RELATIONSHIP OF SELECTED ANTHROPOMETRIC AND BIOMECHANICAL VARIABLES TO THE PERFORMANCE OF THROWING IN SOCCER

[1]**Gautam singh**
[2]**Kulvinder Singh Bagga**
[1]Lecturer in Physical Education K.r.r.t.t College, Mathura.
[2]Lecturer in Physical Education G.B Pant College, Kachala.

ABSTRACT

The purpose of this study was to compare the relationship of anthropometric and biomechanical variable to the performance of throwing in soccer. The subject's age ranged between18-25years, they all were selected randomly from All India Intervarsity Football Tournament. All the subjects were medically tested before undergoing the present study. The subjects were thoroughly acquainted with the testing procedure as well as the purpose of the study. All the subjects agreed to undergo the testing programmed and cooperated during the course of study. The criterion measured for this study was the distance covered by the ball from moment release to the moment contact with ground. Sequential photographs were employed for the biomechanical analysis of throwing the ball.. The distance of this camera from the subject was about 11.05 mts. and was fixed at 1.07 mts. height. To obtain reliable measurements, standard and calibrated equipments like, camera, steadiometer, weighing machine, steel tape etc. were used. In order to establish the reliability of anthropometric measurements, which were taken on two consecutive days, test retest coefficient of correlation was calculated. The results had shown high degree of reliability. The relationship of selected anthropometric and biomechanical variables with performance of throw in in soccer will be calculated by using Pearson's Product Moment Correlation. For testing hypothesis the level of significance will be set at 0.05 levels. The biomechanical variables namely angle off ankle joint, hip joint, knee joint shoulder joint elbow joint and center of gravity have significant relationship with performance of subject in throw in. The obtained value of co-efficient of correlation of selected biomechanical variables at the moment release has shown insignificant relationship with the performance of throw in. The result of the study reveals that none of the anthropometric and biomechanical variables shows significant relationship with the performance of throw in. Since the result have shown insignificant relationship with all selected biomechanical and anthropometric variable to the performance of throw in hence the research hypothesis is rejected.

Key words: Anthropometric, biomechanical, Variables, Soccer,

INTRODUCTION

Physical education seems to have taken a new turn in the form of sports sciences. The sports sciences in turn have their substance and methodology from various basic sciences. For many years the research in sport was being undertaken within these basic sciences but with the advancement of knowledge, the new specialization and micro specialization have taken a respectable position. As a matter of fact, the research now-a-days, embraces knowledge from various disciplines of human science. In India too in the recent years some research work had been going on in the basic discipline, pertaining to sport. Now the sportsman have been able to given outstanding performance because of involvement of new scientifically substantiated training methods and means of execution of sport exercises such as sports techniques and tactics as well as other components and conditions of the system of training.

METHODOLOGY

Five male intervarsity players of 18 to 24 years of age, who had participated in All India Intervarsity Football Tournament, were selected as subjects for this study. Since the subjects had undergone training therefore, it can be considered that they would possess good level of technique of thrown in. The purpose of study will be explained to the subjects and they will be also told to put their best during each trial.

The criterion measured for this study was the distance covered by the ball from moment release to the moment contact with ground. Filming Protocol and Analysis were employed for the biomechanical analysis of throwing the ball. The camera used for this purpose was a standard Nikon Model EM (with motor drive. For obtaining individual photographic sequence, the subjects were photographed in controlled conditions. The distance of this camera from the subject was about 11.05 mts and was fixed at 1.07 mts. height.

RESULT AND DISCUSSION

The relationship of selected anthropometric and biomechanical variables with performance of throw in in soccer were calculated by using Pearson's Product Moment Correlation. For testing hypothesis the level of significance will be set at 0.05 level.

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S.NO.	Variables	Coefficient of Correlation

1.	Height	0.46
2.	Weight	0.30
3.	Arm length	0.22
4.	Fore arm length	0.29
5.	Leg length	0.21

Table indicates that none of the anthropometric variables
Namely height, weight, arm length, forearm length and leg length have significant relationship with performance of the subject in throw in.

RELATIONSHIP OF SELECTED BIOMECHANICAL VARIABLES WITH THE PERFORMANCE OF THROWIN

In order to ascertain the relationship of selected biomechanical variables namely angle of ankle joint, knee joint, hip joint, shoulder joint, elbow joint and center of gravity with the performance of subject throw in, the product moment correlations were calculated at moment release. The results are presented in table.

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Variables	**Coefficient of Correlation at Moment Release**
Ankle (both legs)	0.37
Hip joints (both legs)	0.21
Knee joint (both legs)	0.16
Shoulder (both hands)	0.75
Elbow (both hands)	0.43
Height of C.G	0.63

Table indicate that none of the biomechanical variables namely angle off ankle joint, hip joint ,knee joint shoulder joint elbow joint and center of gravity have significant relationship with performance of subject in throw in. Even through the value of efficient of correlation in case of shoulder joint at moment release has exhibited quit high but was not found significant.

Discussion of findings

In case of anthropometric measurement none of the anthropometric variables has exhibited significant relationship with the performance of throw in. It may because of small sample size. It is the fact that greater radius of rotation provided greater momentum. But here the arm length has not shown significant relation it may be because of other factors.The obtained value of co-efficient of correlation of selected biomechanical variables at the moment release has shown insignificant relationship with

the performance of throw in.The result of the study reveals that none of the anthropometric and biomechanical variables shows significant relationship with the performance of throw in. it does not mean that these variable have not contributed to the performance , but the insignificant values of co-efficient of correlation of such variable with the performance might have been due to the small size of the sample and non-availability of sophisticated equipments.

Since the result have shown insignificant relationship with all selected biomechanical and anthropometric variable to the performance of throw in hence the research hypothesis is rejected.

RECOMMENDATIONS

Based on the conclusion drawn in the study, the following recommendation have been made**.**

1. The result of the study may be helpful to the physical education teacher and coaches to evaluate the performance of their players.

2. The result of the study may be helpful to prepare a technique model for university level soccer player.

3. The result of the may be used by teacher of physical education in selection of soccer player.

4. The soccer player can make self assessment with the results of the study.

5. Similar studies may be conducted by using sophisticated equipment and subjects of different level of and sex.

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