2021 | Anthropo-Indialogs Vol. 1, Nos. 1-2, pp. 43-50

URL : www.arfjournals.com

Relationship Between Wrist Flexibility and Shooting Ability of Basketball Players

Nithin B. S.[1] and Ram Mohan Singh[2]

[1]*Research Scholar, Department of Physical Education and Sports, Pondicherry University, Puducherry*
E-mail: bernadnithin19@yahoo.com
[2]*Assistant Professor, Department of Physical Education and Sports, Pondicherry University, Puducherry*
E-mail: dr.rammohansingh@gmail.com

Received: 30 Nov. 2020 / Revised: 2 Dec. 2020 / Accepted: 10 Dec. 2021 / Published: 15 January 2021

Abstract: Flexibility of the wrist is one of the critical components for a basketball player. Flexibility helps to have graceful movements, minimize energy expenditure, prevent athletic injuries and get some speed for the development of performance. The wrist is one of the key joints in the body which is used by a basketball player in a wide range of skills. It allows for more force to be generated. Greater flexibility in the wrists will permit the force to be exerted over a longer range. It will also give better control on the action & improve accuracy.

The purpose of the study was to find out the relationship between wrist flexibility and shooting ability of the basketball players. The study was conducted by selecting twenty college basketball players from the various colleges of Idukki District. The age of subjects ranged between nineteen to twenty five years. Goniometer was used to measure the flexibility of right hand wrist of the basketball players (Yobu, 1988). To measure the shooting ability of the players, free throw test was conducted. The data collected were treated statistically in order to find out the relationship between the wrist flexibility and shooting ability of basketball players, by using Pearson Product Moment correlation.

INTRODUCTION

Basketball is purely an American game. It is very fast game when compared with some other games. The aim of the game is to put the ball into the basket. It emphasizes vigorous body movements involving considerable running and arm hand action, promoting endurance of the local muscles as well as the cardiovascular and respiratory system. Basketball is ideally suited not only for the developing qualities of quick reaction, co-operation but also for accurate thinking, cool judgments, aggressiveness and determination.

Flexibility refers to the "range of motion possible at a joint or series of joints such as the spine and flexibility is expressed by the range of motion in a given joint (or) combination of joints". (Labora, Educa and Aris, 1991).

There are two types of flexibility

1. Static or extent flexibility
2. Dynamic flexibility

Static flexibility is the ability to stretch a body part, as far as possible in various directions but is not necessarily a good indication of the "looseness" or "stiffness" at the joint.(Labora, Educa and Aris, 1991)

Dynamic flexibility involves the ability to make repeated movements at joints with little resistance to the movement. For physical performance dynamic flexibility is probably more important than an extreme degree of static flexibility.

It is truly a democratic sport because it requires team work and sportsmanship. Dr. James Naismith in 1891 introduced the beautiful game of basketball. There are five basic fundamental skills in basketball. They are stance, dribbling, passing, shooting and pivoting. Ultimately all the fundamentals of basketball lead to the shot. The only way one can score and win in a basketball game is to put the ball in the basket. Each coach knows that shooting plays the major role in basketball. The use of foul shot is limited to award for free throws from 15 foot line.

The shooter should station himself squarely in front of the basket and spread the feet in a position that will ensure a comfortable stance. A basketball player who cannot fully flex (or) extend the wrist joint in a releasing position is at considerable disadvantage because the angle and release will be significantly impaired. He may end up relearning at a lower angle or higher angle due to lack of proper flexibility.

General points on shooting are controlling the ball with the finger tips, follow through with arms and body throughout the shot. When shooting, one hand shots one has to always take off from the deck on the foot opposite the shooting hand when shooting for the basket keep the eyes on a point on the board judge to give the proper angle of deflection. One has to keep the body relaxed when shooting. Relaxation can be attained by flexing the knees and trunk slightly and by keeping the shoulders and arm loose. One must always focus on the basket when shooting and never hurry to take a shot (Henry Harrison Clarke, 1987).

During regular play one shoots when within sensible distance or when he or she is unable to dribble in for a better shot or pass to a teammate in a better shooting position. The players need to learn the percentage of certain shots and even with seemingly difficult shot. A player should attempt to shoot high percentage of shot during a game. Learn how to shoot with either hand as this assist will greatly increase the effectiveness of all shooting.

Free throw shots are those shots taken at the free throw line. Free throw can be made with either hands or both hands. The hands are placed at the sides of the ball with a slightly

crouch body, with feet as close as possible to the free throw line. At the time of release the elbows are close to the body and arms move up as the ball leaves the hands. In the follow through, the player extends both his legs with toes and fingers are out stretched till the ball reaches the ring or board.

Flexibility guarantees that you keep up ideal portability of every one of your joints. This builds the harmony between muscles that will guarantee effective development and power creation. Likewise, certain strong limitations make it difficult to keep up body places that are fundamental to your performance (Ajmer Singh, Jagdish Bains, Jagthar Singh Gill, 2012). What you may not understand is that stretching will upgrade your flexibility, forestall muscle soreness, improve the scope of movement inside your joints and increment the blood flow to your muscles-everything that will add to your development as a basketball player. Stretching is also essential in preventing injuries. Flexibility is a significant part of actual wellness and has numerous constructive outcomes on the body. For example, it improves mobility, pose, muscle coordination, and decreases the risk of injuries and muscle soreness. It even prompts a superior in general "shape".

STATEMENT OF THE PROBLEM

The purpose of this study was to find out whether there was any relationship between wrist flexibility and shooting ability in basketball players.

HYPOTHESIS

It was hypothesized that the players who have greater flexibility may have better shooting ability in the game of basketball.

DELIMITATION

- This study was confined only for male basketball players.
- Only 20 basketball players were selected as subjects.
- The subjects were aged between 19 to 25 years.
- The flexion of the wrist joint of the right hand only was measured.
- Free throw was used to find out the shooting ability of basketball players.

LIMITATION

- The data was collected from selected colleges in Idukki district.
- The life style of the subjects was considered as the limitation of the study.
- The atmospheric condition was taken into the limitation of the study.

METHODOLOGY

Selection of subjects

To achieve the purpose of study random sampling is to be used to select 20 male players from the following colleges of Idukki district in Kerala, India. Ten players were selected from St. Josephs Academy of Higher Education and Research Moolamattom Kerala, India and ten players from Newman College, Thodupuzha. The player's age ranges from 19 to 25 years. All the subjects were properly briefed about the purpose and procedure of the study and tertiary. They were enquired about their health and were fear to withdraw from the study any time they wished without mentioning any reason. However the 20 selected participants completed the study successfully without any problem.

Selection of Variables

The research scholar reviewed the various studies related to the topic and after discussion with expert and finally selected the criterion variable. Consequently hand wrist flexibility is identified as the dependent variable and basketball shooting ability test as the independent variable for this study.

High quality Goniometer was used for measuring the wrist flexibility of the participants. Goniometer may adversely affect the measured values of analyses. The Goniometer is made of high quality polypropylene. Good quality basketball was used for the shooting ability test. The basketball used for the test was good in condition with proper air pressure.

METHOD AND MATERIALS

This study was formulated as purposive specific group design. A group of college level basketball players were recruited as participants for collection of data. At first, the players were taken into a class for finding the maximum ranges of flexion possible on their right hand wrist. The participants were asked to sit on the bench. They were asked to straighten the right arm forward so as to make approximately an angle of 60^{o} with the shoulder joint. Further the participants were asked to bend their forearm to make 90^{o} angle with elbow joint. This makes the forearm straight. The ulna bone of the wrist, were considered as the axis of rotation. Then by using the Goniometer the wrist flexibility of the right hand were measured. The subjects were asked to flex their wrist to the maximum range and the Goniometer measurements were noted in degrees.

After collecting the ranges of flexion the players were taken to the basketball court for the free throw test, which is commonly used for finding the shooting ability. Each of the

players gets 10 trials, no free trials were provided. Right hand was only used for the shooting test. The important rules of free throw were taken into consideration for the free throw shooting ability test.

The data was collected from 20 right hand male basketball players. The player's age ranged from 19-25 years. In this shooting test ten trials were given to each subject. A number of baskets scored were taken as their score and was recorded in numbers. The same procedure was followed for all the twenty subjects.

STATISTICAL TECHNIQUE

To estimate the relationship between wrist flexibility and shooting ability in basketball the Pearson Product Moment Correlation is used. The analysis was carried out as per guideless of Rothstein.

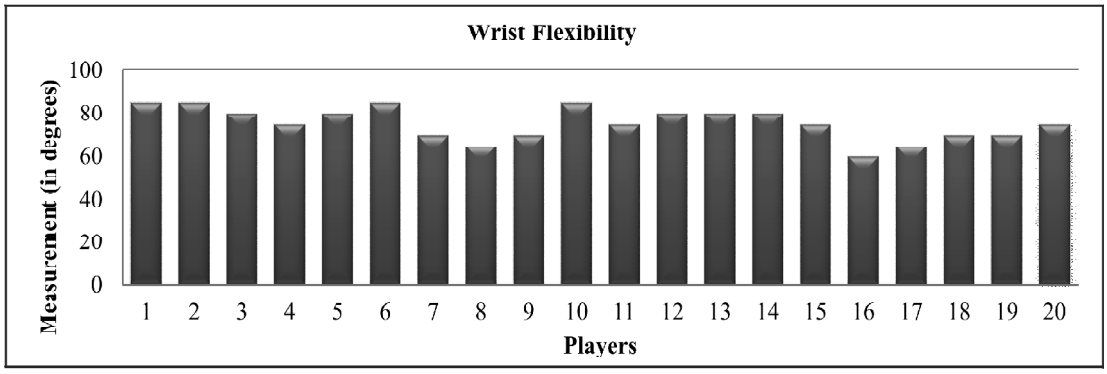
ANALYSIS AND INTERPRETATION OF DATA

The purpose of the study was to find out the relationship between wrist flexibility and shooting ability of basketball players. To achieve this purpose the investigator collected data from twenty men basketball players from various colleges in Idukki district. The wrist flexibility of right hand was measured with help of Goniometer. Free throw was used to find out the shooting ability of basketball players.

Table 1
The Mean, Sum of the values, Standard Deviation, Sum of XY

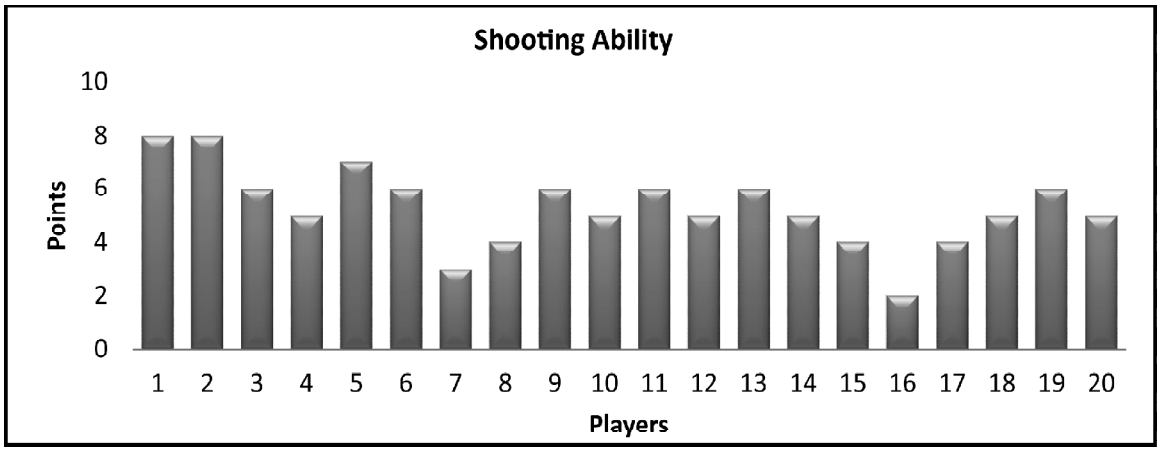
Variables	*Sum of the Values*	*Mean*	*Sum of ($X^2$and Y^2)*	*Standard Deviation*	*Sum of XY*
Wrist flexibility	1510	75.5	115050	7.23	8155
Shooting ability	106	5.3	604	1.45	

Figure 1: The bar diagram shows the values of Wrist Flexibility (X)



The figure represents the maximum range of flexion of the right hand wrist made by the players. The difference in the range of flexion of the 20 basketball players are clearly presented in the graph.

Figure 2: The bar diagram show the values of Shooting Ability (Y)



The figure shows the scores of the players on free throw shooting ability test. The variation of the graph gives a clear picture of the number successful shots made by the 20 basketball players.

Table 2
Standard Deviation, Combined Standard Deviation and Co-Efficient of Correlation of Wrist Flexibility and Shooting Ability

variables	*Standard Deviation*	*Combined standard deviation*	*Co-efficient of correlation data*	*Table value*
Wrist Flexibility	7.23			
Shooting Ability	1.45	7.6	0.73	0.426

The table shows the standard deviation, Combined Standard Deviation and Co-Efficient of Correlation of Wrist Flexibility and Shooting Ability of the basketball player.

DISCUSSION ON FINDINGS

The standard deviation of wrist flexibility and shooting ability of men basketball players were 7.23 and 1.45 respectively. The combined standard deviation was 7.6.The obtained co-efficient of correlation between the wrist flexibility and shooting ability of basketball player was 0.73. The table value given in Table 4.2 of Pearson Product Moment correlation as

given by Rothstein was 0.426 for the degrees of freedom (20-1) 19 at 0.05 level of significance. Since the obtained 'r' of 0.73 was more than the table value of 0.426 the null hypothesis was rejected and the test was significant. This shows that there was a significant relationship between the wrist flexibility and shooting ability of basketball players. Hence the investigator's hypothesis that the players who have greater flexibility may have better shooting ability in the game of basketball was upheld.

DISCUSSION OF HYPOTHESIS

The hypothesis stated that "The players who have greater flexibility will have better shooting ability in the game of basketball. The statistical analysis proved that there was a significant relationship between wrist flexibility and shooting ability in the game of basketball. The obtained co-efficient of correlation between the wrist flexibility and shooting ability of basketball player was 0.73. The table value given in Table: 4.2 of Pearson Product Moment correlation given by Rothstein was 0.426 for the degrees of freedom (20-1) 19 at 0.05 level of significance. Since the obtained 'r' of 0.73 was more than the table value of 0.426 the null hypothesis was rejected and the test was significant. This shows that there was a significant relationship between the wrist flexibility and shooting ability of basketball players. Similar studies carried out by various authors have shown similar results with significant relationship between wrist flexibility and shooting ability (Podmenik, Leskošek and Erèulj, 2012; Cavedon, Zancanaro and Milanese, 2015; Maulana, Warni and Arifin, 2020)

CONCLUSION

The conclusion of this study is based on data analysis, hypothesis testing and the discussion that has been done in the previous chapter that there is a positive and significant effect of 0,000 <0.05. The result of the study showed that there was a significant relationship between wrist flexibility and the shooting ability of basketball players. Hence, to improve basketball shooting performance, the flexibility of the wrist in critical and both coaches and players should work on wrist flexibility during the training of they have to improve their shooting skills.

References

Ajmer Singh, Jagdish Bains, Jagthar Singh Gill, R. S. B. (2012). *Essentials of PHYSICAL EDUCATION*. Fourth Rev. New Delhi: Kalyani Publication.

Cavedon, V., Zancanaro, C. and Milanese, C. (2015). 'Physique and performance of young wheelchair basketball players in relation with classification', *PLoS ONE*, 10(11), pp. 1–20. doi: 10.1371/journal.pone.0143621.

Henry Harrison Clarke, D. H. C. (1987). *Application of Measurement to Physical Education*. Sixth edit. Englewood Cliffs, New Jersey, and U.S.A: Prentice-Hall.

Labora, E., Educa, P. and Aris, S. (1991). 'Percep/lIal al1d M%r Skills', pp. 550–556.

Maulana, A., Warni, H. and Arifin, S. (2020). 'The Effect of Push-Up Exercise with Wrist Flicking on the Ability of Three Point Shooting of BSWJ Club Basketball Players', 407(Sbicsse 2019), pp. 42–46. doi: 10.2991/assehr.k.200219.011.

Podmenik, N., Leskošek, B. and Erèulj, F. (2012). 'The effect of introducing a smaller and lighter basketball on female basketball players' shot accuracy', *Journal of Human Kinetics*, 31(1), pp. 131–137. doi: 10.2478/v10078-012-0014-8.

Yobu, A. (1988). *Test, Measurement and Evaluation in Physical Education and Sports*. Chennai: Grace Printers.

https://www.ncbi.nlm.nih.gov/pubmed/11138982

https://www.ncbi.nlm.nih.gov/pubmed/22403942

http://web.mit.edu/tkd/stretch/stretching_4.html