

The Effectiveness of Shooting and Sprint Training Variations on Shooting Improvement for 13-15 Year Old Soccer Players

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Abstract : The purposes of this research are to test: (1) the influence of shooting training variation on soccer shooting improvement, (2) the influence of sprint training variation on soccer shooting improvement, (3) the difference between shooting training variation and sprint training variation on soccer shooting improvement. The method of this research was the experiment of the randomized Solomon four group design. The instrument of this research was a modification shooting test. The technique of analyzing data was ANAVA. This research showed that (1) there was a significant influence of shooting training variation on soccer shooting improvement, (2) there was a significant influence of sprint training variation on soccer shooting improvement, (3) there was a significant difference between shooting training variation and sprint training variation on soccer shooting improvement

1 INTRODUCTION

A sport is generally regarded as any activities that aim to be physically and mentally healthy. The scope of sport can be very broad especially now that it is a part of life for every human being and it cannot be separated from human life. Even very common indoor and outdoor activities can be regarded as sport. In its development, a sport can bring a positive value to the perpetrators, and contribute to the system of sustainable development. Through sport, a nation can increase its popularity in the world. These show that the role of sport is very important for every individual or group. Coaching in sport is also very important and cannot be ignored because it has a very large role for survival as well as for the recognition of the ideal national development.

In addition to achieve physical and spiritual fitness, the sense of achievement in sport is fostered and developed. The progress of science and technology is currently enabling sports experts to find many new discoveries, in terms of sports theories, training techniques, sophisticated

equipment that are useful to support the improvement of sports achievements.

Sports achievements are not as easy as turning a hand or saying a word. Sports achievements are everyone's dream, but it is important keep in mind that having sports achievements is quite difficult. It requires good coaching, including physical training, technical training, and mental coaching. To achieve this, players must have four components of good performance, especially in physical and technical conditions.

Sports achievements need to be fostered and accompanied by strong motivation to achieve good results. There are many sports available, including soccer. Soccer, or football is a type of sport that is very popular in the world, including Indonesia. Some consider soccer as a destiny. It involves various ages. Even many children now know about soccer through their idols on the field. Nowadays, soccer is sought after and loved by almost everyone on earth.

To date, there are no sports that receive the most lively and uproarious welcome from people around

the world except soccer (Rengga and Tjahja, 2016). Soccer is a team sport that requires team work and cohesiveness between each player. There are five main factors that should be owned by soccer players to gain the achievement. These factors include physical, technique, tactic, strategy, and motivation. Also, a team must be filled with qualified individual players whom are able to apply soccer techniques perfectly. Soccer performances are characterized by interaction between technique, tactic, physical, physiology, and psychology components (Praca, 2015).

Soccer is not about who is the fastest, strongest, or the most aggressive on physical, technique, tactic, and mental that distinguish it from soccer on a competitive level (Gioldasis, 2017). Many people assume that the purpose of soccer is to score a goal and to win the competition. That belief is not entirely wrong. To be able to do that, the coach should think about how to score a goal and try to keep the opponent team fail at scoring goals. Scoring a goal to the opposing team and holding off the opponent's attacks are not easy tasks to do. Instead, it requires technique, tactics, and cohesiveness of a team. Basic techniques are really crucial in sport especially soccer. It will make it easier for a coach to develop individual skills of each player. A coach of elite soccer will keep trying to find out the most effective formulas to identify and develop talented young players.

Shooting is one of the important fundamental techniques to create an opportunity to score a goal. Shooting is a powerful kick using the back of the foot. Scoring a goal can be done by using a shooting technique. However, there are still many players that are wrong in applying shooting technique. It happens not only to amateur players, but also to professional national and international players, so that they cannot win the competition.

Shooting training must be done regularly and continuously to achieve goals. However, there are many coaches whom train shooting technique improvements do not have varied and regular programs. Then, it causes the players to forget and get bored easily. To improve shooting skill of a player, the training should vary. Training variation in soccer can be implemented with various forms or methods to achieve the training goals. The purpose of training variations is to avoid a tiredness of training participants, so they can seriously involve and make progress to achieve the training objectives. Besides, training variations expose every participant to various movements to improve their skills.

Based on the researcher's observations of training methods done in SSB Tunas Muda Sumberadi, the coach did not have training variation to 13-15 old players, so they looked very bored and they did not get enough shooting training. Considering the important of variations in training, the coach should vary the training so that the players did not feel bored and made progresses in training. Thus, based on the problems stated above, the researcher wanted to prove the importance of variations in training.

2 RESEARCH METHODS

The method of this research was experiment method. The purpose of experiment research was to identify casual correlation between cause and effect of something against the other (Sulistyo and Basuki, 2016). The experiment method of this research used the randomized Solomon four group design.

Table 1: The randomized Solomon four group design.

Age Group 13-15 Years	Shooting Test	Shooting & Sprint Variation Exercises	Shooting Test
I (eksperimen 1)	Pretest	Unit 1 & Unit 2 Variations Exercises	Posttest
II (control 1)	Pretest	-	Posttest
III (eksperimen 2)	-	Unit 3 & Unit 4 Variations Exercises	Posttest
IV (control 2)	-	-	Posttest

This design has tighter and broader controls than other experimental designs. It contains two extra control groups in order to provide control over the effects that might occur between the pretest and posttest. This design is more complex to arrange and analyze because it has replication provided by two experiments. This combination will benefit information obtained from the pretest and posttest, and at the same time, it can show how the conditions of the experiment affect the group of participants whom are not given the pretest.

There were four groups in this design, namely group I (experiment 1), group II (control 1), group III (experiment 2), and group IV (control 2). Each group consisted of 10 athletes. The placement of athletes in each group was randomly done using ordinal pairing technique.

Table 2: Random athlete placement table with ordinal pairing technique

Group I (eksperiment 1)	Group II (control 1)	Group III (eksperiment 2)	Group IV (control 2)
1	2	3	4
8	7	6	5
9	10	11	12
16	15	14	13
17	18	19	20
24	23	22	21
25	26	27	28
32	31	30	29
33	34	35	36
40	39	38	37
N=10	N=10	N=10	N=10

After the athletes were placed in each group, the researcher exercised full control so that his purity was maintained in each group and each group was guided by one trainer. In group I and II, the initial shooting test was given, while group III and IV were not given the initial test. In group I and group III were given treatment in the forms of varied shooting and sprint exercises. For group I, the treatments were zigzag dribbling + shooting and shooting 1 versus 1 variation training. For group III the treatment were zigzag + sprint variation shooting and short length sprint + shooting. As for groups II and IV, no treatment was given. Each group was given a final shooting test.

Types of shooting and sprint variation exercises are based on modified exercises proposed by (Scheuneman, 2014) and based on the principles of training proposed by (Bompa and Gregory, 2009). It is stated that in order to begin the improve athletes' ability, coaching must contain balanced training between multilateral (physical / sprint) and specialist (shooting). In general, in the beginning, athlete training must focus on the physical, with the aim of developing the overall physical condition. The use of multilateral development plans is extremely important during the early stages of athlete development. Multilateral development is the basic concept of training when planning the development of specialization exercises. If this principle is applied in the training phase, multilateral will bring the advantageous in the development of the athletes' physical and psychological abilities as the basis for maximizing athlete performance in his career development. Using this exercise, athletes will obtain a strong physical at the beginning and will be able to reach a higher level of physical preparation and perfect technique.

2.1 Population and Research Sample

According to (Sugiyono, 2009), the population is all the characteristics or properties possessed by the subject or object. Another opinion of the population according to (Rully and Poppy, 2014) is that the population is a collection of all elements from which to conclude. In addition, the population is a group to whom the results of a study carried out to be generalized (Purwanto, 2016). The population of this research was 13-15 old soccer school players.

Meanwhile, the sample is part of the number and characteristics possessed by the population (Sugiyono, 2011). For this research, the following criteria of collecting samples were carried out, namely 1) samples were randomly chosen from all soccer school players; 2) samples were male between the ages of 13-15 years; and 3) sample should not be physically impaired or sick.

This research used the randomized Solomon four group design. Each groups was filled with ten players through ordinal pairing based on the criteria above. According to the research background, Tunas Muda Sumberadi soccer school has players from various ages. To adjust to the research design, forty 13-15 old Tunas Muda Sumberadi soccer school players were needed. Thus, there were forty players that are used as the sample of this research.

2.2 Research Instrument

Research instruments are tools or facilities used by researchers in collecting data, so that their work is easier and the results are better, in the sense of being more accurate, complete, and systematic so that it is easy to process (Arikunto, 2006). The research instrument of this research was modified shooting techniques. The results included the time achieved by samples from starting the sprint until shooting the ball on target, and it was determined by doing the test three times.

The instrument was a shooting test modified from the manual "Tests for measurement and evaluation of physical education and sport according from Arsil" and "curriculum and basic guidelines of Indonesian soccer according from Timo Scheunemann".

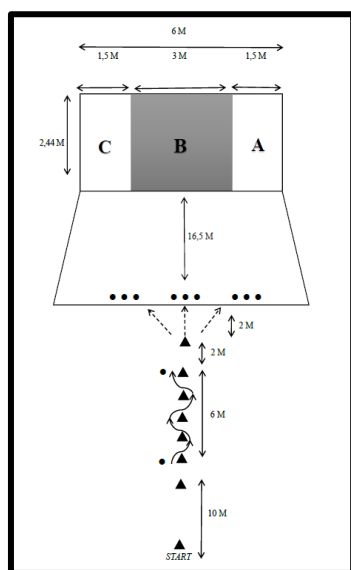


Figure 1: Modified shooting test

2.3 Technique of Analyzing Data

The technique of analyzing data used SPSS 20 which employed two-way ANAVA of significance level $\alpha = 0,05$. Considering the technique of analyzing data, it was needed to do prerequisite testing which included (1) normality testing, (2) variance homogeneity testing and (3) hypothesis testing.

3 RESEARCH RESULT

The first hypothesis stated “there is a significant influence of shooting training variation on shooting improvement.” From the analyses of the data, the result was as follow.

Table 3: Pretest and posttest analysis results of shooting training variation group

Group	average	Sig.	difference	%
Pretest	31,64	0,002	2,4	7,59%
Posttest	29,24			

From the t-test result, it can be described that the significant value p was 0,002. It was clear that significant value 0,002 is $< 0,05$, so there was a significant difference between the pretest and

posttest. Thus, alternative hypothesis (H_a) that stated “There is a significant influence of shooting training variation on shooting improvement” was accepted.

The second hypothesis stated “there is a significant influence of sprint training variation on shooting improvement.” The result was as follow.

Table 4: Pretest and posttest analysis results of sprint training variation group

Group	average	Sig.	difference	%
Pretest	31,92	0,031	1,9	5,95%
Posttest	30,02			

From the t-test result, it could be described that the significant value p was 0,031. It was clear that significance value 0,031 is $< 0,05$, so this result showed there was a significant difference between pretest and posttest. Thus, alternative hypothesis (H_a) that stated “there is a significant influence of sprint training variation on shooting improvement” was accepted.

The third hypothesis stated “there is a significant difference between shooting training variation and sprint training variation on soccer shooting improvement.” From the analysis, the result was as follow.

Table 5: Results of the difference between shooting and spring training variations group

Group	%	Sig.	difference
Shooting variation	7,59%	0,026	0,74
Sprint variation	5,95%		

From the t-test result, it could be described that the significant value p was 0,026. It was clear that the significant value 0,026 is $< 0,05$, so this result showed there was a significant difference. Thus, alternative hypothesis (H_a) that stated “there is a significant difference between shooting training variation and sprint training variation on soccer shooting improvement” was accepted.

4 DISCUSSION

Shooting is a soccer basic technique which is done by kicking a ball to the goal post. The purpose of shooting is to score a goal in order to win competition. A goal is scored by a strong player. The player cannot be driven away by the opposite players and he is created from regular training.

Based on hypothesis testing, it is known that there is a significant effect of shooting variation training on the improvement of soccer shooting for soccer school players aged 13-15 year old. Shooting is a step in a soccer match as a series of attempts to put the ball into the opponent's goal post without using a hand for winning the game.

Shooting is needed at the end of an attack. It is about how a player can shoot the opponent's goal post well so that a goal will be created (Scheunemann, 2005). (Sutikno, 2009) defines variation as diversity which helps something not monotonous. Variations can manifest changes or differences that are intentionally created or made to give a unique impression. According to (Dinata, 2007), coaches can also make variations in exercises with various forms such as warming up with other athletes.

Shooting variation training is a form of technical training. Technical training is a form of training to improve the perfection in technical skills. Technical skills are the ability to perform technical movements required in sport. According to (Bompa, 1994), the technique covers the overall structure and the parts that are carefully combined. Also, they include the efficient movements of an athlete in his effort to exercise. Technical skills are an important part of achievement. Without good technical skills, an athlete might not be able to show a good and right style in sport. Techniques in every sport will always develop in accordance with the goals and rules of the game in the higher the demands. As an attempt to achieve these objectives, proportional technical skills training must receive top priority in an exercise program arrangement.

The purpose of technical training is to enhance technical movement skills and to obtain automation of technical movements in a sport. Movement automation is characterized by having steady and consistent movement results, making very few mistakes or even no mistakes. In different and changing situations and conditions, it is important to always make a consistent movement. The steps of the exercise technique are as follows. First, the trainer gives an explanation and demonstrates the overall technical movement to be trained. Second,

athletes perform basic technical movement exercises by paying attention to the keys of the movement. Third, athletes perform basic technical movement exercises as a whole in simple situations and conditions. Fourth, the tempo of the exercise is increased and repeating the basic technical exercises using strength, speed and coordination are somewhat more difficult. Fifth, the types and forms of technical training should be increased and complicated. Sixth, athletes practice advanced technical skills. Seventh, the trainer increases the effectiveness of technical movements coupled with physical formation. Eighth, athletes try technical skills in simple game situations. Ninth, athletes can master of technical skills perfectly and automatically apply them in the match (Budiwanto, 2012). Movements made during repetitive exercises will cause the formation of conditional reflexes, learning to move, and the process of memorization of motion (Nala, 2011).

Sprint has an important role in soccer shooting. Sprint in soccer is very beneficial for a team if it is done perfectly in competition. Many world-class elite soccer teams use sprinter to avoid the opponent and to catch the opponent when losing ball, and of course to score goals.

The analyses showed that there was a significant effect of sprint variation training on improving soccer shooting for soccer school players aged 13-15 years. Achieving a goal requires not only a technical exercise, but also physical training. A good physical condition does not necessarily improve the technical ability without having a balanced and proper technical training. However, a good physical condition cannot be ignored as a determining factor for applying good technical abilities (Pratama and Sutapa, 2016). Furthermore, (Sukadiyanto, 2005) argues that the goal of the exercise is to achieve an outline of performance, namely (a) to improve and to develop general and specific physical qualities, (b) to enhance perfect techniques, (c) to develop techniques and strategies, and (d) to improve psychic qualities and abilities. (Bompa, 2009), states that training given regularly for 6-8 weeks will get certain results where the body is adapted to the training. In line with the above opinion, (Nala, 2011) states that the training provided systematically, progressively and repeatedly will improve the body's organ systems, so that physical appearance will be optimal. The training, which is carried out with a frequency of three times a week, is suitable for beginners and will result to significant improvements. Physical training, which is applied regularly and measured with sufficient amount and

time, will cause changes in the ability to produce greater energy and improve physical appearance.

Based on the results that have been stated in the results of this study that there is a significant difference between shooting variation training and sprint variation training on increasing soccer shooting for soccer school players aged 13-15 years. Shooting variation training group is better than sprint variation group, control group I, and control group II. One technique that soccer players must master is the ability to shoot at goal. As revealed by (Mielke, 2003) shooting is shooting. A player must master the basic skills of kicking a ball and then develop a series of shooting techniques that allow him to shoot shots and score goals from various field positions. To be a good soccer player, you must have good shooting skills. If a soccer player does not master the kick well, then he will not be a good player, so the game of soccer becomes unattractive. A good team is one that has all the players who have good, fast, meticulous and precise ball kicks, target friends or score goals against the opponent.

Trainings are given to stimulate the improvement of body skills. One of the trainings that can be applied to improve shooting skills is training variation. Training variation is training of various movements and methods of stimulating the given materials. The purpose of this training is to avoid the tiredness of players in training. Thus, the training can be followed seriously by the players and the goals can be achieved.

5 CONCLUSION

According to the data analyses, description, test result and discussion, it can be concluded as follows. First, there is a significant influence of shooting training variation on soccer shooting improvement on school soccer players in the age of 13-15. Next, there is a significant influence of sprint training variation on soccer shooting improvement on school soccer players in the age of 13-15. Finally, there is significance difference between shooting and sprint training variations on soccer shooting improvement on school soccer players in the age of 13-15.

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