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Relationship of the Selected Angular Kinematic Variables with the Performance of Volleyball Players in Float Serve

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Abstract

The purpose of this study was to find out the relationship of the selected angular kinematic variables with the performance of volleyball players in Float serve. For the purpose of this study eight male vollyball players from the Department of Physical Education CSJM University, Kanpur were selected as subjects who had participated in inter university. The subjects were ranging from 18 to 25 years of age. To measure the performance of volleyball players in Float serve Russell – Lange test of Volleyball serve test were used. The product moment correlation (Pearson) was used in order to find out the relationship between selected angular kinematic variables with the performance of volleyball player's in float serve. The level of significance was set at 0.05. The results of study have shown that only in case of left knee joint of subjects had shown a significant relationship with the performance of float serve while other selected angular kinematic variables have shown the insignificant relationship with the performance of subjects in float serve

Key words: Angular Kinematic Variables, Float Serve, Russell-Lange Test

INTRODUCTION

The increasing development of a scientific approach to the analysis of human movements has been believed by this very problem. At one time the term kinesiology (literally, the science of movement) was used to described that body of knowledge concerned with the structure and function of the muscular-skeletal system of the human body. Later the study of the mechanical principles applicable to human movement became widely accepted as an integral part of kinesiology. Later still the term was used much more literally to encompass aspects of all the sciences that impinged in any way on human movement. At this point it became clear that kinesiology had quite lost its usefulness to describe specifically that part of the science of movement concerned with either the muscular-skeletal or the mechanical principles applicable to human movement. Several new terms were suggested as substitutes, and anthrop mechanics, anthrop kinetics, bio-dynamics, bio-kinetics and kinanthropology all had their proponents. From all this there ultimately emerged one term that gained wider acceptance than any other-biomechanics Analysis usually perform a quantitative film or video analysis with computer-linked equipment that enables the calculation of estimates of kinematic quantities of interest for each picture, the tradition procedure for analyzing a film or video picture involves a process called digitizing. This involves the activation of a hand-held pen, curser or mouse over subject joint centers or other point of interest, with the X, Y coordinates of each point subsequently stored in a computer data film. Some system enables automated tracking and digitizing of high contrast makers on the film or video by computer software.

The service is considered the first attack action in Volleyball games, most types of services can be recognized through the athlete's posture before he hits the ball. Frequently this information is not enough to prepare on adequate reception. Erratic behavior seems to appear along the trajectory hindering the reception. This work focuses on the characterization of the service ball's trajectories the float serve has little or no spin at all. Because a ball with no spin is very unstable, the float serve travels through the air with a wavering breaking, sinking, action, moving from side to side and up and down like a knuckle ball. This unpredictable flight pattern makes it a very difficult serve to pass. The fairly low risk involved in serving the floater and its high effectives. Have mode float serves the most popular among the men's and women's teams. To produce a float serve, the force of the impact must pass through the ball's center of gravity in the direction of the desired flight. The center of gravity in a symmetrically round object (a ball) is in its center. The greater the horizontal velocity of the ball, the greater the wobbling effect. Therefore, it is recommended that the float serve be served from a relatively long distance behind the endline twenty to thirty feet. Apparently, there is an optimum floating effect. This distance needs to be found for each individual server, independently, by experimentation and observation.

METHODOLOGY:

Eight male volleyball players from the Department of Physical Education ***CSJM University,Kanpur*** were selected as subjects who had participated in inter university. The subjects were ranging from 18 to 25 years of age. The study was delimited to the angular kinematic variables such as, Angle at Ankle Joint, Angle at Knee Joint, Angle at Hip Joint, Angle at Shoulder Joint, Angle at Elbow Joint. The criterion measure for this study was the performance of the subjects Float serves as assessed by Russell – Lange test of Volleyball serve.

1**. Angular Kinematic Variables:**

The selected kinematic variables such as angle at ankle joint, knee joint, hip joint, shoulder joint, elbow joint, wrist joint measuring was degree with the help of protector from the stick figures.

2**. Float Serve:**

All subjects performed ten trials of float serve; each float serve was scored according the value of the target area in which the ball landed. A ball landed on a line separating two areas was given the higher value. A ball landed on a side or the end line scored the value of the area adjacent. Trials which float serve fault occurred scored zero.

Statistical procedure:

The product moment correlation (Pearson) was used in order to find out the relationship between selected Biomechanical variables with the performance of volleyball player's in float serve. The level of significance was set at 0.05.

RESULTS:

RELATIONSHIP OF SELECTED ANGULAR KINEMATIC VARIABLES WITH THE PERFORMANCE OF SUBJECTS IN FLOAT SERVE

(N=8)

S.NO	VARIABLES CORRELATED	MEAN DEGRESS	COEFFICIENT OF CORRELATION

			(r)
1.	Ankle Joint (left) and F.S. performance	114.8	0.645
2.	Ankle Joint (right) and F.S. performance	116.8	0.304
3.	Knee Joint (left) and F.S. performance	171	0.736
4.	Knee Joint (right) and F.S. performance	164.8	-0.254
5.	Hip Joint (left) and F.S. performance	167.8	0.326
6.	Hip Joint (right) and F.S. performance	167.1	0.408
7.	Shoulder Joint (left) and F.S. performance	20.3	-0.164
8.	Shoulder Joint (right) and F.S. performance	153.6	-0.161
9.	Elbow Joint (left) and F.S. performance	86.6	-0.152
10.	Elbow Joint (right) and F.S. performance	153.6	0.557
11.	Wrist Joint (left) and F.S. performance	168.2	0.327
12.	Wrist Joint (right) and F.S. performance	169	0.108

*significant, $r_{0.05}(06) = 0.707$

As shown in table the obtained value of correlation (r= 0.707) for 6 df any angle of left knee joint of the subjects was greater than the required value of 0.707 at 0.05 level of significance .however, the obtained value of coefficient of correlation in other variables were less than the required value at selected level of significance, There for, These selected angular kinematic variables at selected moment have shown insignificant relationship with the performance of subjects.

CONCLUSION:

The analysis of the data revealed that the only one variable i.e. the angle at left knee joint of subject which happen to be the supporting leg (calf) in the float serve has exhibited significant relationship at the selected level of 0.05.this means that while doing float serve leg is extended maximally and great stability of leg to increase the performance it happen to all body extension and body reach maximum range.

However, other angular kinematic variables ankle joint (left) ankle joint (right), knee joint (right), hip joint (left),hip joint (right), shoulder joint (left), shoulder joint (right), elbow joint (left), elbow joint (right), wrist joint (left), wrist joint (right) did not show significant relationship

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