ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research (ASSEHR), volume 227
1st International Conference on Advanced Multidisciplinary Research (ICAMR 2018)

Analysis of Dribbling Ability in Basketball Games for Sports Science Students

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***Abstract*—This study aims to determine the level of eye-hand coordination, agility, and balance to the ability to dribble the ball in the basketball game. Also, this study aims to find out the relationship between eye-hand coordination, agility, and balance together on the ability to dribble the ball on a basketball game. Forty-five participated in this research. This research is quantitative descriptive with three independent variables namely eye-hand coordination, agility, and balance with one dependent variable which is the ability to dribble the ball game in basketball. Data analysis techniques used are percentage techniques, correlation analysis (r) and regression at a significant level of α = 0.05, using computer assistance through the SPSS program. The results of the study show the level of eye-hand coordination ability is generally in the medium category. The level of student agility is very good, and their balance ability is also very good. The student's ability to dribble on basketball games are categorized as good. The result of regression analysis shows that there is a relationship between eye-hand coordination, agility, balance ability and the ability to dribble the ball.**

Keywords—balance, coordination, ability

I. INTRODUCTION

Basketball is one of the most famous sports in the world. This sport attracts various groups inside or outdoors for recreation, as well as competition. The basket must be played can be reflected on the floor by dribbling, by air or passing, so that this game can be done all ages. This sport is a fast game that requires good reflexes and a high level of fitness [1]–[3]. To improve basketball sports performance, it is hoped that the next generation that still has talent, skills and good physical potential, will be directed to a form of coaching that leads to achievement, and will produce athletes. Who are ready to compete for both at the national level. In every competitive sport, maximum achievement is the main goal. This is a trigger to stimulate a comprehensive and comprehensive coaching program in all aspects involved in basketball sports coaching.

Basketball is one of the branches of the big ball game that is very interesting to watch with specific characteristics. Attempting to insert the ball into the opponent's basket is the orientation to win of each action in the basketball game. Furthermore, the necessary movement in basketball games is the movement skills performed on basketball playing related to playing ball activities. To be able to play basketball properly needs to take control of the effective and efficient movement techniques [4].

Dribbling, passing, shooting and lay-up as part of basic basketball game techniques must get special attention from the coach because the basic technique of playing basketball is a way to help win a match. For this basketball, playing technique must be trained systematically, directed and effective. Basketball is a sport that requires the excellent physical ability for players to get optimal results. In this sports game, things that support the achievement of achievement are needed. These include technical mastery skills, besides requiring playing experience and excellent physical fitness.

The first basic techniques in playing basketball are dribbling as an integral part of basketball and very important for individuals and team play. Basketball rules allow players to lead boles in all directions. The ability to dribble requires high dribbling techniques. Also, players must also be able to free themselves from their opponents or find a good position to pass or shoot. Basketball players must be able to control the ball when moving by reflecting it on the floor. At first, the ball must be removed from the hand before the feet are lifted from the floor. When dribbling the player does not touch the ball simultaneously with two hands or the ball still or in hand. Therefore, the activity of dribbling must be accompanied by a relaxed and balanced body position. Secondly, Coordination is the ability of a person to combine several elements of motion into one motion that is aligned according to his purpose.

Moreover, coordination is a very complex bio-motor ability, because it relates to several components of other physical skills, such as agility, speed, and flexibility. Physiologically coordination is defined as the cooperation of the central nervous system with the muscles to produce energy. This coordination is the quality of muscles, bones, and joints, including the five senses in producing motion. Furthermore, coordination is the ability to integrate various kinds of movements into one or more specific motion patterns. The more complex the motion, the higher the level of coordination needed to carry out complex movements.

Eye-hand coordination is a movement that occurs from information that is integrated into the movements of the limbs. All movements must be controlled by sight and must be precise, by the sequence planned in mind. The movement in question includes bouncing the ball, throwing it, and stopping it, all of which require some inputs that can be seen, then the input is integrated into the motoric motion as output (output), so the results are genuinely the coordinated movement neatly and flexible. Eye-hand coordination for athletes needs to be mastered perfectly for various purposes, such as mastering basic motion techniques for playing table tennis, saving energy use. However, achieving these goals

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remains dependent on factors that can influence coordination, especially eye-hand coordination.

The third technique is agility; it is the element of physical condition and the ability of the body to change direction precisely without any disturbance of balance or loss of balance. The agility is indicated with high coordination and speed and combines all the elements of movement and endurance [5]. A person will be able to change one different position at high speed with good coordination, meaning good agility. This technique is needed for basketball players to display skilled movements, especially when doing shoot layups [6]. The process of shooting layup motion in the game of basketball, the player must move fast or run while changing body position when the opponent tries to grab the ball to pass the opponent quickly. Before mastering the ball, players must also move quickly to take a position and release the opponent's guard so that they always have to turn around quickly to anticipate the bait given by friends.

The last technique is balance or the ability to maintain the body's system both in dynamic and static motion positions where balance is also an essential thing in carrying out a movement because, with a right balance, one can coordinate movements and in some agility elements of agility. Balance relates to self-coordination, and in some skills, also with agility". Thus to maintain balance in physical activities, the movements carried out the need to be well coordinated as an effort to control all movements.

Balance is the ability to maintain our neuromuscular system in static conditions or control the neuromuscular system in an efficient position or attitude. Maintaining a body position in various situations requires the ability of the athlete alone. Balance situations and conditions divided into three kinds. Firstly, static balance is balanced refers to the ability to maintain body position in a stationary position. Secondly, dynamic balance is a balance that spurs to the position of the moving body. Thirdly, rotational balance (rotation balance) is a balance that refers to the ability to maintain the balance of the body on an axis and relate to the speed to regain stimulation produced by the vestibular apparatus in circular motion.

Fundamental problems with technical achievements occur in sports science students of Universitas Negeri Makassar. The achievement of learning requires students to master the basic basketball technique perfectly. Meanwhile, students must have optimal physical abilities in learning fundamental basketball skills. Basketball games coaches face obstacles to the weakness of the physical components of students to achieve mastery of basketball techniques. This study is the basis for developing students' mastery of basketball games techniques.

II. Research Method

This type of research is quantitative by using a descriptive approach. The goal of the research is the relationship of eye-hand coordination, agility, and balance to the ability to dribble the ball in the basketball game. The population of the research is all students in Sports sciences of majoring in Health and recreation physical Education. The researchers chose 45 students as research samples with purposive sampling technique. Data analysis used descriptive and inferential statistics. Descriptive statistics describe the category of variables. While statistical inferential uses linear regression and multiple regression techniques.

III. Results and Discussion

A. Descriptive Statistics

Descriptive analysis was carried out for the data of eye-hand coordination, agility, and balance on the ability to dribble the ball in the basketball game of FIK UNM Makassar students. A summary of the results of the analysis is listed in Table 1.

TABLE I. Summary of the Results of the Descriptive Statistics of Data for each Variable

	N	Min	Max	Mean	Std. Deviation
Hand-Eye Coordination	45	34.00	75.00	50.044	10.113
Agility	45	26.00	64.00	50.244	9.875
Balance	45	32.00	66.00	49.867	10.006
Ball Bringing Ability	45	15.00	73.00	50.000	9.925

Based on the descriptive table of the data above, it can be stated that eye-hand coordination obtained an average value of 50.044 times, a minimum of 34.00, a maximum of 75.00, a standard deviation of 10.113. Agility obtained an average value of 50.244, a minimum value of 26.00, a maximum value of 64.00, a standard deviation of 9.875. Balance obtained an average value of 49,867, a minimum of 32.00, a maximum of 66.00, a standard deviation of 10.006. The ability to dribble the ball means 50.000, a minimum of 15.00, a maximum of 73.00, a standard deviation of 9.925. The results of the regression analysis for the four hypotheses in this study are presented in Table 2.

TABLE II. Results of Regression Analysis

Hypothesis	**Coefficient Determination**	**Conclusion**
The relationship between eye-hand coordination on the dribbling ability	0.644	There is the relationship between eye-hand coordination on the dribbling ability
The relationship between agility on the dribbling ability	0.752	There is the relationship between agility on the dribbling ability
The relationship between balance ability on the dribbling ability	0.687	There is the relationship between balance ability on the dribbling ability
The relationship between eye-hand coordination, agility and balance ability on the dribbling ability	0.686	There is the relationship between eye-hand coordination, agility and balance ability on the dribbling ability

As for the element of physical ability referred to which is the focus of attention in this study is eye-hand coordination, agility, and balance. Eye-hand coordination has a significant role, the ball that is carried by the player sometimes his eyes are just fixed on the ball so that when he passes on to a friend or takes the ball (dribbling) is always run aground and blocked by the opponent. The hands automatically have a significant role, so the need for eye-hand coordination in dribbling.

Agility is no less critical in supporting the ability to dribble because there are times in dribbling when faced with obstacles or opponents trying to grab the ball. There is a need for agility or the ability to change the direction of body position or stop suddenly even at high speed; then, in this case, agility will provide the ability to carry out these movements. To achieve success dribbling to get out of the opponent's control, the player has to make a dribbling motion in a winding or sudden direction-changing movement quickly. The movements facilitate passing opponents who block it.

Likewise, the physical element of body balance is needed when dribbling. Balance is the ability of a person to maintain the position and stability of the body in dynamic motion situations. Balance comprises the ability to maintain the stability of the body during motion, for example when dribbling a ball through several obstacles and trying to maintain the point of weight so that the ball is not easily separated to control. Due to in dribbling sometimes the athlete face obstacles or opponents who are trying to grab the ball; this means that it is necessary to maintain the position of the body so that the opponent does not easily capture the ball.

The results of this study indicate that there is a significant relationship between eye-hand coordination with the ability to dribble the ball in basketball games. The results obtained if related to the framework of thinking and the underlying theories. Based on the results of the analysis between eye-hand coordination on the ability to dribble on basketball games, it can be seen that the results of the calculation of Pearson correlation obtained the correlation value calculated (r) = 0.644 (P <0.05). While the determination coefficient value (R square) obtained = 0.414, this means that 41.40% of the ability to dribble the ball in the basketball game is supported by eye-hand coordination. This implies that, if a student has good eye-hand coordination, it will produce good ball dribbling skills. Eye-hand coordination has a big role, the ball that is carried by the player sometimes his eyes are just fixed on the ball so that when he passes his hand to a friend or takes the ball (dribbling), it always runs aground and is blocked by the opponent. The hands automatically have a big role, so the need for eye-hand coordination in dribbling.

The second analysis shows that there is a significant correlation between the agility of the ability to dribble the ball game of students. The results of Pearson correlation analysis of physical ability in this case the agility of the ability to dribble on basketball games, it can be seen that the calculation results of Pearson correlation obtained the calculated correlation value (ro) = 0.752 (P <0.05), while the coefficient of determination (R square) obtained = 0.565, this means that 56.50% agility gives support with the ability to dribble in basketball games. This implies that, if the player has good agility, it will be followed by the ability to dribble the ball in a good basketball game. Agility has a vitally important role in dribbling, especially when passing obstacles. Without the support of physical elements of good agility, an athlete leads to the ability to dribble the ball game into a weak and slow and opposed the speed of dribbling under the desired.

The third analysis shows that there is a significant correlation between the ability to dribble the ball. The results of Pearson correlation analysis of physical ability in this case the balance of the ability to dribble on basketball games, it can be seen that the calculation results of Pearson correlation obtained the calculated correlation value (RO) = 0.687 (P <0.05), while the coefficient of determination (R square) obtained = 0.472, this means that 47.20% balance gives support to the ability to dribble in basketball games. This implies that if the basketball player in having a good balance will be followed by a good dribbling ability as well. Balance is a person's ability to maintain the body system both in a static position and in a dynamic motion position where balance is also very important in carrying out a movement because, with a good balance, one can coordinate movements and in some dexterity. Students who have a good balance will be able to do the dribbling technique well. The balance in dribbling is needed because the movement in carrying the ball is fast, so it requires a good balance in order to maintain the body's position by the needs in dribbling. Therefore, to be able to dribble the ball in the basketball game perfectly, players are required to maintain a good balance of the body so that they can dribble the ball properly and correctly.

The fourth analysis shows that there is a significant relationship together eye-hand coordination, agility, and balance towards the ability to dribble. The result indicated that these three independent variables together provide a tangible link to the ability to dribble on basketball games. The results of Pearson correlation analysis of physical ability in this case eye-hand coordination, agility and balance to the ability to dribble in the game of football, it can be seen that the calculation results of Pearson correlation obtained the calculated correlation value (Ro) = 0.829 (P <0.05), while Determination coefficient value (R square) obtained = 0.686, this means that 68.60% eye-hand coordination, agility and balance provide support for the ability to dribble in basketball games. Eye-hand coordination about dribbling. Agility plays a role especially when the position of the body moves past obstacles — balance about maintaining body stability during ball dribbling.

IV. Conclusion

Level of eye-hand coordination ability is in the medium category. Furthermore, the level of student agility is generally very good, and their balance ability is very good. The student's ability to dribble on basketball games are categorized as good. The result of regression analysis shows that there is a relationship between eye-hand coordination, agility, balance ability and the ability to dribble the ball.

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