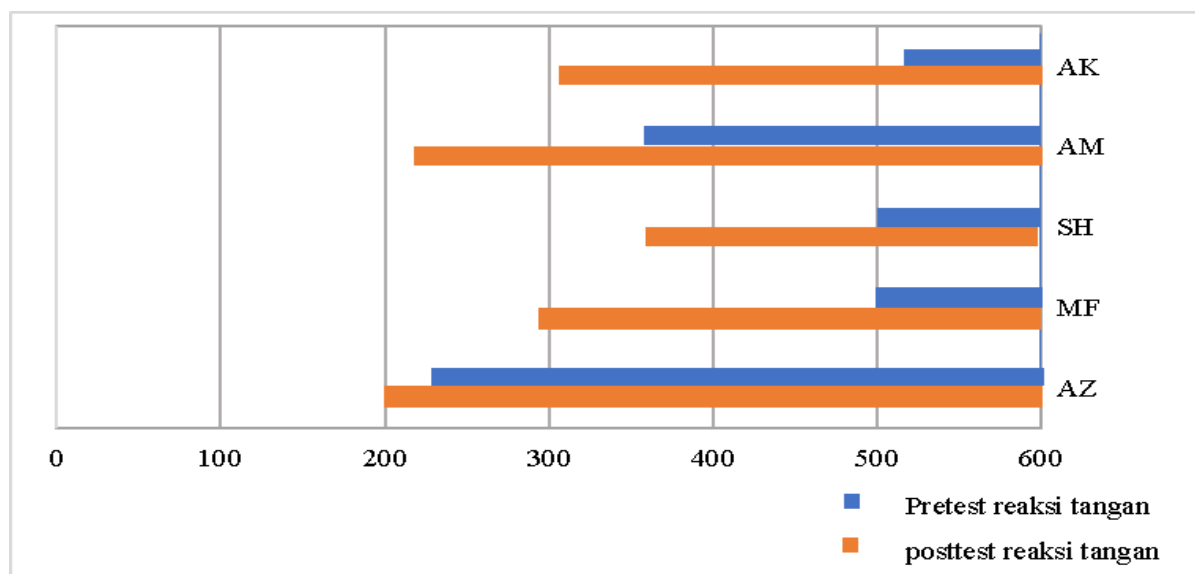
Figure 1. Graph of pretest and posttest data for the hand reaction of the goalkeeper at Islamic Attaraqqie Malang City

In Figure 1. It can be observed that the results of the initial test from Zaki obtained 227 and 200 final tests, Mawla 500 initial tests and 294 final tests, 502 initial test sabdam and 360 final tests, mudhoffar 515 initial tests and 306 final tests. From the needs analysis carried out, it can be concluded that the idea of this experimental research is that it is very necessary to develop varied forms of reaction speed training in ball games so that it can help coaches in creating training programs whose aim is to make athletes more accomplished and serious in practicing basic techniques. goalkeeper's reaction speed so that they can master the goalkeeper's reaction speed ability properly and correctly.

CONCLUSION

Based on the research and data processing, it can be concluded that there is an effect of ball catching reaction speed training on the goalkeeper of Islamic Attaraqqie Malang City students. Thus, we can conclude as follows: There is a significant influence on the results of the (pretest) and the (post-test) on the results of increasing the reaction speed of catching the ball in goalkeeper Islamic Attaraqqie Malang City. Then the results can be stated as follows: 1) There is an effect of catching the ball reaction speed training on the reaction speed of the goalkeeper of MI Attaraqqie Islamic Malang City students. 2) There is a significant effect of catching the ball reaction speed training on the reaction speed of MI Attaraqqie Islamic students Malang City.

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