International Journal of Movement Education and Sports Sciences (IJMESS)
Annual Refereed & Peer Reviewed Journal Vol. XI No. 1 January-December 2023
Online ISSN 2321-7200 Print ISSN 2348-5604
A UGC Approved & Notified Journal with RJIF Impact Factor .524

Relationship of Chronological and Anthropometric Variables with the Performance of Rotational Technique in Discus Throw

Pradip Saini* Prof. T. Onima Reddy**
*Research Scholar, Department of Physical Education, Banaras Hindu University, Varanasi, India
**Supervisor, Professor, Department of Physical Education, Banaras Hindu University, Varanasi, India

(Received 19 July 2023- Accepted & Published 29 July 2023)

ABSTRACT

The purpose of the study was to determine the relationship of chronological and anthropometric variables with the performance of the rotational technique in discus throw. The finding of this study would indicate the no relationship of anthropometric parameters to the performance of the rotational technique of discus throwers. It should be also helpful in preparing some training programs to develop the rotational technique of discus throwers. For the present study, the sample consisted of eight Indian male national-level discus throwers. The age ranged of the subjects ranged Between 27 to 32 years. Subjects were selected from the national interstate senior athletics championship-2023, Bhubaneswar (India). All the anthropometric measurements were taken with the help of an anthropometric kit and performance was evaluated by qualified officials. For analysis of data correlation (Pearson Correlation) test was used. The level of significance was set at 0.05 levels. Results of the study revealed that age, height, weight, upper arm, lower arm, palm, upper leg, lower leg, and foot length obtained values (.241), (.543), (.610), (.493), (.174), (.591), (.634), (.478), (.350), is less than Tabulated value (0.707) therefore it have shown insignificant relationship with performance of rotational technique in discus throw.

Keywords: Chronological, anthropometric, rotational technique, discus throw

Introduction

Changes are the order of the day. Changes are taking place every day in every walk of life. Life of people their philosophy, way of living etc. are undergoing changes due to basic and applied research in various field. Man has reached the space age from the primitive Stone Age because of continuous change. The modern age is the age of science, the progress mankind has achieved through the last quarter of centuries. Technology has permeated every aspect of modern life and sports are no exception. Science applied to sports has enabled modern youth to develop physical capabilities beyond anything imagined earlier. “Competition is one of the outgrowths of modern life. It is a natural human activity which is inevitable in life and the education process should assist in the preparation of individuals for the battle of life” Progress and a high degree of achievement are the true reflexes of the wonderful world of competition. Nothing could have been higher faster and farther if there had been no competition in sports.

Objective of the Study

The purpose of the study was to determine the relation of chronological and anthropometric measurement with the performance of rotational technique in discus throwers.

Methodology

Selection of Subject: For the present study, the sample consisted of eight Indian male national-level discus throwers. The age range of the subjects ranged Between 27 to 32 years. Subjects were selected from the 62nd national interstate senior athletics championship-2023, Bhubaneswar (India).

Selection of Variables:
Chronological and anthropometric measurements of all the selected players were selected as independent variables, and rotational discus throw performance was selected as a dependent variable of the present study.

Selection of Test:
To find out the relationship in between independent (Chronological and anthropometric variables) and dependent variable (Rotational technique discus throw performance) the research scholar selected the following test.

Dependent Variable:
Rotational technique discus throw performance was evaluated through the 62nd national interstate senior athletics championship-2023, officials.

Independent Variables:
All the selected independent variables like; age in year, weight in kg, height, upper arm, forearm, palm, upper leg, lower leg, and foot length were measured in centimetres by the help of an Anthropometric kit.

Procedure of data collection
The test was administered to the subjects who were participated in 62nd national interstate senior athletics championship-2023, Bhubaneswar (India). The subjects had given many trials (1st, 2nd, 3rd position six trials and others position three trials) and the best trial was used for discus throwing performance. Chronological and anthropometrical data collection after the competition by anthropometric kit.

Statistical Technique
The statistical analyses of data pertaining to the study were collected on top eight (8) male Indian national-level discus throwers. For the analysis of data the correlation (Pearson correlation) test was used. The level of significance to check the relationship obtained by correlation (Pearson correlation) was set .05 level. All statistical functions were performed with the SPSS (version 24) software.

Finding and Results
The result was made based on the findings of the present study. The researcher reached at the result of this empirical investigation which is presented by the respective Table-1, Table-2, Graph-1and Graph-2

Table 1: Descriptive statistics of discus throwers in relation to chronological and anthropometric variables of rotational technique in discus throw

Variables	Mean	Std. Error	Std. Deviation	Variance	Skewness	Kurtosis	Min.	Max.
Age	29.750	.648	1.832	3.357	-.070	-1.222	27.00	32.00
Height	178.000	1.035	2.928	8.571	.000	-1.596	174.00	182.00
Weight	81.250	1.424	4.027	16.214	.650	-.356	76.00	88.00
Upper arm length	36.500	.964	2.726	7.429	-.141	-1.585	33.00	40.00
Fore arm length	29.625	.498	1.408	1.982	.480	-.564	28.00	32.00

Plam length	20.125	.398	1.126	1.268	.488	-.989	19.00	22.00
Upper leg length	52.250	.648	1.832	3.357	-1.045	-.127	49.00	54.00
Lower leg length	46.125	.398	1.126	1.268	.488	-.989	45.00	48.00
Foot length	26.250	.453	1.282	1.643	-.611	-.021	24.00	28.00

It is evident from Table-1 that Mean and Standard Deviation scores of chronological and anthropometrical variables of rotational technique in discus throw have been found as follows: Age in year Mean 29.75 (Std. 1.832), Height in cm, Mean 178 (Std. 2.927), Weight in kg Mean 81.25 (Std. 4.026), Upper arm in cm Mean 36.50 (Std. 2.725), Lower arm in cm Mean 29.625 (Std. 1.407), Palm in cm Mean 20.125 (Std. 1.125), Upper leg in cm Mean 52.25 (Std. 1.832), Lower leg in cm Mean 46.125 (Std.1.125), and Foot in cm Mean 26.25 (Std. 1.181) respectively.

Graph: 1 Graphical representation of male discus throwers in relation to chronological and anthropometric variables in rotational technique

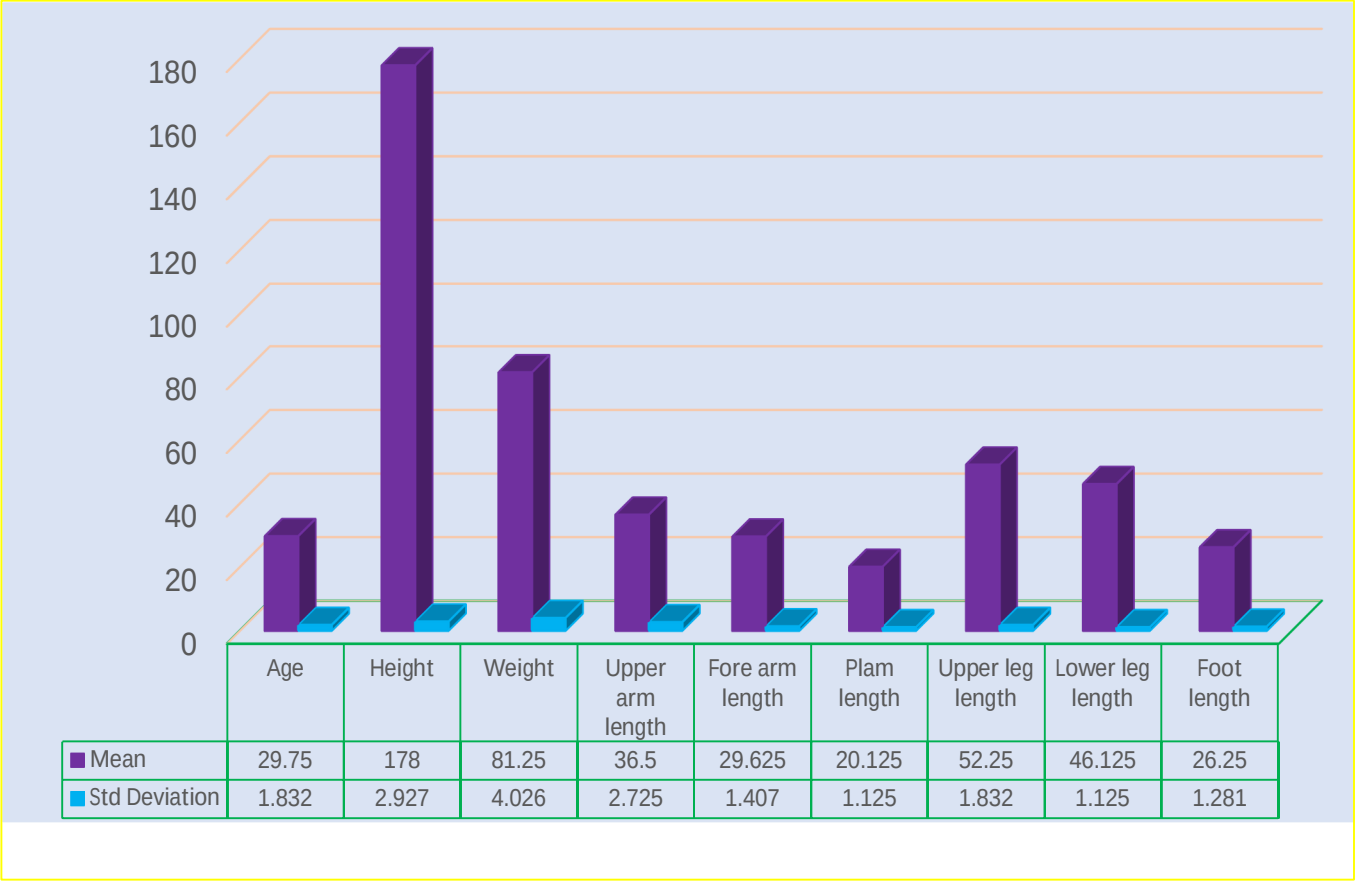


Table 2: Relationship of chronological & anthropometric variables with discus throw performance

N=8	PEARSON CORRELATION									
Variables	**Performance**	**Age**	**Height**	**Weight**	**Upper Arm Length**	**Fore arm Length**	**Plam Length**	**Upper Leg Length**	**Lower Leg Length**	**Foot Length**
Age	.241	1								
Height	.543	.479	1							
Weight	.610	.532	.945**	1						
Upper Arm Length	.493	.629	.949**	.885**	1					
Forearm Length	.174	.291	.762*	.649	.614	1				
Plam Length	.591	.225	.953**	.906**	.861**	.665	1			
Upper Leg Length	.634	.617	.905**	.842**	.915**	.595	.814*	1		
Lower Leg Length	.478	.502	.910**	.874**	.954**	.484	.887**	.814*	1	
Foot Length	.350	.821*	.571	.623	.654	.376	.371	.760*	.470	1

**** Correlation is significant at the 0.01 level (2-tailed).**

*** Correlation is significant at the 0.05 level (2-tailed).**

Table- 11 reveals that in case of age, height, weight, upper arm length, forearm length, palm length, upper leg length, lower leg length, foot length obtained values (.241), (543), (.610), (.493), (.174), (.591), (.634), (.478), and (.350) are lower than tabulated value of (0.707) therefore it shows insignificant relationship of these independent variables with performance in discus throw.

Since the significant relationship was found between age and foot length among independent variables as calculated "r" (.821*) is found greater than the required tabulated value of (.707) at 0.05 level of significance.

Since the significant relationship was found between height and weight among independent variables as calculated "r" (.945**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.

Since the significant relationship was found between height and upper arm length among independent variables as calculated "r" (.949**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.

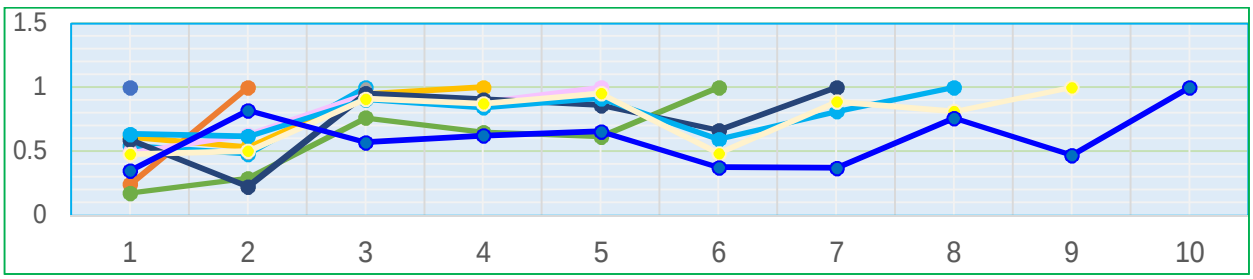
Since the significant relationship was found between height and forearm length among independent variables as calculated "r" (.762**) is found greater than the required tabulated value of (.707) at 0.05 level of significance.

Since the significant relationship was found between height and palm length among independent variables as calculated "r" (.953**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.

Since the significant relationship was found between height and upper leg length among independent variables as calculated "r" (.905**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.

Since the significant relationship was found between height and foot length among independent variables as calculated "r" (.910**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between weight and upper arm length among independent variables as calculated "r" (.885**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between weight and palm length among independent variables as calculated "r" (.906**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between weight and upper leg length among independent variables as calculated "r" (.842**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between weight and lower leg length among independent variables as calculated "r" (.874**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between upper arm length and palm length among independent variables as calculated "r" (.861**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between upper arm length and upper leg length among independent variables as calculated "r" (.915**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between upper arm length and lower leg length among independent variables as calculated "r" (.954**) is found greater than the required tabulated value of (.834) at 0.01 level of significance.
Since the significant relationship was found between palm length and upper leg length among independent variables as calculated "r" (.814*) is found greater than the required tabulated value of (.707) at 0.05 level of significance.
Since the significant relationship was found between palm length and lower leg length among independent variables as calculated "r" (.887**) is found greater than the required tabulated value of (.834) at 0.01 level of significance,
Since the significant relationship was found between upper leg length and lower leg length among independent variables as calculated "r" (.814**) is found greater than the required tabulated value of (.707) at 0.05 level of significance.
Since the significant relationship was found between upper leg length and foot length among independent variables as calculated "r" (.760**) is found greater than the required tabulated value of (.707) at 0.05 level of significance.

Graph: 2 Graphical representation of the relationship of chronological & anthropometric variables with discus throw performance



Discussion of the Study

The correlation (Pearson correlation) technique was applied to determine the relationship of the chronological and anthropometrical variables with the performance of the rotational technique in discus throw. Chronological-variable age and anthropometric variable - height, weight, upper arm, forearm, palm, upper leg, lower leg, foot length obtained values (.241), (543), (.610), (.493), (.174), (.591), (.634), (.478), and (.350) are lower than tabulated value of (0.707) therefore it shows insignificant relationship of these independent variables with performance in discus throw.

Conclusion

Based on the result of the study the following conclusions were drawn Insignificant correlation was found between age, height, weight, upper arm length, forearm length, palm length, upper leg length, lower leg length and foot length of discus throwers with the performance of Rotational technique in relation to the chronological and anthropometrical variables.

References

1. Ahmed, M, (2010). Comparison of selected physical fitness variables of 18 years athletics between age group of 12 to 14 years. Asian Journal of Physical Education and Computer Science in Sports, 2, 225-229.

2. Behnke AR, Wilmore JH. (1984). Evaluation and regulation of body build and composition. Englewood Cliffs, NJ: Prentice Hall.

3. Careter JEL, Schmitdt PK. A. (1990). simple method for calibrating skinfold callipers. Proceeding of commonwealth and International Conference on Physical education, sport, Health, Dance, Recreation and Leisure. Auckland, New Zealand, 3(1):49-53.

4. Gangey O, Kerketta I. (2016). Relationship between selected motor fitness and playing ability of Volleyball players. International Journal of Academic Research and Development, 1(6): 25-26

5. Kansal Devender K.(2008). Textbook of applied Measurement Evaluation & sports Selection New Delhi: SSS Publication.

6. Nagar, et al. (2012). Correlation of selected anthropometric and physical fitness variable to basketball performance, International Scientific Journal of Sports Science, 1(2), 91-95.

7. The Biomechanics of Sports Techniques, Fourth Edition. Prentice-Hall, Inc. Subarjah, H, Permainan Bulutangkis. CV. Bintang Warliartika Bandung, 2011.

8. Allard P, Blanchi J-P, Aissaoui R. Bases of Three Dimensional Reconstruction. In P. Allard (Ed.), Three Dimensional Analysis of Human Movement. Champaign, Ill.: Human Kinetics, 1995, 19-40.

9. Verma JP. (2009). A Textbook on Sports Statistics, Sports Publication, New Delhi.