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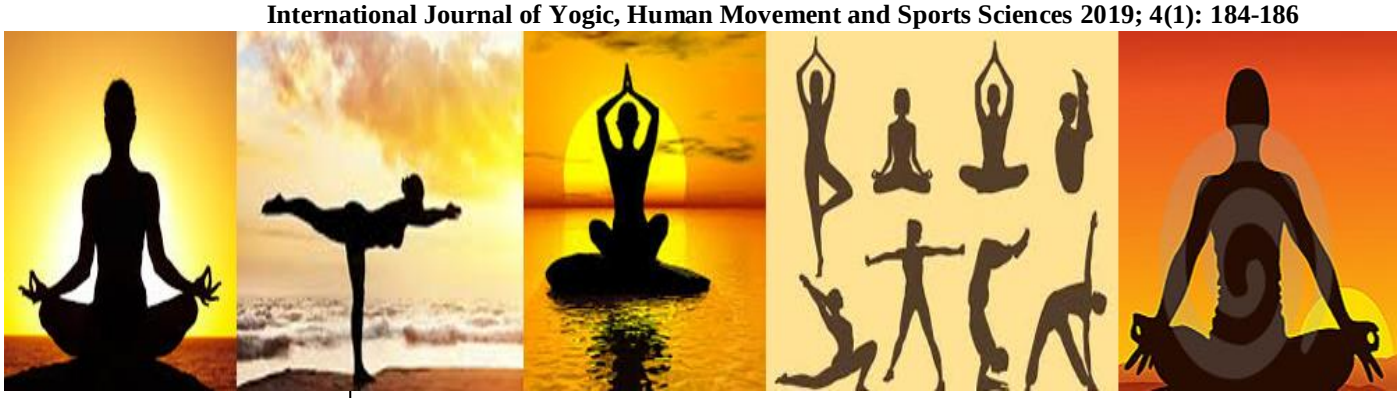

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Relationship between the angle of right ankle joint during set shot in basketball with performance

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Abstract
The aim of this study was to find out the relationship between the angle of right ankle Joint during set shot in basketball with performance. For this purpose total 10 subjects were selected ageing between 18-25 years who participated in all India inter-university. Motion capture technique was used in this study. The films were analyzed by using standard "quintic coaching v-17 software" approved by Human Kinetics. Videos analyzed through strobe photos sequence/ stroboscopic effects, stick figure analysis, quick snap shots and with the help of this software analyze the selected variables. Mean and Standard Deviation values of Angle of Right ankle joint and performance of Basketball players were 135.466±1.534 and 4.833±1.935respectively. Calculated value .931 is grater then the tabulated value 0.250 and *p* value was .000<0.05. The data represents that there was significant relationship of Angle of Ankle joint with performance of Basketball players during set shot.

Keywords: Set shot, basketball, linear acceleration

Introduction
Basketball is a game that creates a healthy competition among the individuals. The purpose of this sport is to put the basketball in the opponent's basket while also defending the other players from scoring. Each player is assigned a specific position. The players display their skills during the game play either in passing, shooting or defending.
Shooting is a skill of the performer which through he/she score attempt the basketball. Set shot is an intergraded part of the game. In this shot ball is basketed from a specific area. Set shot in basketball possess a different stance. Technology plays an important role in sports advancement. To enhance this there is a big effort upon this. There is a need to check out this for the purpose. For this it is essential for this watch out about the motor and mechanical art's variables that have much requirement of investigation for advancement of that particular skill. The study on these components to checkout while attempting shot can be beneficial for perfection of the skill and bring knowledge that which brings much accuracy in shot. It is though for a person to find out all the motions of body parts of different joints and different at once.
Biomechanics is always exerting to basketball to prescribe the properties of technique, to increase performance. There are very limited studies on the biomechanical parts of shooting in basketball and its selected kinematical variable differences that may be very beneficial for technical and tactical training of upcoming new basketball players. The most of kinematic data reported in the past studies has been investigated using two-dimensional, Sagittal plane methodologies. Few three-dimensional researches have been come into existence. As the report of this study was given to describe the relationship of selected biomechanical variables with results of set shot with and lack of opposite team/player in basketball.

Methodology and Procedure
In this chapter the sources of data, criterion measure, administration of test, collection of data and analysis have been described.

Administration of set shot
All the subjects were approached to play out the set shot inside the three point region. The

performers were all around coordinated and informed about the examination and were decidedly ready for the investigation. They were asked to play out the set shot in the characteristic path as they really perform. It was found that subjects hard sensible degree of method. Players were video diagrammed in the open air basketball ground with precise shooting technique as required. Subjects were approached to endeavor ten shots and after each endeavor the ball was provided to him for next endeavor.

For the purpose of examination four moments were selected i.e. Moment of stance in set shot and Moment of release of ball in set shot. The performance of each subject was obtained as mentioned in criterion measure. Sufficient numbers of practice trials were also given. Subjects were also asked to go for complete movement of set shot i.e. from beginning position to execution and then afterward finish.

Filming protocol

Motion capture technique was used in this study. To record the video of female basketball players, while they performing the set shot digital video camera (50 fps) was used by a professional photographer. After obtaining the recorded video, the video was analyzed through quintic & coaching v-17 software approved by Human kinetics. First video was digitized through quintic coaching v-17 software. After the procedure of digitizing, the video was calibrated. The calibrated video gives as the results through markers. The Stroboscopic effect technique, stick figures, stopwatch programming, angle manual (horizontal, vertical, and draw angles), linear and angular analysis manual etc. with the help of "quantic & coaching v-17 software."

Motion capture technique/Digital video graphy was used to analyze the kinematical variables of basketball female players. Digital video camera CASIO EX-FH 100 (50 fps) was used for videography of set shot performance. The performance of the subject was recorded with stroboscopic effect from approach to releasing of basketball.

Position of camera for videography while performing set shot in basketball

Camera was placed right side of the player. The distance between the camera to the ring was 7.30 meters and height of the camera was 1.45 meters.

Analysis of film and collection of data

Motion capture technique was used in this study. The films were analyzed by using standard "quintic coaching v-17 software" approved by Human Kinetics. Videos analyzed through strobe photos sequence/ stroboscopic effects, stick figure analysis, quick snap shots and with the help of this software analyze the selected variables.

Statistical analysis of data

With regards to purpose of the study descriptive statistic and Karl Pearson's product moment coefficient correlation statistical technique was calculated on selected kinematical variables. In order to check the significance, level of significance was set at 0.05.

Measurement of body angle

Angle was measured through videography technique. The videos of the moment of release phase of set shot in basketball with performance were traced with the help of quintic software by using auto tracking markers on the selected body joints of basketball playas. Using auto tracking markers in quintie software. In order to receive complete segmental diagram `angles finding' option was selected in the software and marks of demanded joints were connected. After completing the marking by joining different highlighted marks on the selected body joints software automatically present the measurements of required angles. Different segments were drawn to find out different angles of the body. The entire segment was drawn from heel axis to hip axis.

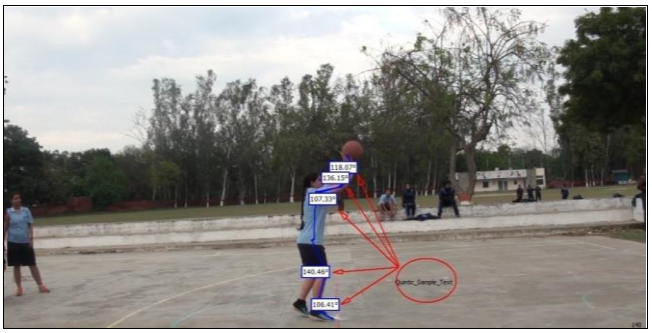

Fig 1: Shows the angle of right ankle joint during set shot in basketball

Table 1: Shows the relationship of angle of right ankle joint with performance of basketball players during set shot

Variable	Mean	S.D.	Relationship value (r)	*P* value
Ankle angle	135.466	1.534	.931	.000
Performance	4.833	1.935		

'r'$_{0.05}$(58) = 0.250

Table no. 1 shows is that Mean and Standard Deviation values of Angle of Right ankle joint and performance of Basketball players were 135.466±1.534 and 4.833±1.935 respectively. Calculated value .931 is grater then the tabulated value 0.250 and *p* value was .000<0.05. The data represents that there was significant relationship of Angle of Ankle joint with performance of Basketball players during set shot.

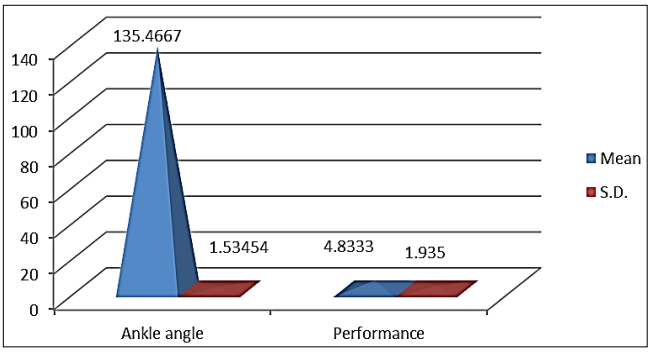

Fig 1: Shows that mean and standard deviation values of angle of ankle joint and performance of basketball players

Figure no. 1 shows is that Mean and Standard Deviation values of Angle of Right ankle joint and performance of Basketball players were 135.466±1.534 and 4.833 ±1.935 respectively. Calculated value .931 is grater then the tabulated value 0.250 and *p* value was .000<0.05. The data represents that there was significant relationship of Angle of Ankle joint with performance of Basketball players during set shot.

Discussion of the findings

The result of the study informs that there is significant relationship between Angle of right ankle joint of basketball players with set shot performance. On the basis of analysis of the data, investigator found that the earlier study of Igor Ter-

Ovanessian (1993) "Biomechanical Analysis of the World Record Long Jump" supported the present study.

Conclusion

Based on the analysis and within the limitations of the study following conclusion was drawn:

- There was a significant relationship between angle of right ankle joint with set shot performance of All India interuniversity female basketball players.

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