

**Measurement of Basketball Physical Tests on Students Using an Outdoor
Laboratory in the Education Park****Pandu Rinaldo^{1✉}, Hartati^{2✉}, dan Silvi Aryanti^{3✉}**Physical Education and Health Study Program, Sriwijaya University, Jl. Raya Palembang - Prabumulih KM 32 Indralaya, Ogan Ilir, South Sumatra, Indonesia¹²³**Article History**Received June 2023
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Published Vol.12 No.(3) 2023**Keywords:**Sport; Basketball
games; Physical test.**Abstract**

Basketball is a group sport consisting of two teams of five people each who compete against each other to score points by putting the ball into the opponent's hoop. Basketball is included in the category of intermittent games which means it involves high-intensity physical, interspersed with low-intensity physical activity and rest periods (Abian-Vicen et al., 2014). Physical tests in basketball are used to measure and can determine how good a person's physical ability is, especially in basketball athletes which usually consists of sprinting (50-meter run), sit ups, push ups, vertical jumps, and 1000/800-meter runs (Herdadi, 2018). The main problem is the lack of physical activity carried out by students of state Junior High School 2 Indralaya during sports lessons so that the lack of physical activity such as warming up which results in ineffective basketball games. This research is motivated by how good the level of physical activity of the branch. Based on the results of the study, results were obtained for physical measurements of basketball in students of state Junior High School 2 Indralaya obtained results with poor categories. Based on the description and analysis of the study, it was found that the physical condition of basketball has a physical condition that is included in the category of less good with a percentage of 32%. The implication of the results of this study is that students, especially in basketball games, are very important to know the physical condition, to know the physical level, basketball physical test measurements are made.

How to Cite

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INTRODUCTION

Sports are activities carried out to maintain physical fitness, and become a means for recreation. Sports games that are often played, including volleyball, table tennis, football and basketball.

Basketball is a group sport consisting of two teams of five people each who compete against each other to score points by putting the ball into the opponent's hoop. The game uses a rectangular field measuring 28.5 meters long and 15 meters wide. The time used in basketball games is 4-10 minutes with a break between innings of 10 minutes. Basketball matches are led by 2 referees, referee 1 is called Referee while referee 2 is called Umpire. In addition to the community, basketball games are also held in schools ranging from elementary, junior high, to high school, especially in physical education subjects.

Physical education is a component of education as a whole, but In the implementation of physical education learning has not been able to run with Try one of these alternatives or see Help for hints on refining your search. physical and health conditions at school for students. With the measurement of tests physicality of our students can lead to a certain goal, which is to train good personality and physique of students.

The game of basketball that is known today demands excellent physical condition from its players. Basketball is included in the category of intermittent games which means it involves high-intensity physical, interspersed with low-intensity physical activity (Abian-Vicen et al., 2013).

According to (Arazi et al., 2012) basketball games that take place in high intensity require physical endurance that can last during the course of the game. Competitive basketball games also involve physical contact between players. Based on the opinion of (Syaukani et al., 2020) there are at least several components of physical fitness that every basketball player must have, including, aerobic capacity, anaerobic capacity, strength, speed, agility, flexibility, and body mass profile.

Based on research conducted by (Nasution, 2014) did not include physical attributes that were completely related to the sports pursued. For example, a similar study from (Priambodo, 2013) does not include aspects of anaerobic endurance, even though this aspect is the dominant physical aspect found in basketball games (Abian-Vicen et al., 2013), Based on the title above, researchers know in part that the majority of students do not do much physical activity but only play mobile phones, sit and chat with friends in class. Students who have a good physical level,

will be able to support the activities carried out every day. If it does not receive special attention, a low physical level will continuously have an impact on the problem of physical freshness of students. Students also complain a lot, complain a lot, and are not excited when learning theory and look tired quickly when sports practice takes place. This is a problem with the quality of physical fitness of students who are not good. Based on the background of the problem, researchers consider it important to assess whether the problem, researchers consider it important to assess whether the physical level at state Junior High School 2 Indralaya Utara is good. Moreover, data on the level of physical activity and level of physical freshness of participants of state Junior High School 2 Indralaya Utara are also not yet available. The researcher intends to conduct a study to respond to and solve the above problems with the title "Measurement of Physical Test of Bas Ball.

Some components of physical condition are very dominant in the game of basketball, namely aerobic endurance, endurance arm muscle strength, speed, leg muscle explosive power and agility. Each component of physical condition is influenced by several factors, namely age, sex, genetics, and physical activity. The physical components that Note needs to be developed are cardiovascular endurance, endurance, muscle strength, flexibility, speed, stamina, agility, muscle explosive power, and endurance, muscle strength, flexibility, speed, stamina, agility, muscle explosive power, and endurance, (Yuliawan & Sugiyanto, 2014). Moreover, data on the level of physical activity and level of physical freshness of participants of state Junior High School 2 Indralaya Utara are also not yet available. The researcher intends to conduct a study to respond and solve the above problems with the title "Measurement of Basketball Physical Tests in Students of state Junior High School 2 Indralaya Using Outdoor Laboratories in Education Parks". And based on observations and interviews in October 2022, at state Junior High School 2 Indralaya, 4 Principals stated that the facilities in the school including being complete in terms of sports have tools for students to be able to exercise such as football, volleyball, and basketball. However, there are still incomplete ones such as basketball courts do not have concrete courts but still use green grass courts, then continued with the sports teacher he stated that there are some students whose scores are lacking in terms of sports, especially in women. From these causative factors, the pene.

Testing is one of the indispensable processes in looking at the development of athletes.

According to (Widiastuti, 2015), a test is a tool or instrument used to obtain information about a person or object. Tests can also be interpreted as an integral part of measurement, so tests and measurements are something that cannot be separated, Physical tests are an integral part of the process of forming outstanding athletes, physical tests are also included in training programs that aim to determine the physical condition of the students being tested. According to (Mardapi, 2018) that the test is one form of instrument used.

Physical activity is any body movement produced by skeletal muscles that requires energy. This physical activity is expected to prevent psychological symptoms and to protect mental health among students (Tanir & Özmaden, 2018). The importance of physical activity is one of the important things, considering the impact caused if you do not do physical activity including high blood pressure, obesity and others. Physical activity if not scheduled properly at school will result in easily contracting various diseases (Bietz, 2012). From the expert opinion above, it can be concluded that to find out the physical activity of students is good or not, a measurement is needed because good physical activity is very helpful to support the daily activities carried out by students.

According to (Saputra, 2020) Physical activity is very important for our health, especially the elderly. Activities that use the arm and thigh muscles, or called aerobic, will make the heart work more efficiently, both during exercise and at rest. Activities such as brisk walking, jumping rope, jogging, cycling, hiking, or dancing are examples of aerobic activities that are beneficial for increasing physical endurance.

The following explain other benefits of doing physical activity tests: 1) Maintain stable blood pressure within normal limits, 2) Increase body resistance to disease, 3) Maintain ideal body weight, 4) Improve bones and muscles, 5) Increase body flexibility, 6) Improve body fitness, 7) Reduce stress, 8) Increase self-confidence, 9) Build a sense of sportsmanship, 10) Cultivate responsibility, 11) Build social herd loyalty. From some of the opinions above, it can be concluded that physical activity has many benefits, namely to maintain health, increase self-confidence, improve body fitness, avoid disease, and to increase self-confidence.

According to (Gumantan et al., 2020) Measurement is a quantitative score derived from a test. The data obtained are then evaluated. Measurement tests in the field of sports are science and technology developed in the world of sports

to evaluate athletes' performance which can then be carried out certain treatments or treatments to develop sports achievements. Physical condition sports tests and measurements include: strength tests, speed tests, balance tests, VO2Max tests, spasticity tests, hand and foot eye coordination tests, endurance tests, power tests, reaction tests, and agility tests (Gumantan et al., 2021). Measurement is a quantitative score derived from a test. The data obtained are then evaluated. Measurement tests in the field of sports are science and technology developed in the world of sports to evaluate athletes' performance which can then be carried out certain treatments or treatments to develop sports achievements. Physical condition sports tests and measurements include: strength tests, speed tests, balance tests, VO2Max tests, spasticity tests, hand and foot eye coordination tests, endurance tests, power tests, reaction tests, and agility tests (Gumantan et al., 2021).

Physical condition is a whole unit of components that cannot be separated from one another, as well as their improvement and maintenance. In the game of basketball physical condition is often the determining factor in a game, for that physical condition is very important to improve in every practice. Good physical condition will support an athlete to make movements in basketball games to the maximum. Basketball is a dynamic game sport, it takes good physical ability when attacking or defending. Of the various components of physical condition, there are some that are needed in the game of basketball and really need to be improved according to the role that exists in basketball. Some components of physical condition that are very dominant in the game of basketball are aerobic endurance, endurance, arm muscle strength, speed, leg muscle explosive power and agility. These components are the main ones that must be trained and developed by athletes, especially by sports athletes who need these components (Harsono, 2015). According to Sugiyanto in (Hartanto, 2014) physical ability is the ability to function body organs in carrying out physical activity. Physical abilities are essential to support the development of psychomotor activity. Skillful movements can be performed if the physical ability is adequate. Physical condition is a person's ability to function the organs of the body in carrying out all physical activities and is a whole unit of components that cannot be separated just like that, both improvement and maintenance. According to (Harsono, 2015) the elements of physical condition include: endurance, stamina, flexibility, agility, strength, power, muscular endurance, speed and balance.

The physical component is required in the game of basketball at a high level of competition and is more than what is needed in everyday life, even beyond what is required by other types of sports (Saleh & Saleh, 2020). Physics is very important and needed in basketball games with the systems and patterns that exist in the game. Components Physical conditions affect achievement according to (Kadafi & Irsyada, 2021), including: strength, speed, flexibility, endurance and coordination. 14 According to (Haugen et al., 2014) explained that speed is a person's ability to carry out similar movements successively, as well as the ability to cover distances in the shortest time. Speed is the body's ability to perform a type of movement repeatedly in a short time, or the body's ability to cover a distance in the shortest possible time (Horička et al., 2014). Speed is a person's ability to move places or move parts or the whole body in the shortest possible time (Lockie et al., 2013). According to (Sovenski et al., 2019), endurance is defined as endurance time, namely the length of time a person can perform a work intensity or is far from fatigue. Thus good endurance ability is needed in the game of basketball, because decreased endurance will affect the quality of a player's technique. Agility is a person's ability to change positions using high speed with good coordination, so that person has good agility (Horička et al., 2014). (Mehdizadeh et al., 2014) explain that agility is a person's ability to move, stop, change direction, and change speed in a fast and precise time without losing balance. Based on the explanation above, it can be concluded that the components of physical activity such as agility is the body's ability to change direction quickly without losing balance. Agility in basketball is used to attack or defend. The components of the physical condition need to be improved so that the ability to play basketball increases. In the components of these conditions, to determine the level of a person's physical condition, of course, a measurement is needed that uses the right facilities and infrastructure.

Physical test in basketball is a test used to measure and can determine how good a person's physical ability is, especially in basketball athletes which usually consists of sprinting (50 meter run), sit ups, push ups, vertical jumps, and 1000/800 meters running sprint with the aim of measuring the 50 Meter run. Sit ups are to find out the strength of an athlete's abdominal muscles. Pull up or lift the body with the aim of measuring the strength and endurance of arm muscles and shoulder muscles. Lying down sits with the aim of measuring the strength and endurance of the

abdominal muscles. Vertical jump is used to measure the explosive power of leg muscles. Long-distance running is carried out with the aim of measuring.

The outdoor laboratory is an environment around the school for physical education lessons. If there is a river in the school place can be used for swimming lessons, if there is a museum it can be used so that students can be eager to learn, with the existence of outdoor laboratories helping and facilitating learning outside of school.

Based on the limitation of the above problems, the formulation of the problem in this study is: "How well the level of physical activity in basketball of state Junior High School 2 Indralaya students uses an outdoor laboratory in an educational park". This study aims to determine how good the level of physical activity in basketball in students of state Junior High School 2 Indralaya using an outdoor laboratory in an educational park.

METHODS

This type of research is a type of quantitative descriptive study observational. The aim is to provide an overview of the research done with the conditions that occur through direct observation. Objective descriptive research is to solve problems factually and systematically regarding the facts of the population.

This research was carried out on January 14, 2023 until it was completed, at the FKIP park of Sriwijaya University jl. Raya Palembang – Prabumulih NO. 32, Indralaya Indah, Indralaya District, Ogan Ilir Regency, South Sumatra 30862.

The population in this study is students of state Junior High School 2 Indralaya Utara Class VII which amounts to 70 students

Active students of state Junior High School 2 Indralaya Utara aged 13-15 years who are able to take all series of physical tests in good health and not sick.

The level of physical fitness, especially basketball, students of state Junior High School 2 Indralaya using an outdoor laboratory was measured using tests that had been selected by researchers for ages 13-15 years.

This research uses instruments (tests) to collect data more easily. This research was carried out in an educational park so that researchers used outdoor laboratories in the park. The tests that will be tested include speed (50-meter run), sit ups and pull ups, vertical jump and endurance (1000/800 meter run).

RESULTS AND DISCUSSION

Based on the results of research that has been conducted at state Junior High School 2 Indralaya Using the Outdoor Laboratory of Taman Pendidikan, physical measurements of basketball were obtained on students of state Junior High School 2 Indralaya.

50 Meter Running Speed Test Results

Description of Men's 50 Meter Running Speed Test Results

Based on research, it is known that the 50-meter running speed frequency of men totaling 35 students, for those who get results up to – 6.7” amounted to 28 people with a percentage of 80%, results of 6.8” – 7.6” amounted to 7 people with a percentage of 20%, and with results in the medium category, less and less no students got these results.

Description of Women's 50 Meter Running Speed Test Results

Based on the results of research that has been carried out physical data for the 50-meter running speed component in basketball games in female students of state Junior High School 2 Indralaya, it is known that the frequency is 35 students with female types, for students who get results up to – 7.7” totaling 22 people with a percentage of 63% in the very good category, Results 7.8” – 8.7” totaled 8 people with a percentage of 23% of the good category, results of 8.8” – 9.9” totaled 3 people with a percentage of 8% of the medium category, results of 10.0” – 11.9” were 2 people with a percentage of 6% of the less category, and no students got results with the category less once.

Sit Up Test Results (Abdominal Muscle Strength)

Sit Up Test Results (Abdominal Muscle Strength)

The results of the sit up test can be seen that the frequency is 35 male students, for students who get >38 results there are 13 people with a percentage of 37% in the very good category, results 28 – 37 with a percentage of 43% in the good category, results 19 – 27 with 7 people with a percentage of 21% in the medium category, and no students get sit up test results with less and less categories.

Description of Sit Up Test Results for Female Category

It is known that 35 female students, for students who get results >28 there are 10 people with a percentage of 29% in the very good category, results 19-27 with 14 people, a percentage

of 40% with a good category, results 9-18 totaling 10 people, a percentage of 29% with the medium category, results 3-8 totaling 1 person with a percentage of 2% with less category, and no students getting results with less category.

Pull Up Test Results (Arm Muscle Strength)

Description of Pull Up Test Results Category Male

It is known that the results of the pull up test can be known as the frequency of 35 male students, for students who get >16 results no students get these results, results 11 – 15 are 2 people percentage 6% with good category, results 6-10 are 8 people percentage 23% with medium category, results 2-5 are 22 people percentage 63% with less category, and the results of 0-1 amounted to 3 people, a percentage of 8%.

Description of Pull Up Test Results for Women Category

It is known that the pull up test results are the frequency of 35 people with female gender, for those who get the results of > 41 there are 12 people with a percentage of 34% of the very good category, the results of 22-40 are 17 people with a percentage of 49% of the good category, the results of 10-21 are 6 people with a moderate percentage, and there are no students who get pull up test results with less and less categories.

Vertical Jump Test Results (Leg Muscle Strength)

Description of Vertical Jump Results Categories Male

Based on the results of the vertical jump test, the frequency amounted to 35 male students, for students who received results > 48 amounted to 23 people with a percentage of 66% of the perfect category, results 44 – 47 amounted to 12 people with a percentage of 12% of the very good category, results 38 – 43 amounted to 3 people with a percentage of 8% of the good category, results 33 – 37 amounted to 3 people with a percentage of 8% of the sufficient category, and results 29 – 32 amounted to 2 people with a percentage of 6% in the less category.

Description of Vertical Jump Results Category Women

Based on the vertical jump test, the frequency is 35 female students, for those who get results > 48 there are 2 people with a percentage of 6% in the perfect category, results 44 – 47 are 1 person with a percentage of 3% in the very good category, results 38 – 43 no one gets these results, results 33 – 37 are 4 people with a percentage of 11% in the sufficient category, and results 29 – 32

amounted to 28 people with a percentage of 80% of the less category.

1000/800 Meter Running Test Results (Endurance)

Description of Men’s 1000 Meter Running Test Results

Based on the results of the 1000 meter running test, namely for the frequency of 35 male students, for results up to - 3’04” amounted to 1 person with a percentage of 3% in the good category, no students got results in the good and medium categories, results 4’47” - 6’04” totaled 11 people with a percentage of 31% in the less category, and results of 6’05” - etc. amounted to 23 people with a percentage of 66% of the less category.

Description of Women’s 1000 Meter Running Test Results

Based on the results of the 800-meter running test, the frequency is 35 people, for results with very good, good, medium and less categories no students get these results, and the results of 6’41” – etc. amounted to 35 people with a percentage of 100% less categories.

Data Analysis Results

Based on the results of this study, it is known that the results obtained for physical measurements of basketball in students of state Junior High School 2 Indralaya obtained results with poor categories.

Table 1. Data Analysis Results

Indicator	Percentage%
Speed	71,4%
Abdominal muscle strength	33%
Arm muscle strength	20%
Leg muscle strength	36%
Durability	4%

Based on the **Table 1** above, a result of 33% is obtained. Then knowing from the percentage of research results, it is necessary to categorize these results with the **Table 2** below.

Table 2. Score percentage category

Indicator	Percentage %
0%-19,9%	Very not good
20%-39,9%	Not good
40%-59,9%	Enough
60%-79,9%	Good
80%-100%	Very good

From the **Table 2** above, it can be concluded that the results obtained from the measure-

ment of basketball physical tests on students of Junior High School Negeri 2 Indralaya using the Taman Pendidikan Outdoor Laboratory are included in the poor with a score of 33%.

CONCLUSION

Based on the description and analysis of the study, it was found that the physical condition of basketball has a physical condition that is included in the category of not good with a percentage of 32%. The implication of the results of this study is that students, especially in basketball games, are very important to know the physical condition, to know the physical level, basketball physical test measurements are made.

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