



An analytical study of anthropometric characteristics among archery players and shooters

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Abstract

Thus, the aim of this study was to determine the comparative analysis of anthropometric characteristics among Archery players and Air Shooting Players. A sample of one hundred Twenty-two (N=122), male Inter-College Archery players and Air Shooting Players (Archery players =61, Shooting Players=61, were selected through purposive sampling technique between the age group of 20 to 25 years, were selected. To find out the significant differences of anthropometric characteristics among Archery players and Air Shooting Players, One-way Analysis of Variance ANOVA was employed for data analyses. To test the hypothesis, the level of significance was set at 0.05. The Empirical show that anthropometric characteristics have insignificant differences with regard to Archery players and Air Shooting Players on the sub-variable Leg Length, Upper Leg Length Lower Leg Length, Arm Length, Hip Width, Shoulder Width, Chest Width, Calf Girth, Thigh Girth, Thigh Girth, Chest Girth. However, significant differences were found with regard to anthropometric characteristics among Archery players and Air Shooting Players on the sub-variables Upper Arm Length, Lower Arm Length ($p>0.05$).

Keywords: anthropometric characteristics, archery players and air shooting players

Introduction

The history of sports in India is very ancient and dates back to the Vedic era. It is more likely that many of today's Olympic disciplines are advanced versions of games of strength and speed that flourished in Ancient India. Shooting, Chess, Wrestling, Polo, Archery and Hockey are some of the games believed to have originated in India. In early India, games and sports were very much concerned about the development of the physique and for the art of offence and defense. also games were considered a kind of recreation, which played a vital role in the development of a man's personality. Archery and shooting is a traditional sports item with a long history from a deadly combat to a complete sport. as early as in ancient times, the sword is the tools used by the human to fight with wild beasts and predate in order to survive. With the development of human history, the sword has developed from the original stone sword, bone sword to bronze sword and iron sword and its function has also evolved from initial tools into weapons used in war and gradually walked onto the stage of history, but it gradually receded from the history of war accompanying the arrival of firearm era. The popularity of typography enables the heritage of civilization and fencing culture also wins development and improvement. In modern Archery and shooting, competition is divided among deferent's levels. influenced the arm-hand steadiness. The findings that the subjects were steadier with their preferred hand and that they were steadier in the elbow-supported position can easily understood. In this study an effort was made to look into the one such human performance factor, the anthropometric ability of shooting and archery players. The visual system plays a critical role in sports performance, as it does in the performance of virtually all perceptual-motor skills. We have assorted qualities in physical attributes, for

example, age, height, strength and general physicality. Varieties in body measure because of ecological impacts are much bigger than those subsequent from hereditary contrasts (Johnston 1995). Furthermore, fencing is an intricate, rapid and additionally specialized and strategic, multidimensional game (Vertopoulos, Tsolakis, & Remoundou, 2010).

Archery- Archery is the art, sport, practice or skill of using a bow to shoot arrows. The word comes from the Latin arcus. Historically, archery has been used for hunting and combat. Shooting sports is a collective group of competitive and recreational sporting activities involving proficiency tests of accuracy, precision and speed in using various types of ranged weapons, mainly referring to man-portable guns (firearms and air guns, in forms such as handguns, rifles and shotguns) and bows/crossbows.

Method

Subjects

For the purpose of the study, one hundred and twenty-two (N=122) male inter-college level Archery players and Shooters of 20 to 25 years of age group were selected to act as subjects. These subjects include 61 Archery players and 61 Shooters. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study.

Selection of Variables

"A feasibility analysis as to which of the variables could be taken up for the present investigation, keeping in view the availability of tools, adequacy to the subjects and the legitimate time that could be devoted for tests and to keep the entire study unitary and integrated was made in consultation

with experts. With the above criteria's in mind, the following variables were selected for the present study:"

Fig 1: Anthropometric Characteristics

Variables	Test Items	Unit of Measurement
Leg Length	Flexible steel tape	Centimeters
Upper Leg Length	Length Flexible steel tape	Centimeters
Lower Leg	Length Flexible steel tape	Centimeters
Arm Length	Flexible steel tape	Centimeters
Hip Width	Sliding calipers	Centimeters
Shoulder Width	Sliding calipers	Centimeters
Chest Width	Sliding calipers	Centimeters
Calf Girth	Flexible steel tapes	Centimeters
Thigh Girth	Flexible steel tapes	Centimeters
Chest Girth	Flexible steel tapes	Centimeters

Fig 2: Findings with regard to anthropometrics variables among Archery and Shooters and its sub-variables

Variables	Archery Players		Shooters		f-value
	Mean	SD	Mean	SD	
Leg Length	101.97	4.19	101.18	4.36	0.010
Upper Leg Length	50.95	2.20	50.59	2.25	0.304
Lower Leg Length	50.82	2.28	50.27	2.32	0.258
Arm Length	82.00	2.37	81.89	2.69	0.018
Upper Arm Length	36.04	1.30	36.22	1.23	3.086
Lower Arm Length	47.16	3.75	45.51	1.81	4.878*
Hip Width	30.88	2.74	31.13	2.45	0.107
Shoulder Width	35.48	1.96	35.38	1.86	0.099
Chest Width	31.20	1.55	30.92	2.71	0.263
Calf Girth	38.72	1.71	38.06	1.82	1.772
Thigh Girth	55.56	2.01	55.15	1.78	1.034
Chest Girth	90.61	2.81	90.06	3.26	0.549

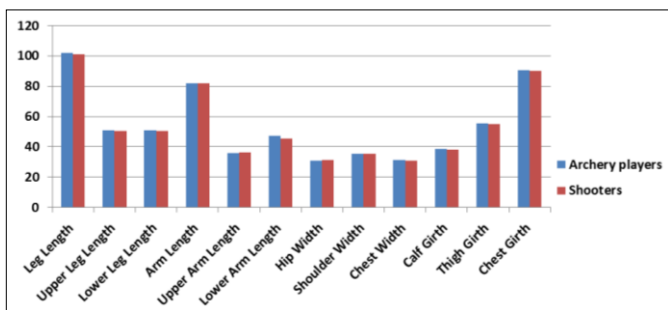


Fig 1: Graphical representation of mean scores Archery Players among Anthropometric Characteristics

Table 3: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the sub-variable Leg Length

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	19.985	2	9.993	.572	.566
Within Groups	2077.302	119	17.456		
Total	2097.287	121			

It is evident from table-3 that results of Analysis of Variance (ANOVA) with regard to Anthropometric Characteristics among Archery Players and Shooters the variable Leg Length were found statistically insignificant ($P > .05$).

Table 4: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the sub-variable Upper Leg Length

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	3.211	2	1.606	.318	.728
Within Groups	600.437	119	5.046		
Total	603.649	121			

It is evident from table-4 that results of Analysis of Variance (ANOVA) with regard to Anthropometric Characteristics among Archery Players and Shooters the variable Upper Leg Length were found statistically insignificant ($P > .05$).

Table 5: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the sub-variable Lower Leg Length

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	10.940	2	5.470	1.155	1.155
Within Groups	563.413	119	4.735		
Total	574.353	121			

It is evident from table-5 that results of Analysis of Variance (ANOVA) with regard to Anthropometric Characteristics among Archery and Shooters on the variable Lower Leg Length were found statistically insignificant ($P > .05$).

Table 6: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the sub-variable Arm Length

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	17.327	2	8.663	1.384	.254
Within Groups	744.698	119	6.258		
Total	762.025	121			

It is evident from table-6 that results of Analysis of Variance (ANOVA) with regard to anthropometric characteristics among Archery and Shooters on the variable arm length were found statistically insignificant ($P > .05$).

Table 7: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the sub-variable Upper Arm Length

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	13.289	2	6.644	3.086*	.049
Within Groups	256.230	119	2.153		
Total	269.518	121			

It is evident from table-7 that results of Analysis of Variance (ANOVA) with regard to Anthropometric Characteristics among Archery and Shooters on the variable Upper Arm Length were found statistically significant ($P < .05$). Since the obtained F-ratio 3.086* was found statistically significant, therefore, Post-hoc test (Scheffe) was applied to find out the degree and direction of differences between paired means among Archery and Shooters on the variable Upper Arm Length.

Table 8: Analysis of Variance (ANOVA) results with regard to Anthropometric Characteristics among Archery and Shooters on the variable Upper Arm Length

Mean	Mean Difference	P-value (Sig.)
Archery players (36.04)	1.65351*	.018
Shooters (36.22)	1.65351*	.018

*Significant at 0.05

From table 10, the following conclusions can be drawn:

- i. It has been observed from the table-92 that mean difference between Foil and Sabre. was found 1.65351. The Foil (47.16). Had exhibited significantly better on Upper Arm Length than their counterpart (45.51).
- ii. The mean difference between Archery and Shooters was found 1.26190. Archery players (47.16) had demonstrated better on Upper Arm Length than their counterpart Shooters (45.90).

Conclusions of the study

The Empirical show that anthropometric characteristics have insignificant differences with regard to Archery and Shooters on the sub-variable Leg Length, Upper Leg Length Lower Leg Length, Arm Length, Hip Width, Shoulder Width, Chest Width, Calf Girth, Thigh Girth, Thigh Girth, Chest Girth. However, significant differences were found with regard to anthropometric characteristics among Archery and Shooters on the sub-variables Upper Arm Length, Lower Arm Length.

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