



Effect of Exercise Methods and Agility on Basic Technical Skills in Soccer Games Aged 13-17 Years

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Abstract: This study aims to determine: (1) differences in the effect of the part and overall training methods on the skills of basic techniques in soccer games for players aged 13-17 years (2) differences in the effect of high and low agility skills on basic engineering skills in soccer games for age players 13-17 years, and (3) the interaction between part and whole training methods and agility (high and low) on the Basic Engineering skills in Football Games for players aged 13-17 years. This research method uses experimental design with 2 x 2 factorial design. The sample of this study is 10 students taken by purposive sampling technique. Data analysis techniques using ANOVA. The results of this study indicate that: (1) there is a significant difference in the effect of part and overall training methods on basic technical skills in soccer games for players aged 13-17 years, (2) there is no significant difference in the ability of high agility and low agility. on basic technical skills in soccer games for players aged 13-17 years, (3) there is a significant interaction between part and overall training methods and agility (high and low) on basic technical skills in soccer games for players aged 13- 17 years.

Keywords: Training Methods, Agility Skills, Football Games

1. INTRODUCTION

Basically, sport is important for human. Sport is an activity to exercise our body to make our body is healthy and fresh both of physical and spiritual. Regular sport activity can give advantages for human completely growth and development in their life time therefore sport activity is needed to be built up and developed from family, school and social environment.

Indonesian still clean up by developing in every field such as sport which occupy strategic position and a part of national development. Jamalong[1] state that coaching and developing sport is a part of the effort of human quality enhancement which is referred to human physical health enhancement, mentally, and spiritual as well shape the character and personality, discipline, and high sportsmanship, as well prestige enhancement which can raise the sense of nationality.

The matter contains meaning that the developments of Indonesian people have to occur in harmony between physical quality enhancement and spiritual mentally. Besides, the thing that cannot be forgotten is prestige enhancement which can grow the national sense of pride through the prestige of sport. The dignity of the nation can be upraised to sitting equally low and standing tall with other nation in the world.

Soccer player is dominated by the mastery of fast passing ball among players. Fast playing is usually supported by the quality of good passing because it is important to make the tune of playing and ball mastery in the field. Such as in professional soccer team where the team soccer can master the ball very well, fast flow of the ball, accurate passing, good dribbling, nice shooting, teammate supported each other, opening space for movement, solid cooperation and individual skill making a good team.

A soccer player must have the good basic soccer skill such as their mastery of the basic techniques. The basic soccer skill is the skill which show the level of proficiency and the level of success which

consistent to achieve the effective and efficient goal. Therefore, to be a good soccer player must know the techniques of soccer which consist of basic technique of kicking the ball, stopping the ball, herding ball, heading ball, throwing in [2, 3].

Moreover, in soccer also covers two basic motion skills or the technique which must have been owned and mastered by the player such as motion or the technique without and with the ball [4, 5]. Technique without the ball relate with the player skill in running with short or long step because they have to change the speed of running, while the motion with the ball relate with ball feeling, shooting, dribbling, receiving and controlling the ball, heading, feinting, sliding tackle- shielding, throw-in and goal keeping.

The player's interesting to learn a skill is caused by the method of training. The method of training can be such as applying the ways of learning to make the process of learning can occur well and the goal can be achieved.

In soccer, the accuracy in motion when doing the basic technique is needed, such as when facing the opponent, doing penetration, finding good position to make teammate is easy to give decoy. This case is affected by the agility of soccer player. The agility is one of the components of physical health which is very essential for all activities which need the speed change of body position and its parts. Besides, the agility is a precondition to learn and improve the skill of motion and sport technique, mainly motions which need coordination motion. Moreover, the agility is very important to kinds of sport which need the ability of high adaptation toward the changes of situation in its implementation.

The agility is someone's ability to the change the direction fast and rightly when running in full of speed without balanced lost [6]. Another definition, the agility is a skill to change the direction and position or its parts appropriately and fast[7]. Characteristic and agility is the change of running direction, body position, the direction of the parts of body. Someone ability in doing sport activity depends on the ability in coordinate the system of body motion by response toward the condition and situation faced and able to control sudden motion. The ability of soccer basic skill cannot be separated from good physical condition and one of the factors which can affect the soccer basic skill is agility.

The effect of agility in basic technique ability in soccer is very dominant; if the basic skill of player is weak it will make them difficult to play skillfully and optimally. Good basic technique skill can affect the player's performance both in training and matching. Therefore, the agility in basic technique skill is a requirement to achieve maximum prestige for players in soccer.

The effort of improving player's ability in mastering soccer skill depends on the creativity of the coach. Most of coaches didn't pay attention to the method of training; they only rely on their personal experience without take a part in training activity as a coach. The result is they are not competent to do their profession competently.

Coach in every sport must have a goal to achieve prestige as much as possible. According to Sukadiyanto & Muluk [8] "more progressive means in the implementation of training is done from easy to difficult, simple to complex, general to specific, part to whole, light to weight, as well advanced to sustainable", therefore every prestige that player's achieve is not separated from the process they have done in practice.

Good training program should be arranged varied to avoid saturation, reluctance and restlessness psychologically[8]. The method of practice is the way taken in practice which is used to improve the quality of athlete in improving the prestige of the athlete.

An appropriate practice method applying in training process such as part method and overall method are expected able to give the good effect for the development of players' quality especially in the basic ability of soccer for soccer player in Badai Samudra team FC KarumbuBima District aged 13-17 by applying two different methods of training. By applying these methods, coach will find out where the appropriate method which can be used to train the basic skill of soccer player in Badai Samudra team FC KarumbuBima District aged 13-17.

Applying the method of part and whole practice are expected will give the chance for coaches in utilize available facility as much, therefore it make them easier to do the process practice well.

The researcher also expect that in applying the part and whole method of practice, basic soccer skill will give convenience for coach to train Badai Samudra Team FC aged 13-17 LangguduBima district West Nusa Tenggara.

In the process of training also need good cooperation between coach and players to support the success of training process. Good characteristic of coach and player is they have good motivation in training. That means that good motivation enable each individual can work better in their group. Good performance is showed by motivation and good skill, therefore the goal set can be achieve well.

Based on the introduction above, the research want to conduct the research which entitle “Effect of Exercise Methods and Agility toward Basic Technical Skills in Soccer Games in Badai Samudra FC Karumbu Bima district Aged 13-17 Years”

2. METHOD

The method used in this research is experimental method by true experiment. This research is experimental which aims to compare two different treatments in research subject.

Table1. *Research Design Framework*

| Dependent Variable Intervening Variable | Training Method | |
|--|----------------------------|-----------------------------|
| | Part Trainning Method (A1) | Whole Trainning Method (A2) |
| High Agility (B1) | A1B1 | A2B1 |
| Low Agility (B2) | A1B2 | A2B2 |

To make sure that the research design is adequate to evaluate the research hypothesis and research result, the research did the validation toward the variable which includes internal validation (history, maturation, pretesting, measuring instruments, statistical regression, the differences in choosing the subject, maturity interaction and selection) and external (ecological population).

Giving treatment will conduct for six weeks, including giving treatment by meeting frequency in each experimental group in three times a week which is Monday, Thursday, and Saturday.

The duration of training is ninety minutes in every meeting, the number of meeting in each experimental group is sixteen times plus twice meeting to conduct pre-test and post-test. The practice is begun in 15.30 s/d 17.30 WIB. This case related with Bompa&Haff’s[9]state which means that to make body adapt well with the weight of training received.

The population in this research is the whole research subjects used as target research.so the population in this research is the players in Badai Samudra FC aged 13-17 which is 37 of athlete. Sample of research is determined by purposive way which done by giving the same treatment in every subject chosen as sample. Technique of sampling used all the population. From the number of population, the researcher conduct the test of agility which obtain from illionis agility run test which done twice and taken the best. The result obtained is arranged the score from high to low score.

The data from the test result motoric ability is used to classify the sample which has high and low agility. According to Miller (2002) there are three steps to analyze the data; (1) arranging the test to determine the high and low score, (2) determining 27 percent the high score and 27 percent low score by set them in the same group, tough 27 percent of high and low group are considered the best to maximize the differences between two groups or using every percentage which is 25 percent until 33 percent, (3) accounting the number of the right time response in test in each group.

Classifying the group by this way is more objective for all research subjects. This case based on the same chance for all objects to include in each group. After divided in four groups, every high and low agility group do the pretest by using test of instrument developing the skill by David Lee before giving the treatment.

The data in this research is collected through the test which conducts by pretest and posttest. Instrument of test is the test of agility and developing skill David[10]. The test of agility aims to measure the students’ agility and as a measuring tool to see the development of student’s agility. While the test of developing of agility David Lee aims to measure the skill of several basic skill of soccer. The category of assessment used to measure soccer basic skill is presented in table 2[11].

Table2. *The Category of basic technique soccer skill assessment*

| Taking Time | Category |
|----------------------|-----------|
| < 34 second | Very Good |
| 40,78 - 34,81 second | Good |

| | |
|----------------------|-----------|
| 46,76 - 40,79 second | Enough |
| 52,73 - 46,77 second | Less |
| > 52,73 | Very Less |

Before the instrument of test used, the verification of validity and reability estimation are done first. The content of index validity in this instrument is about 0,941, while index of reability in this test is about 0,939. Index of reability of this test is estimated by using internal consistent method (Alpha-Cronbach). Technique of data analyzing used is this research is SPSS 20 by using ANOVA two ways on significant level $\alpha= 0,05$. To compare the average couple of treatment used Tukey test[12]. Before ANOVA two ways used, it needs to do precondition test which include normality test and variant homogeneity test. After the precondition test is done, then the researcher conducts the hypothesis test.

3. RESULT

The result obtained from the research is general description about each variable related to this research. The general description will show pre and pra-condition from each variable by conducting the processing of data after the data collected for period of training. The result of processing data is presented on table 2.

Table 3 gives the information that from every combination of training method by level of agility, there is enhancement of basic technique skill. The highest enhancement occur in combination between the whole training method with high agility which is 4,60. While the lowest enhancement

Table3. Data Description of Basic Technique Skill Result Based on Method Andagility

| Training Method | Agility | Statistics | Pretest | Posttest | Gain |
|-----------------------|---------|------------|---------|----------|------|
| Part Training Method | Low | Average | 46,93 | 43,4 | 3,82 |
| | | SD | 2,83 | 3,17 | 1,2 |
| | High | Average | 33,4 | 30,8 | 2,9 |
| | | SD | 2,17 | 1,99 | 0,7 |
| Whole Training Method | Low | Average | 30,4 | 27,8 | 2,31 |
| | | SD | 2,17 | 1,99 | 0,7 |
| | High | Average | 45,1 | 40,8 | 4,5 |
| | | SD | 3,14 | 3,16 | 0,96 |

3.1. Precondition Test

The data which will be tested its normality is the result of basic skill pre-test. Based on statistics analysis of normality test which has been done by using Shapiro Wilks test, it is obtained that every significant value in each group of data show the significance value of p is bigger than 0,05 ($p > 0,05$). It can be concluded that every group of data distributed normally.

Test of homogeneity is conducted toward the data obtained both of pre-test and post-test. Homogeneity test is used to evaluate the similarity of variant between one group to another group. Based on the statistical analysis of homogeneity test which has been done by using Levene test, it is obtained that the significant value of Levene test in data of pre-test is about 0,367 which is bigger than 0,05. Similarly with post-test where the significant value is about 0,949 is bigger than 0,05. It shows that the data used both of pre-test and post-test are homogeny.

3.2. Hypothesis Examination

Research hypothesis examination is conducted based on the data analysis result and interpretation of variant analysis two way. Varian analysis two way is used to evaluate the main effect toward the result of basic technique skill enhancement in soccer in Badai Samudra Fc player in KarumbuBima District aged 13-17. Pairwise comparison test is done as steps of average test after ANOVA to know the different average in detail.

Hypothesis I

| | |
|----------------|---|
| H ₀ | There is no significant difference effect on the part training and whole method toward the basic technique skill in soccer in Badai Samudra FC player in KarumbuBima District aged 13-17. |
| H _a | There is significant effect in part and whole training method toward basic technique skill in soccer in Badai Samudra FC player in KarumbuBima District aged 13-17. |

Based on result analysis as presented in table 4 which obtained information that significant value from F is smaller than α , which is about $0,00 < 0,05$. Therefore, H_0 need to be denied and receive H_a .

Table 4. ANOVA result in part and whole training method group

| Source | Type III Sum of Square | df | Mean Square | F | Sig |
|-----------------|------------------------|----|-------------|------|------|
| Training Method | 135,88 | 1 | 135,88 | 13,9 | 0,00 |

Hypothesis II

| | |
|-------|--|
| H_0 | : There is no significant difference of the ability of high and low agility toward basic technique skill in soccer in Badai Samudra FC player KarumbuBima District aged 13-17. |
| H_a | : There is significant difference of the ability of high and low agility toward basic technique skill in soccer in Badai Samudra FC player KarumbuBima District aged 13-17. |

Based on analysis result as presented in table 5, it is obtained the information that significant value of f is smaller than α , which is about $0,575 < 0,05$. Therefore, H_a need to be denied and receive H_0 .

Table5. ANOVA result in high andlow agility group

| Source | Type III Sum of Square | df | Mean Square | F | Sig |
|---------|------------------------|----|-------------|------|------|
| Agility | 3,09 | 1 | 3,09 | 0,32 | 0,58 |

Hypothesis III

| | |
|-------|--|
| H_0 | : There is no significant interaction between part and whole training method and high and low agility toward basic technique skill in soccer in Badai Samudra FC player KarumbuBima District aged 13-17. |
| H_a | : There is significant interaction between part and whole training method and high and low agility toward basic technique skill in soccer in Badai Samudra FC player KarumbuBima District aged 13-17. |

Based on analysis result as showed on table 6, it is obtained the information that significant value from F is smaller than α , which is about $0,00 < 0,05$. Therefore, H_0 need to be denied and received H_a .

Table6. ANOVA result in method and agility group

| Source | Type III Sum of Square | df | Mean Square | F | Sig |
|--------------------|------------------------|----|-------------|-----|------|
| Method and Agility | 3621,55 | 1 | 3621,55 | 370 | 0,00 |

After tested, there is interaction between part and whole training method and high and low agility toward basic technique skill in soccer in Badai Samudra FC player KarumbuBima District aged 13-17, therefore it need to be more tested by using Tukey test. More result is presented in table 7.

Table7. Result Test of Post-Hoc

| Group | Interaction | Mean Difference | Std. Error | Sig. |
|-------|-------------|-----------------|------------|-------|
| A1B1 | A2B1 | 1,35 | 0,47 | 0,012 |
| | A1B2 | 0,78 | 0,48 | 0,122 |
| | A2B2 | -0,71 | 0,53 | 0,203 |
| A2B1 | A1B1 | -1,35 | 0,47 | 0,012 |
| | A1B2 | -0,73 | 0,33 | 0,045 |
| | A2B2 | -2,23 | 0,41 | 0 |
| A1B2 | A1B1 | -0,78 | 0,48 | 0,122 |
| | A2B1 | 0,73 | 0,33 | 0,045 |
| | A2B2 | -1,64 | 0,41 | 0,001 |
| A2B2 | A1B1 | 0,71 | 0,53 | 0,203 |
| | A2B1 | 2,23 | 0,41 | 0 |
| | A1B2 | 1,64 | 0,41 | 0,001 |

Table 7 show that whole training method group with high agility (A2B2) is better than three other groups (A1B1, A1B2, A2B1). On the other hand, part training method group and low agility (A1B1) is better than two other groups (A1B2 and A2B1). It means that player with low agility is suitable trained by part training method. While, for player with high agility is suitable trained by using whole training method.

4. DISCUSSION

The result of analysis show that there is significant different between part and whole training method toward basic technique skill in soccer of Badai Samudra FC player KarumbuBima District aged 13-17, where whole training method is higher (better) than part training method. This finding is parallel with the statement from Sugiyanto[13], he states that whole training method has excellence in material given to the player related to the technique of basic skill compare with part training method. Suhendro[14] confirm that statement from Sugiyanto[13] that part training method more emphasize on the integrity of material given[15]. It means that the integrity of material given has positive effect in improving the technique of basic skill of children.

The next finding also show that there is significant difference in high and low agility toward basic technique skill in soccer of Badai Samudra FC player KarumbuBima District aged 13-17.

The parallel statement from Kiram [16] states that basically basic skill is an action which needs smooth motion activity which have to be learnt to get the shape of right motion. In the other hand, Sukadiyanto[8] states that the agility is combination between speed, flexibility, and coordination. It means that mastering of basic technique skill is not only observed from the speed of someone' motion but it is more to the accuracy and consistency from motion. In this condition, children with 13-17 aged with both high and low agility is possibly will have difficulty in the consistency of right motion.

The last finding shows that there is a significant interaction between part and whole training method and high and low agility toward basic technique skill in soccer player of Badai Samudra Fc KarumbuBima District aged 13-17. This case means that not all training method is suitable for soccer player aged 13-17 relate with basic technique skill of soccer where the player with high agility is suitable trained by whole training method and player with low agility is suitable trained by part training method.

This finding is parallel with Sugiyanto's[13] statement, he states that the important thing to be considered in applying whole or part training method is relate with the characteristic of motion learnt, such as level of difficulty of organization and complexity level of motion. Statement from Sugiyanto[13] is confirmed by Harsono[17], he states that part training method is more suitable applied to beginner. It means that there is an interaction between training method and agility in learning basic technique skill.

5. CONCLUSION

Based on analysis result and discussion, it can be concluded that there is significant difference in part and whole training method toward basic technique skill in soccer in player with 13-17 aged, there is no significant different effect of high and low agility skill toward basic technique skill in soccer player aged 13-17, there is significant interaction between part and whole training method and high and low agility toward basic technique skill in soccer player aged 13-17.

Based on the result of finding research, there is suggestion for coach to use whole training method to improve the ability of basic technique skill in soccer. For next researcher is suggested to do more strict control in all circuit experiment. This control is done to avoid the threat from external and internal validity.

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