

RELATIONSHIP OF SELECTED BIO-MECHANICAL VARIABLES WITH THE PERFORMANCE OF FEMALE BASKETBALL PLAYERS IN SET SHOT

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ABSTRACT

Biomechanics is an applied form of mechanics and consequently the method used to investigate, it must be derived from those of mechanics. The purpose of this study was to measure the relationship of selected bio-mechanical variable to the performance in Set Shot. Videos as obtained by the use of digital videography were analyzed by siliconcoach pro 7 software. Only one selected frame was analyzed. Selected variables were as under. Were represented by the angles at selected joints as Ankle joint, Knee joint, Hip joint, Shoulder joint, Elbow joint, Wrist joint, body inclination. Ankle joint (right), Knee joint(right), Elbow joint (right) and Hip joint showed insignificant and incase of Shoulder joint(right) and Wrist joint (right) showed significant relationship with the performance of subjects in Set Shot.

Keywords: Set-Shot, Variables, Performance and Biomechanics.

INTRODUCTION:

The continuous scientific advancement in sporting arena has made sports training more purposive, factual and very specific than ever. Sports scientists are leaving nothing to enhance in order to find out the performance enhancing and affecting factor as well as the best result oriented training systems for every sports.

However, bio mechanics have not developed in the wake of mechanics but as bordering science in other scientific discipline such as anatomy physiology and technique of sports

Biomechanics is a specific field which evaluates the motion of a living organism (in this program's manual we are only concerned with human beings) and the actions of forces on that organism. We can look at biomechanics as a combination of several different areas of study. This

would include anatomy and physiology, kinematics (the study of motion without regard to its causes), kinesiology (the study of human movement) and kinetics (the study of forces acting on a system).

Understanding biomechanics, human moment and joint function allows the fitness trainer and wellness professional to have a deeper understanding of how to train an athlete or fitness training client

Siliconcoach Pro 07 is siliconcoach's premier software and the result of 15 years working with our clients around the globe. Siliconcoach Pro is designed for analysing movement and providing feedback by combining the processes of capture, watch and review, and analyse. Visual feedback greatly enhances understanding rather than just verbally describing movements you can visually show them.

Basketball is a game of intricate movement combine with great speed and accuracy. The meshing of fundamentally sound players weaving clever patterns of attack and defense develops great teams. The spectators realize this subconsciously but in many cases cannot recognize it. Shooting which is an evaluation of passing will follow and give the greatest satisfaction in execution. It makes little difference how well a team defends dribbles, shooting and passes to work the ball into a scoring position if the players cannot shoot.

In basketball shooting is one of the primary skill of the game and requires a great deal of practice assisted by good models, scientifically based. Since players were accepted to shoot often in order to score. They developed a variety of Shots, which includes the hook Shot, the jump Shot, the Set Shots and the lay-up Shot

OBJECTIVE:

The purpose of this study was to measured the relationship of selected bio-mechanical variable to the performance in Set Shot

METHODOLOGY:

The study was delimited to female basketball players of C.S.J.M. University, Kanpur. The study was further delimited to the 8 subject belonging to the age group 17 to 23 years. The subjects were right and left handed shooters.

The scores of the subjects in Set Shot were used as the criterion variable in the study. The performances of the subjects were assessed by three judges however elements related to the accuracy of shooting were also added. Used in three-point scale. Three point awarded in correct action and basket scored. Two point awarded in correct action but not scored. One point awarded in touches the ring or board.

Siliconcoach pro 7 software was used for biomechanical analysis of Set Shot in basketball. A Casio Exilim F-1 High Speed Camera, which was positioned at 7.90m from the subject at a height of 1.50m. From the subject on an extension of free throw line. Camera was also set for capturing 300 fps. The subjects were made to take three Shots only. The angular kinematical variables of the body were calculated at moment execution.

The videos as obtained by the use of digital videography were analyzed (the best trial) by siliconcoach pro 7 software. Only one selected frame was analyzed. Selected variables were as under. Were represented by the angles at selected joints as Ankle joint, Knee joint, Hip joint, Shoulder joint, Elbow joint, Wrist joint, body inclination.

The data was analyzed by use of person's product moment correlation. The level of significance chosen to test the hypothesis was 0.05.

RESULTS:

Table -I
RELATIONSHIP OF SELECTED ANGULAR BIO-MECHANICAL VARIABLES AT
MOVEMENT RELEASE WITH THE PERFORMANCE OF
SUBJECTS IN SET SHOT
(N=8)

Variables	Coefficient of Correlation (r)
Ankle Joint (Right)	0
Knee Joint (Right)	-0.193
Hip Joint (Right)	-0.550
Shoulder Joint (Right)	0.709*
Elbow Joint (Right)	0.154
Wrist Joint (Right)	0.766*
Body Inclination	-0.115

* Significant at 0.05 level

As shown in table -I that the value of coefficient of correlation. In case of Ankle joint (right), Knee joint (right), Elbow joint (right) and Hip joint showed insignificant and incase of Shoulder joint(right) and Wrist joint (right) showed significant relationship with the performance of subjects of coefficient of correlation for 6 degree of freedom is 0.707 and the obtained value of

coefficient of correlation of selected variables less than the required value.

DISCUSSIONS:

In case of Ankle joint (right), Knee joint(right), Elbow joint (right) and Hip joint showed insignificant and incase of Shoulder joint(right) and Wrist joint (right) showed significant relationship with the performance of subjects in Set Shot. Since the researcher has calculated the relationship individually.

This may be attributed to the fact that the angles at different joints mentioned in this study such as Knee joint, Ankle joint, Hip joint, Shoulder joint, Elbow joint, Wrist joint. Change from one individual to another according to his Anthropometric measurement. i.e. his height, leg length, arm length.

In set shot shoulder when facing the basket, the shoulder of the shooting arm is to one side of the line between the eyes and basket. Also the performance of Set Shot depends upon the accuracy and angle of release individual. Spin plays an important role in release of the performance of Set Shot may be the releasing of ball i.e. spin with the index finger.

CONCLUSIONS:

1. In case of Ankle joint (right), Knee joint(right), Elbow joint (right) and Hip joint showed insignificant and incase of Shoulder joint(right) and Wrist joint (right) showed significant relationship with the performance of subjects in Set Shot.
2. In case of body inclination does not have significant relationship with the performance of basketball players in Set Shot.

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