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Relationship of Selected Anthropometric Variables with the Performance of Pistol Shooting

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Abstract - The purpose of the study was to investigate a relationship between a selected anthropometric measurement with the performance of the pistol shooting among the male of Institute of Professional Studies, Gwalior. Twenty-five subjects were taken for the study and the age of the subjects ranged between 18 to 24 yrs. Selected anthropometric measurements were Arm length, leg length, upper arm girth, bi-acromial width, chest girth, hip girth, thigh girth, calf girth, height and weight. These selected anthropometric measurements were taken by anthropometric measuring tape, large sliding caliper, stadiometer and weighing scale. Based on the rules of the sport, the performance was recorded. Each subject was given three attempts and the best was taken for the analysis of the study. The data was analysed using Pearson product moment correlation and the level of significance to test the hypothesis was set at 0.05 level.

Keywords - anthropometric measuring tape, large sliding caliper, stadiometer and weighing scale.

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INTRODUCTION

Anthropometry is the study of the measurement of the human body in terms of the dimensions of bone, muscle, and adipose (fat) tissue. Talent identification usually monitor several parameters, once of which is anthropometry. There are a variety of anthropometric techniques that are used in talent identification. Using evidence from a variety of study, information has been provided about how sports have used anthropometry and somatotype and physical abilities for talent identification. The combination of body composition and body size traits which are believed to influence the chance of success in sport. Therefore, it is suggested that the measurement of anthropometry and somatotype is a crucial tool in the search for information to assist coaches and athletes in the quest for success at the highest level in any sport.

METHODOLOGY

In this study twenty-five male pistol shooters of Institute of Professional Studies , Gwalior were selected as subjects. The age of the subjects ranged from 18-24 yrs. Selected anthropometric measurements Arm length, leg length, upper arm girth, chest girth, hip girth, thigh girth, calf girth were measured by a flexible tape, bi-acromial width of the subjects were measured by large sliding caliper, height were measured by stadiometer and weight were measured by a standard weighing scale.

To find out a relationship between these selected anthropometric measurements with the performance of pistol shooting, pearson's product moment correlation was employed at 0.05 level of significance.

It was hypothesized that there will be no significant difference between selected anthropometric measurements with the performance of the pistol shooting. The result of the study showed that all the selected anthropometric measurements were not significantly correlated with the performance of the pistol shooting. Thigh girth, chest girth and calf girth showed a significant correlation with the performance of the pistol shooting. Whereas the other selected anthropometric measurements i.e. upper arm girth, arm length, leg length, bi-acromial width, height and weight showed a negative correlation with the performance of the pistol shooting

FINDINGS AND DISCUSSION

Table 1: Coefficient of Correlation Between Dependent Variable (Pistol Shooting Performance) and Independent Variables

Independent variables	Coefficient of correlation
Arm length	-0.308
Leg length	-0.426
Upper arm girth	-0.062
Chest girth	0.622*
Hip girth	-0.375
Thigh girth	0.557*
Calf girth	0.425*
Bi-acromial width	-0.108
Height	-0.104
Weight	-0.032

*significance at 0.05 level of significance.

$r_{.05}$ (23) = 0.396

Analysis of data in the table reveals that some of the independent- variables were not correlated significantly with the pistol shooting performance. Arm length, Leg length, bi-acromial width, upper arm girth and hip girth has shown a negative correlation with the pistol shooting performance. Whereas, chest girth, thigh girth and calf girth have shown a positive correlation with the performance of the pistol shooting.

Thigh girth showed a significant relationship with pistol shooting performance (r=0.557) as it is evident that without developed thigh muscle leads to better stability. Calf girth also correlated significantly (r=0.425) with pistol shooting performance as heavy calf muscle is advantageous, proportioned calf muscle enables better balance while standing in pistol shooting. Analysis also revealed that chest girth showed significant relationship (r=0.622) with the pistol shooting performance as it plays a key role in holding. This also depicts the powerful chest and upper back muscle which plays a key role. Leg length has shown negative correlation (r.= -0.426) with the performance of the pistol shooting. Upper arm girth, bi-acromial width, hip girth and weight had also indicated a negative correlation with the performance of the pistol shooting. This result provides a contradiction in the present study, further research is needed in this area. The result obtained may be because of the small sample size.

CONCLUSIONS

Based on the findings of the present study, it has been concluded that the selected anthropometric measurements have a great role in the performance of pistol shooting. Therefore, regarding the present study the following conclusions have been drawn:

1. The significant relationship was found between the thigh girth, chest girth and calf girth and the performance of pistol shooting.

2. There is insignificant relationship between upper arm girth, arm length, leg length, bi-acromial width, height and weight.

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