

SHOOTING SKILLS OF FEMALE TRIBAL AND NON-TRIBAL ARCHERS FROM 20 YARD : WITH REFERENCE TO PHYSICAL FITNESS

Dr. Vivek Mishra* & Dr. R. N. Mishra**

ABSTRACT

The aim of the present study is to find out the effect of physical fitness on shooting skills of tribal and non-tribal female archers. To conduct the study, 33 state level tribal female archers (Ave. age 19.23 yrs.) were selected as sample. Another set of 33 state level non-tribal female archers (Ave. age 18.23 years) were also selected for the present study. Rogers Fitness test was used to evaluate physical fitness of selected subjects with the help of linear transformation method. To measure shooting ability from 20 yard distance of selected archers, AAHPER Archery Test was used. Q_1 and Q_3 cutting points were adopted to bifurcate cases into high and low levels of physical fitness. Results reveal main effects of physical fitness as well as tribal- non tribal belongingness on basic shooting skills of female archers from 20 yard. The interaction effect of physical fitness and tribal-non tribal belongingness was not observed on shooting skills of female archers from 20 yards. It was concluded that physical fitness and tribal-non tribal belongingness emerged as potential enough variables that alone but not in interaction with each other, influence shooting skills of female archers from 20 yards.

Keywords: Tribal, Non-tribal, Archery, Shooting Skills, Females

* Principal, Netaji Subhas College, Abhanpur (C.G.)

** Sports Officer, Govt.P.G. College, Mahasamund (C.G.)

INTRODUCTION

There is a misconception that archery do not require high level of physical fitness. Contrary to this archery requires certain fitness components to shoot accurately and without physical fatigue. To draw the bow upper back and shoulder strength, to control the draw arm upper and shoulder muscles and to extend the bow arm, arm muscles are required. The finger muscles are used to hold the string. Apart from this flexibility also plays a major role in archery performance. In addition to this a certain level of physical fitness is also required in order to control fatigue during continuous shooting in archery.

Although research in field of archery performance contains studies which deals with so many factors such as biomechanical, psychological, physiological, hemodynamics etc. [Dey (1997), Erton (2004), Koji, T. et al. (2006), Kentaro, K. et al (2007), Ertana, A. (2008), Simsek and Ertan (2014), Dabas et al. (2014)]. Surprisingly studies on shooting skills of Indian female archers are far and few. It is even more surprising because female archers from India come from tribal and non-tribal communities. Hence in the present study effect of physical fitness and tribal-non tribal belongingness on shooting skills of female archers from 20 yards has been assessed.

It was hypothesised that physical fitness and tribal-non tribal belongingness alone and in interaction with each other will influence shooting skills of female archers from 20 yards

METHODOLOGY

Sample :

To conduct the study, 33 state level tribal female archers (Ave. age 19.23 yrs.) were selected as sample. Another set of 33 state level non-tribal female archers (Ave. age 18.23 years) were also selected for the present study. Random sampling method was used for the selection of subjects.

Tools:

Rogers physical fitness test which consists of test items namely Lung capacity, Grip strength, Back strength, Leg Strength Pull up and Push-up, was used to assess the physical fitness of the selected subjects.

To measure shooting ability from 20 yard distance of selected archers, AAHPER Archery Test was used. In this test 9 points were given if the subject hits the gold area, 07 points for red area, 05 points for blue area, 03 points for black area and 01 point was given when the archer hits the white target area. In all 6 attempts are given to each subject.

Administration of Test:

Physical fitness of the selected subjects was ascertained by Roger's physical fitness test as per availability and suitability of the subjects.

Linear transformation method (i.e. ranking) was used for each item to assess the physical fitness of the selected subjects. Lower the ranking higher the physical fitness is the key used to analyse physical fitness.

To gather score on shooting skills, scores on target zone for each subject was computed by adding the number of arrows in the specified coloured target zone. This is done by instructions provided in the Manual of Archery Skill Test.

Q_1 and Q_3 cutting points were adopted to bifurcate cases into High and Low physical fitness i.e. scores on physical fitness lie below 25th percentile were termed as high and above 75th percentile were termed and grouped as subjects with lower level of physical fitness .

RESULTS AND DISCUSSION

To find out the effect of physical fitness (High-Low) and tribal - non tribal belongingness on archery shooting skills of female archers from 20 yards, 2x2 ANOVA techniques was adopted. Results shown in Table I - 2

TABLE 1

EFFECT OF PHYSICAL FITNESS ON SHOOTING ACCURACY OF TRIBAL (A) AND NON TRIBAL (B) FEMALE ARCHERS

		Tribal and Non tribal Archers		Marginal Mean
		Tribal Female Archers (N=33)	Non Tribal Female Archers (N=33)	
Physical Fitness (A)	Good(a_1)	N=16 M=19.62	N=16 M=14.31	16.96
	Poor (a_2)	N=17 M=13.70	N=17 M=8.58	11.14
Marginal Mean		16.66	11.45	

TABLE 2

ANOVA SUMMARY

Source of Variation	df	Sum of Squares	Mean Square	F-ratio
A	1	558.706	558.706	16.01*
B	1	448.338	448.338	12.85*
AB	1	0.156	0.156	0.004
Within Treatment (Error)	62	2162.835	34.884	

* Significant at .01 level

A perusal of statistical entries reported in table 1 and 2 gives following inferences:

The main effect of physical fitness was observed on shooting skills of female archers from 20 yards. Female archers with good physical fitness (M=16.96) showed superior shooting skills from 20 yards as compared to female archers with poor physical fitness (M=11.14) at .01 level of statistical significance [$F=16.01$, $p<.01$].

The main effect of tribal-non tribal belongingness was also observed on shooting skills of female archers from 20 yards. Tribal female archers (M=16.66) showed superior shooting skills from 20 yards as compared to non tribal female archers (M=11.45) at .01 level of statistical significance [$F=12.85$, $p<.01$].

. The two factor joint action effect of physical fitness and tribal-non tribal belongingness was not observed on shooting skills of female archers from 20 yards. [$F=0.004$, $p>.05$]

DISCUSSION

Results clearly indicate that physical fitness has significant role as far as shooting skills of female archers from 20 yards is concerned. It highlights the importance of certain level of physical fitness to execute archery tasks efficiently. Previously Debnath (2000) also found a significant and positive correlation between flexibility and archery performance.

As far as tribal female archers performance is concerned, it may be due to the fact they are used to archery since childhood that reflects in their better shooting skills than non tribal archers.

The non significant interaction between physical fitness and tribal-non tribal belongingness on shooting skills of female archers is not surprising because the main effect of both these independent variables are statistically significant.

CONCLUSION

On the basis of results, it was concluded that physical fitness and tribal-non tribal belongingness did not effect the female archer's shooting skills from 20 yard distance.

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