

The Difference of Test Results Endurance Using Bleep Test and Balke Test on Football Players Maung Bandung Fc

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Abstract. The purpose of this study is to determine which test is better and suitable to the soccer athlete. So that the coach did not originally in giving physical exercise program on the athletes, so that athletes develop in accordance with the portions and the capacity of the physical conditions that exist in athletes. The method used in this research is the method descriptive. The population involved in this study were twenty people football players of Maung Bandung FC and the sample in this study were 20 people in the population so that the sampling technique using total sampling. The instrument used in this study is the Bleep test and Balke test. Based on the analysis of data, it turns out both these tests give the same effect on endurance football players, but Balke test gives a better effect on the durability of the Bleep test.

1. Introduction

Football is one of the most popular sports in the world, including Indonesia. It can be seen from how high enthusiastic people to the sport, both adult and children. Football is one of the most popular sport games, Indonesian people are interested in playing it, basically this game is created to provide the pleasure and it is played in a team. Football is a sport game that consists of two teams, each team has minimum of 7 players and maximum of 11 players in the field, the ball is played by the entire body except hands (except goal keeper) and it is restricted by certain rules, which is aim to put as many balls as possible into the opponent's goal and keep his own goal of the opponent's attack [1].

Nowadays, many modern footballs are presented by the player who has good technical ability. The duration of this game is 2 times 45 minutes, there are a lot of technical ability and style of the game are shown by a player. Physical ability is the basic capabilities that need to be obtained by a player to support other capabilities. Players will have more confidence if they have excellent physical ability. However, physical factors determine the level of athlete's achievement. There are four aspects of practice that need to be considered and trained carefully by athletes, (a) physical exercise, (b) technical exercise, (c) tactics exercise, (d) mental exercise [2]. These four factors are absolutely need to be obtained by the athletes.

From the four factors above, to play football well, the athletes need a good physical exercise too. Physical exercise is an activity that a person does to improve or maintain physical fitness. Physical exercise is generally grouped into several categories, depending on its effects on the human body. Flexibility exercise such as stretch, improve the range of muscle and joint motion. Aerobic exercise such as walking and running is cantered on the addition of cardiovascular endurance. Anaerobic exercise such as weight lifting is cantered on the addition of short-term muscle strength. Exercise can be an important part of physical therapy, weight loss is exercise capability. Doing physical exercise regularly and



frequently can improve the immune system performance, and helps to prevent heart disease, cardiovascular disease, diabetes type 2 and obesity.

The advantages of physical exercise have been known since ancient times. Marcus Cicero in 65 BC, stated: "exercise helps soul and keep the sense to enterprise thinking". Physical exercise is an important part of all sport. The aim is to establish the condition of the body as the basic of improving endurance, fitness, and achievement of an accomplishment. Regarding the importance of the physical conditions described by some experts, that the physical condition is one of the requirements is needed in efforts to increase achievement of an athlete, it can even be stated as a necessity that can not be bargained anymore [3]. Furthermore, success in sport often requires perfect skills even in situations of high physical stress, it is increasingly clear that the physical condition plays a very important role in improving the athlete's performance [2]. Physical preparation must be considered and taken from some important cases as a necessary point in training to reach top performance (achievement) [4]. A person can be said in good physical condition when he has the ability to perform physical activity without expressing excessive fatigue. For an athlete, having good physical condition is absolutely necessary, both in order to follow an exercise program or a game. Without having good physical condition, an athlete may not be able to achieve a high achievement. Good physical condition can support the appearance of motion skills and mastery of basic techniques of a sport. The physical abilities required in studying the motion so the results achieved will be efficient. In fact the physical abilities needed as a basic to develop agility movements [5]. That Reviews those with physical conditions of the which could help the technique and tactics as long as possible". "With a good physical condition can help the appearance of techniques and tactics as long as possible" [6].

There are several important components of the basic physical that we should know, they are strength, flexibility, speed and endurance. Durability is a person's physical ability to work in a relatively long time. Durability is related to endurance. Endurance is cardiorespiratory system to work for a long period of time and continually with simple and light activity. Cardiovascular endurance is also the most important component in human physiology profile, because it involves aerobic and anaerobic endurance. Cardiovascular relies on a combination of the blood vessels, heart and lungs. Strenuous activity requires expenditure blood with oxygen to allow the muscles to run strenuous activity continually. The endurance of cardiovascular is one of good from the body of which can deliver the oxygen to the entire of body part by producing the power to be used for having the activities". "Stating that cardiovascular endurance is the ability of the body to deliver oxygen to the entire body then produce the energy to run the activity". Therefore, to create a physical exercise program, we have to know the level of physical fitness condition of the athlete. So, to find out the level of physical fitness condition of our athletes, we have to conduct the tests in order to determine their conditions.

The test is a measure. The test is a tool or a procedure used to determine or measure something in the condition of the manner and the rules that have been determined". From the test results, we usually got the attribute contained in an individual or object concerned. Data can be collected through tests, questionnaires, observations and interviews or other appropriate forms.

The data collected in the study research include cognitive, affective and psychomotor. To collect cognitive data or information can be obtained through written tests, oral tests. Effective data can be collected through scale test or questionnaire or direct observation of the object to be measured. While the motoric data or information can be collected through the capability test and the basic motion, functional ability tests, test cardiovascular and skills tests. The tests will be compiled objective data.

From the motoric tests then cardiovascular test aimed to find out how big the maximal oxygen consumption were called VO₂max, VO₂ shows the volume of oxygen consumed, usually expressed in liters or millilitres, and a dot above V is a sign which state that the volume of oxygen is expressed at a time, usually per minute. So if there is a statement VO₂max = 3 L / min, it means that a person can consume more than 3 liters of oxygen per minute. "In terms of consume the maximal oxygen have its Similar mean with maximal oxygen intake, and maximal oxygen power, roommates shown the huge differences between the oxygen roommates inside lungs inhale and exhale the oxygen roommates outside lungs". "In terms of maximal oxygen consumption has the same meaning as maximal oxygen

intake, and maximal oxygen power, which shows the difference of the oxygen is inhaled into the lungs and oxygen is exhaled lung." [8] , To know a person's VO₂max can be collected by the test. There are several tests that can determine a person's VO₂max through Balke, cooper test, Harvard test, bleep test, in order to determine a person's level of physical fitness.

Balke test is one of the test to measure the level of physical fitness or VO₂max in a person. Balke test is a test used to measure how strong the resistance of the heart and breathing person. Balke tests are done by running for 15 minutes, then the test results will be adjusted to the existing norms. This test is suitable for endurance athletes and players endurance sports such as football, rugby but it is not suited for individuals.

Cooper test is a simple method, without expensive cost and quite reasonable accuracy. Athletes have to run or walk for 12 minutes on a 400 meters long running track. Harvard test is the oldest measurement to determine the ability of aerobic made by Brouha in 1943. The study was conducted at Harvard University, USA, so this test named Harvard. The implementation of this test is to ride down the bench for 5 minutes. Bleep test is known as a shuttle trial or Yo-Yo. This test is a running up and back test which is done at 20 meters flat surface. This running test uses software sound " beep " as a sign that the athletes start running and there should be at least one foot on the finish line. Athletes' score were indicated by the level and number of running back that was reached before they fail to adjust with the sound beep. This test requires maximum fitness levels. This test is not recommended for those who has health disorders, injury or low fitness level.

It can be concluded that the football game needs very good physical condition. It is important for the coaches to know the physical condition of the athletes in order to prepare the athletes to be able to develop properly. We've heard VO₂max term in the world of sports, even knowing VO₂max athletes gives an idea to a coach to start an exercise program that will be given to athletes. In the modern game of football, athletes are required to play fast and efficient. Therefore, the football player must have a good physical condition so that the efficiency of the heart and lungs functioning level do not feel excessive fatigue. So to determine the efficiency of heart and lungs functioning level or we often call VO₂max in the sport of football, it should take through the tests in advance and test methods which is suitable are Balke and bleep test that is used to determine the athlete's VO₂max as dictated by [9]"multi-stage running test (bleep test) is aimed to measure efficiency of heart and lungs functioning level or what we often call VO₂max. As well as by Bruno Balke, "This test has the formula to Predict VO₂max from the run distance".

This test has a formula to predict VO₂max from running distance. Balke test is one of the test designed to measure aerobic fitness. Two of the test method are suitable with the characteristics of the soccer sport. As a result, it inspires the author to conduct the research on "Differences in Test Results Endurance Using Bleep Test and Balke Test At Athlete Football Clubs Maung Bandung FC" because the club has a good record in football and they had won lot of prestigious competitions in Bandung then the greatest achievement was promotion to the league division one league Indonesia in 2012 and continued to the national region represented west java before finally PSSI Centre combines league division 1, 2 and 3 into a competition called the league of the archipelago in 2014. based on the background described above, the authors formulate the research problem as follows: "Is there a significant difference regarding to use bleep endurance test and Balke test."

2. Method

The method used in this research is the descriptive method. Research population in this study is footballers of Maung Bandung FC, while the sample is Maung Bandung FC soccer athletes were 20 people who were taken by using purposive sampling. Instrument in this study is a bleep test and test Balke to measure cardiovascular endurance athletes.

3. Result

Data were collected through the measurement process, then analysed by using statistical approaches. The analysed data in this study is the endurance test result data. Calculation results data were described in terms of average value and standard deviation, as shown in Table 1.1.

Table 1.1. Average score calculating result and standard deviation test cardiovascular endurance athlete football

Table 1.1. Value Calculation of Average and Standard Deviation Results		
Variabel	Average	Standard Deviation
Vo2 Max test balke	39,41	2,55
Vo2 Max test bleep	39,36	3,30

To more clearly about the data of cardiovascular endurance test result in this study, note Figure 1.1.

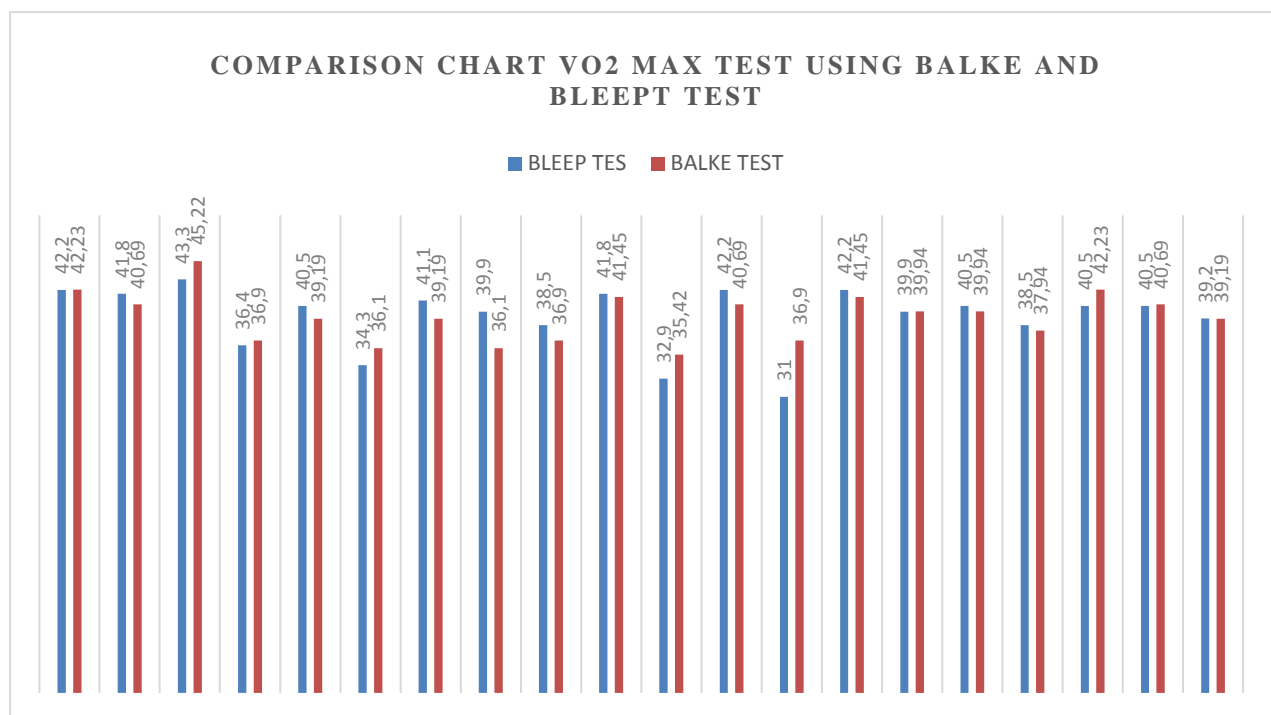


Figure 1.1 Comparison chart VO2

According to Table 1.1. was obtained the average value of Vo2 Max Balke test results was 39.41. While the average value of Vo2 Max bleep test results was 39.36. These results indicate that the results of endurance and cardiovascular test (Vo2 Max) with Balke test was better than the Bleep test results. Based on the results of hypothesis testing using t test or the equality test of two average (two sides) can be seen in Table 1.2.

Table 1.2. Two similarity test average (two parties)

α	t_{count}	t_{tabel}
0,05	0,092	2,021

Based on the calculation result, it was obtained the information that t count (0.092) are among - 2,021 dan 2,021, so the hypothesis (H_0) is accepted. Therefore it can be concluded that both Balke and bleep method test give the same effect on cardiovascular endurance in soccer athletes.

4. Discussion

Based on the results of the calculation and analysis of data which are obtained, we can concluded that both Balke and bleep method test can be used to determine the physical condition of soccer athletes, but the analyzed data in this research shows that the Balke test result is better than bleep test, because the test Balke is more appropriate for the sport of football, it can be seen from the characteristics of test methods and characteristics of the sport as the dominant characteristics of the energy system in football is almost similar to the characteristics of the energy system in the test Balke. But the results of a second study test could equally be used to determine the physical condition of athletes, but the data results of the research says that the test Balke bit better than test bleep, it is because a lot of factors that occur in the field during the implementation of the test, it is because the implementation time was different. They are a) the conditions of the athletes when they were doing the test. For a example when he did test Balke he was fit to do the test, but when he did the test bleep he felt less fit because the day before, he carried out a tiring activities in his club so that the test Balke result was 35.42 and bleep was 32.9, b) understanding of athletes to the test. For example, at the time Herman did the bleep test at stage level 1 but he immediately do it in full speed so he could not set and adjust the rhythm of test with the intensity of the running speed so that the results of his bleep test was 31 while at Balke he did with the normal and the result was 36, 9, c) we know that each individual athlete definitely has a different and distinct physical condition with the principle of individualization. Meanwhile, if we look at the results of two test, Balke test methods and bleep test, there is a difference of two tests, during bleep test are likely many differences while Balke test has many equation results.

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