

The Effect of Alternating Heading Exercises on Heading Skills at the Football Club

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Abstract: This study aims to find out: 1) the effect of *Heading* training on the ability of Heading in a football club at SMA Negeri 3 Tebing Tinggi Kabupaten Empat Lawang? 2) The Effect of Alternating Heading Exercises on *Heading* Ability at Football Clubs at SMA Negeri 3 Tebing Tinggi Kabupaten Empat Lawang? The research method used is experimental research. The population in this study was all Football Clubs at SMA Negeri 3 Tebing Tinggi Empat Lawang Regency with a total of 20 people, while the sampling technique used total sampling or census research with a total of 20 people divided by original pairing. The data collection technique uses a single *heading* test (*Juggling Heading*) football game for 30 seconds using forehead and measurement and using t test statistics. Based on the results of the study, it can be concluded that there is an influence of *alternating* Heading exercises on the *ability of Heading* in the Football Club at SMA Negeri 3 Tebing Tinggi Empat Lawang Regency. Taken together, the results showed that there was an effect of alternating heading exercises on the ability of *heading* in the Football Club at SMA Negeri 3 Tebing Tinggi Kabupaten Empat Lawang.

Keywords: Football Club, Heading Exercise, Heading Skill.

A. Introduction

Sports activities are carried out as forms of exercise, self-development, reaction, education, livelihood, spectacle of channeling human interests and talents, therefore sport is closely related to human cultural life (Kosasih, 1984). The problems of population distribution, urbanization, fast-growing community organization, the development of social structures in an independent country, the availability of leisure time due to mechanization, the problem of unemployment, and other problems, cause demands on the need for body movements to be higher. In this case, sports can be one of the most appropriate aspiration channeling containers.

Sport is essentially a body movement activity characterized by rhythmic and systematically arranged body movements intended to obtain fitness and health. This activity involves the organs of the body which is characterized by the process of involvement of all dimensions of the individual, both motion, cognition, affection and emotion. One sport that is quite popular in the community is football (Soegito, 1993).

The game of soccer is a sport that can be played by children, teenagers and adults, men and women. This game is very big for physical and spiritual development for people who do it, especially children and adolescents. Physical development in question is the formation of the body which includes anatomical, and physiological and physical abilities which include: *speed, agility, strong endurance, flexibility* and so on.

There are documents that prove that a game played by kicking a ball into a small net was used by Han dynasty soldiers in China in the second and third centuries AD. The soccer game is considered very useful for training the agility and strength of the Han dynasty army. In fact, historians now assume that the game of soccer was played in Kyoto, Japan long before the 2nd century AD. In parts of the European hemisphere, the ancient Greeks and Romans knew the game of soccer which played similar to modern football.

The development of football to become modern as it is today most often occurring in England. That's why when England hosted the 1994 European Cup, the slogan used was "*foot-ball is coming home*" or football in England incorporates elements of rugby into it. On December 8, 1862, the football association finally split into two camps. Thus, two sports were born, namely rugby and football (Martin, 2012).

Clubs started everywhere. In 1888, a Scotsman named William Me Gregor, the director of Aston Villa, lobbied 11 other clubs to form an English league. The 12 founding clubs of the Premier League are: Aston Villa, Accrington, Blackburn Rovers, Bolton Wanderers, Burnkey, Derby Country, Stoke City, Preston North End, Notts County, Wolverhamton Wanderers and West Bromwich Albion. The first Premier League match was held on September 8, 1888.

In Indonesia itself, the history of football occurred in 1938 where Indonesia made history, namely participating in the 1938 world cup. It was not Japan, South Korea, Saudi Arabia or other major countries in Asia who first participated in the world cup, but Indonesia (which that year was still called the Dutch East Indies). Although it immediately foundered in the first half, this achievement deserves our appreciation and is used as a trigger for enthusiasm to return to the world cup in the coming years.

What surprised the Indonesian people still using the name Dutch East Indies was forcing the Soviet Union, the giant of football at that time, to be held to a draw with a score of 0-0 in Moscow. The players who played for the Dutch East Indies were: Sutan Anwar, Tan Djien, Frans Meeng, Jack Sanniels, A Nawir, Tan Mo Heng, Henks Sommers, Suvarte Soedarmadji, Tjaak Pattiwael, Frans Hu Kom and Hans Taihuttu.

Football is one sport that demands high ability in the game. The movements that occur in the game are very complex. To be able to play football well is influenced by many factors. Physical, technical, tactical and mental factors are demands that must be met by every player. Physical, technical, tactical and mental factors are components that are interrelated and influence in achieving an achievement. To achieve achievements, these components must be trained and developed optimally. One of the fundamental components that must be mastered in order to play soccer well is mastering the basic techniques of playing soccer. "Playing technique is a fundamental completeness as a basis for playing, in addition to other coaching" (Soekatamsi, 1995).

This shows that mastering the basic techniques of playing soccer is the first step that must be taken in order to play soccer, in addition to training physically, tactically and mentally. Regarding the technique Andri (2010) stated "In the first two stages of the learning process, students do not have to be burdened mentally and physically. Therefore, learning techniques are still given at the first or beginning of the training session". The terms given to football vary. For countries that use English, they call this game as *football*, while for some other regions it is called *soccer*. Countries that use other languages call it *futbol* or *futebol*. In German or the language spoken by the peoples of the Scandinavian region is called *fussball* or *voetball* in Dutch. For Italians, this game is called *calcio*. And so on (Salim, 2007).

"Football is a game that is done by punting, which has the aim of putting the ball into the opponent's goal and defending the goal so as not to concede the ball. In playing the ball, each player is allowed to use all limbs except hands and arms. Only goalkeepers are allowed to play the ball with their feet and hands (Muhajir 2004)". Football is a team game where each team consists of 11 players. Usually, football games are played in two rounds (2 x 45 minutes) with a rest period of 10 minutes between the two rounds. Scoring goals against the opponent is the goal of every team. A team is declared the winner if the team can enter more goal balls and concede fewer balls compared to their opponents (Muhajir 2004).

1. Field



Figure 1. Football pitch

Source : <https://wikistatistika.com/gambar-ukuran-lapangan-sepak-bola/>

Here's a description of the size of the football field:

Length: 90-120 meters

Width: 45-90 meters

Center circle radius size: 9.15 meters

Diameter of the center circle: 18.3 meters

Length of goalkeeper box size: 18.3 meters

Width of goalkeeper box size: 5.5 meters

Penalty box size length: 39.2 meters

Penalty box size width: 16.5 meters

Goal Length: 7.32 meters

Wicket Height: 2.44 meters

Penalty Point distance from goal line: 11 meters

2. Basic soccer techniques

A soccer player must have knowledge of the rules and mastery of correct techniques. With the correct mastery of technique, a player will produce a good and beautiful game. Basic techniques in football must be owned by a player who will later support the game in a team. According to Sucipto et al, (2000) some techniques that soccer players need to have are:

Basic Techniques in Football Games

To be able to master the game of soccer well, of course, you must first master the basic techniques so that you can do various variations and combinations in attacking and defending. The basic techniques of the game of football, among others, are as follows.

a. Dribbling

- a) Dribbling using the didi of the outer leg
- b) Dribbling with the inner side of the foot.
- c) Dribbling using turtle-footed

b. Passing

- a) Passing using the didi of the outer leg
- b) Passing with the inner side of the foot.
- c) Passing using turtle-footed


c. Shooting



- a) Shooting using the outer leg didi
- b) Shooting with the inner side of the foot.
- c) Shooting using turtle-footed

d. Heading

Kicks are attack techniques and tactics used for long and medium distances by using the legs as an attacking component.

Types of Headings

| No. | Kind | Explanation | Picture |
|-----|---------------------------|--|---|
| 1 | Standing attitude heading | Prepare body position by standing, Then, the body faces directly in the direction of the oncoming ball, Next, bend both your legs and knees while leaning slightly towards the back, Don't forget to focus your gaze on the direction the ball is coming from |  |
| 2 | Heading by jumping | First, do a prefix with one part of the foot as a prefix or it can be without a prefix. Make jumps with the right timing. Header with the correct hitting of the ball is part of the | |

| | | | |
|---|--------------------------------------|---|---|
| | | forehead. Arakan to an empty field or direct it off the field to decide on a demanding (safer) opponent's attack. |  |
| 3 | Attitude heading floating in the air | First, pay attention to the direction in which the ball comes, Then, take a stake, Make a jump when the ball is within your reach, Header the ball in a floating condition and direct it to a target that is difficult for the opponent to reach, Finally, pay attention to the falling position of your body well, so as not to risk injury. |  |

Heading (heading the ball) one of the unique characteristics of football is that the head can be used to play the ball in the air. *Heading* bias becomes a very powerful weapon when carrying out attacks and is a deft defensive skill. The main requirement to become a reliable and good soccer player must be able to master the basic techniques of the game because this is an important capital in the application of the game. There are so many soccer players who have been technically correct but are still not perfect, including beginners. For example, in football games, especially *headers (headings)* carried out by the boys' football club of SMA Negeri 3 Tebing Tinggi, Four Lawang Regency.

"Players use their heads to head the ball. Players jump up to head the ball to pass the ball to his partner, to score a goal by directing the ball into the opponent's goal or to throw the ball into his goal. If in the right environment, the player's ability to head the ball will help a team to make *variative* attacks (Setyawan, 2010)". Effective heading practice begins with players forming a line at the penalty spot in front of the goal. Ball throwers (usually instructors or experienced players) who stand on one side of the goal box with a large supply of balls. The player in the first row ran forward. This player takes a turn *Heading*, picks up the ball, returns it to the pitcher and runs back to the end of the line. When the first player makes a *Heading*, the second player in the line runs forward and does the same thing the first player does. This activity is carried out very quickly. This activity is usually carried out by two players in pairs, or two ball throwers on both sides of the goal box who throw the ball to different groups.

According to Tangkudung (2006) an exercise program is a set of activities in training that are arranged in such a way that can be carried out by students/athletes, both regarding the number, training load and intensity of exercise. An exercise program is

a guide or guideline that binds in writing containing ways that will be taken to achieve goals in the future that have been determined (Suhendro, 2007). The preparation of an exercise program is one of the business strategies to achieve optimal performance.

According to Sukadiyanto, (2011) the purpose of training in general is to help coaches, coaches and sports teachers to be able to apply and have conceptual abilities and skills in helping to reveal the potential of sportsmen to reach the peak of achievement. While the main goal or *target* of training according to Harsono (1988) is to help athletes improve their skills and achievements as much as possible to achieve goals.

According to Sukadiyanto, (2011) the term exercise comes from an English word that can contain several meanings, such as: *practice, exercises, training*. But the term we mean here is the term *training*. Every sport has a way or method in training, which the exercise method defined by Suhendro, (2007) is a systematic and planned way that serves as a tool to improve physiological, psychological function and movement skills in order to have better skills in a special appearance.

Based on some of the opinions of the experts above, it can be concluded that training is a systematic process to improve human psychological and physiological skills to achieve specific goals. According to Sugiyono (2010) the hypothesis is a temporary answer to the formulation of the research problem, where the formulation of the research problem has been stated in the form of a statement sentence.

One solution that can be taken is that in this ball heading exercise can be given heading exercises alternately. Of these two types of exercises, it is not known exactly which exercise gives better results and effectively improves the ability to head the ball. Based on the description above, the author is interested in conducting research that is expected to contribute to coaches and facilitate students in mastery and basic skills in football games, for that the author will conduct research with the title *The Effect of Alternating Heading Exercises and Jumping Boxes on Heading Abilities in Football Clubs at SMA Negeri 3 Tebing Tinggi Empat Lawang Regency*.

B. Methods

This type of research is *quasi-experimental research*, because in this design the researcher does not control all outside variables that affect the course of the experiment. Johnson and Christensen (2010: 319) say that quasi-experimental research design is an experimental research design that does not provide full control of potential confounding variables, especially because it does not randomly assign participants to

the comparison group. Techniques which are useful for knowing the results of the *treatment* given. this research is one group research with the following research design:

$$O_1 X O_2$$

Information:

O_1 = *Pre-test*

According to Sugiyono (2010) population is a generalized area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied, and conclusions drawn. Based on the above opinion, the population of this study is students who are registered in the football club of SMA Negeri 3 Tebing Tinggi Four Lawang Regency as many as 20 students

The study population is the entire subject to be researched. The population in this study was all the spirits of students who participated in extracurriculars with a total of 20 people. The sample constitutes as part of the population. The sampling technique in this study is total sampling or called census research. This means that the study was conducted on all existing populations. Thus, all populations in this study were used as research samples so that the number of research samples was 20 students. This study contained four *variables*, namely two independent *variables* and two dependent variables.

1. The independent variable is the Heading Alternately exercise.
2. Dependent variable i.e. result of *Heading Ability*.

The data collection technique in this study used a sickle kick speed test. In this study using test techniques. More clearly about the test, Arikunto (2006) explains that: "a test is a series of statements, exercises or other tools used to measure skills, knowledge, abilities or talents possessed by individuals or groups". In this study researchers conducted a test of playing the ball with the head (*Heading*), the purpose of this test was to measure the skill of heading and controlling the ball with the head, the equipment used to carry out the *Heading* test as follows:

Equipment: 1) Ball; 2) Whistle; 3) Stopwatch; and 4) Format

Implementation:

- 1) On the "ready" cue. The testee stands free holding the ball in possession.
- 2) On the "yes" cue. The testee throws the ball over his head and then plays the ball with his forehead.
- 3) Do this motion task in place for 30 seconds.

4) When the ball falls, the testee takes the ball and plays it where it is taken.

Scoring: score is the number of balls played with a valid (correct) forehead for 30 seconds. This means that a testee is given the opportunity for 30 seconds to do *Heading* on the spot (Nurhasan, 2001).

After the data is obtained and processed then tabulated using a predetermined formula, namely uji normality is carried out as a consideration material used to test the normality of the data, a frequency distribution list is needed to determine the average, to test whether the data is normally distributed, then a curve slope test is used with the *person coefficient* formula, namely (Sudjana, 2005):

$$K_m = \frac{\bar{x} - M_o}{S}$$

The steps to test data normality are as follows.

a) Find the average of each group of data with the formula:

$$\bar{x} = \frac{\sum f_1 x_1}{f_1}$$

Information:

X = average

F₁ = class interval

X₁ = frequency

To find the average (*mean*) difference between *pre-test* and *post-test*, the following statistical formula is found.

$$Md = \frac{\sum d}{n}$$

To answer the hypothesis, the statistical formula of the t test (*t - test*) is used as follows.

$$t = \frac{Md}{\sqrt{\frac{\sum X^2 d}{N(N-1)}}}$$

(Arikunto, 2006)

C. Results and Discussion

The data collected from the results of the study include: (1) the description of the research data includes the independent variable, namely the Heading Alternately exercise, while *the* dependent variable is *Heading Ability*, (2) testing data analysis requirements, which includes normality tests, (3) hypothesis tests using regression statistics, (4) discussion.

Description of Observation Data

This research data consists of initial test data and final tests with variables including, independent variables consisting of alternating *heading* exercises (X) and bound variables namely *Heading Ability* (Y). Sample determination in following the exercise program is obtained from initial test data and divided into ordinal pairing.

Data analysis

Data normality test is a condition that must be done before hypothesis test data, data tested from *pree-test and post-test* results, using person coefficients

Table 1. Pre-Test And Post-Test Lay-Up Shoot Siswa SMA Negeri 1 Tebing Tinggi, Empat Lawang

| No. | Name | <i>Pre-test</i> | <i>Post-test</i> | Gain (d) <i>Post-test - Pre-test</i> |
|-----|-------------------|-----------------|------------------|--------------------------------------|
| 1 | Aditia Saputra | 10 | 14 | 4 |
| 2 | Agung Apria Sakti | 19 | 21 | 2 |
| 3 | Ardiansyah | 20 | 22 | 2 |
| 4 | Asep Syahputra | 10 | 13 | 3 |
| 5 | Bobi Andika | 9 | 11 | 2 |
| 6 | Charles Meren | 11 | 14 | 2 |
| 7 | Dafit Trinando | 18 | 20 | 2 |
| 8 | Deny | 5 | 7 | 2 |
| 9 | Eko Purnomo | 15 | 16 | 1 |
| 10 | Junaidi | 12 | 15 | 3 |
| 11 | Kms. Yuda Adipati | 7 | 10 | 3 |
| 12 | Khoiri Saputra | 19 | 21 | 2 |
| 13 | Mailan Thomas | 22 | 24 | 2 |
| 14 | M. Raden Rahmat | 13 | 16 | 3 |
| 15 | M. Syarif | 11 | 12 | 1 |

| | | | | |
|----|------------------|----|----|---|
| 16 | M. Yoki Fauzi | 15 | 18 | 3 |
| 17 | Rio Andesta | 16 | 19 | 3 |
| 18 | Sandi Agus Tuwih | 5 | 9 | 4 |
| 19 | Susanto | 12 | 15 | 3 |
| 20 | Wijaya Pradika | 20 | 23 | 3 |

Preliminary Pree-test Results

Heading ability test results obtained preliminary test results. Briefly, the data is expressed by descriptive statistics, namely, the average value (mean), standard deviation (standard deviation), the lowest value (minimum) and the highest value (maximum). Statistical calculations are performed using t-tests. The mean was 13.35. In addition, while the median value is 8.5. The initial test variance value was 5.008, while the minimum and maximum values were 5 and 22 respectively. The total (sum) of the initial test scores of the jump box exercise was 71.

Final Test Results Post-test

Heading ability test results obtained final test results. Briefly, the data is expressed by descriptive statistics, namely, the average value (mean), standard deviation (standard deviation), the lowest value (minimum) and the highest value (maximum). Statistical calculations are performed using t-tests. The mean is 16.25. The final test variance value was 3.58, while the minimum value and maximum value were 7 and 24 respectively. The total (sum) of the initial test scores of the box jumping exercise was 93.

Test the hypothesis

After the data is declared normally distributed, then hypothesis testing can be carried out thus the formula used is the t-test, the t-test result is 11.6.

From the results of research on the effect of alternating heading exercises on heading ability in soccer games. In the analysis of research data that has been carried out by the author by means of alternating heading practice tests. Judging from the average results of the initial test juggling heading of 12 and the final test of 14. This influence is also shown by the statistical testing test t test where the calculation results are obtained $t_{count} = 11.6$ and $t_{table} = 1.70$ based on the test criteria, it is stated that $t_{count} > t_{table}$ or $11.6 > 1.70$ means that there is a hypothesis that there is an effect of alternating heading exercises on the ability to heading in clubs' football at SMA Negeri 3 Tebing Tinggi Kabupaten Empat Lawang. The final test results show that the student's ability level has improved (Salim, 2007; Joseph, 2011).

D. Conclusion

Based on the results of the study and the results of statistical analysis conducted on the football club of SMA Negeri 3 Tebing Tinggi Empat Lawang Regency, the results were concluded. There is a significant positive influence of *Heading* training on the football club of SMA Negeri 3 Tebing Tinggi Kabupaten Empat Lawang.

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