
Comparative Study of Steadiness between the Male Players of Shooting and Archery at Inter-College Level

¹ Ravi Kumar, ² Dr. Nishan Singh Deol

¹ Research Scholar, Department of Physical Education, Punjabi University Patiala, India

² Professor & Head, Department of Physical Education, Punjabi University Patiala, India

Abstract: The purpose of the study was to compare the steadiness of male shooting players and archery players at inter-college level. For achieving the purpose of the study, total ten male ($n = 10$) shooting players and ten male ($n = 10$) archery players were selected as samples from Punjabi University Patiala. From all the selected subjects, all were inter-college ranked players. The age of subjects ranged between 18 to 25 years. Eight Hole Steadiness Tester was the best suited instrument for the present study and it was also used to measure the steadiness of twenty male hockey players. After the collection of relevant data, it was processed and analyzed with descriptive statistics. To compare the steadiness of subjects, Mean, Standard Deviation and t-test were employed with the help of statistical package of Excel. To test the hypothesis, the significance level was set at 0.05 percent. After statistical treatment, result showed that there was significant difference of steadiness between inter-college male shooting players and inter-college male archery players.

Keywords: *Players, Shooting and Archery.*

Introduction:

Steadiness is the ability to maintain the body or a part of body in the fixed position or the ability to perform a smooth movement without any deviation from the desired course. Steadiness is adversely affected by muscle tension and normally decreases as strength of contraction increases. It is an important component of skill requiring very controlled, steady movement such as shooting, pistol, archery and dart throwing.

Different activities place different degrees of demand on an individual muscular capacity and it is well documented that people who have undergone specific trainings for several years develop substantial muscular strength and endurance to their field of training and hence are better performers of that task than inactive or untrained individuals. For differences in human performance capabilities to be of more than passing interest, it is desirable that they are reliably replicable and generalized beyond the confines of an isolated, narrowly defined

laboratory setting. In this study, an effort was made to look into one such human performance factor, the Arm-Hand Steadiness. Steadiness is an important component of skills that require aiming and general immobility such as shooting, pistol, archery and dart throwing. Arm-Hand Steadiness is the ability to hold one's arm and hand in a specific position for a relatively short period. This is a psychomotor phenomenon. It depends upon the combination of psychological processes as well as the motor events of the body. It determines the success in sports events like archery and shooting. Being a psychomotor process, it depends upon not only the muscular calibre of an individual but also on the mental ability to concentrate on the target. Many factors determine arm-hand steadiness of an individual like the gender. Factors that can influence arm-hand steadiness are an individual's physique and mental set up. Kinanthropometric parameters such as weight, height, length of upper limb etc. can also be influential. Another factor that influences arm-hand steadiness is age. As with aging process, there is decline in nearly all the systems of the body and hence the performance in such a task will be affected by the age of an individual.

As arm-hand steadiness is a psychomotor function, it is influenced by various psychological factors and anything that will affect the psychomotor system will hence affect arm-hand steadiness. Various drugs like central nervous system stimulants or depressants, artificial hormones like oral contraceptives, alter the performance of psychomotor tasks as do the changes of physiological parameters in the body or the environmental conditions e.g. change of temperature, noise level, humidity etc. The individual's state of mind is another important criterion that cannot be ignored. Not only the state of mind during the testing procedure like anxiety, depression, lack of concentration or disturbance of sleep-wake cycle that can affect the score but also the general mental well-being of an individual. Various health-impairing habits have a direct impact on health, as well as performance of various tasks. Smoking, caffeine intake in the form of tea/coffee/soft drinks and alcohol consumption has direct impact on the arm-hand steadiness. Many studies have shown the deterioration of psychomotor performances by the use of various drugs in the body, be it a therapeutic drug or a substance of abuse. All these substances have shown to increase the tremor in the limbs. Position of the subject and the side tested also 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 be understood. In this study an effort was made to look into one such human performance factor, the steadiness 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. To improve sports performance through improving vision, an understanding of the visual demands of different sports is required.

Objective:

To evaluate the steadiness of the male players of shooting and archery at inter-college level.

Hypothesis:

It is hypothesized that there will be significant difference of steadiness between inter-college male players of shooting and inter-college male players of archery.

Methodology and Procedure:

The study was designed with a main objective to compare the steadiness of male players of shooting and archery at inter-college level. Total ten male ($n = 10$) shooting players and ten male ($n = 10$) archery players were purposively selected as samples from Punjabi University Patiala. All selected subjects were inter-college ranked players. The age of subjects ranged between 18 to 25 years.

Tool:

Eight Hole Steadiness Tester was the best suited tool for the present study and was used to measure the steadiness of samples. To check their ability, subjects were asked to hold a stylus in series of holes without touching the sides of holes. The number of contacts during the test was noted.

Statistical Analysis:

After the collection of relevant data, it was processed and analyzed with descriptive statistics. To compare the steadiness of subjects, Mean, Standard Deviation and t-test were employed. To test the hypothesis, the significance level was set at 0.05 percent.

Table-1: Mean and Standard Deviation of Steadiness of the Male Players of Shooting and Archery at Inter-College Level

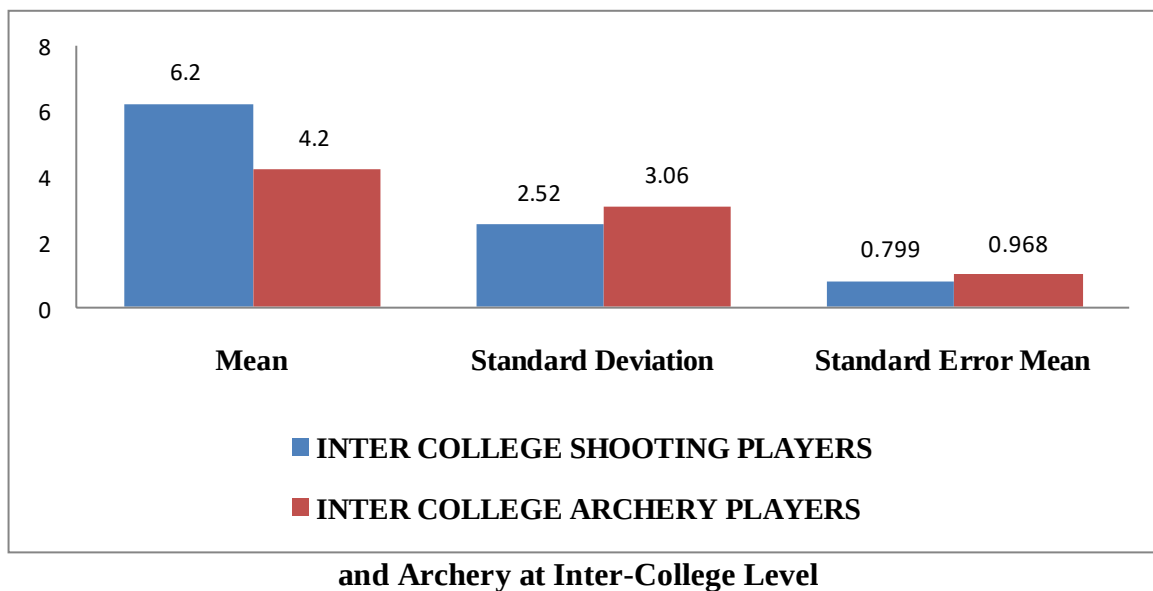
Group	Numbers	Mean	Standard Deviation	Standard Error Mean	t-value
Inter College Shooting Players	10	6.2	2.52	0.799	1.273
Inter College Archery Players	10	4.2	3.06	0.968	1.273

Level of significance 0.05; df = 18

$t_{0.05}(18) = 2.10$

Table-1 depicts that the Mean and Standard Deviation values of steadiness with regards to inter-college shooting players are 6.2 and 2.52 whereas in the case of inter-college archery players are 4.2 and 3.06 respectively. The calculated t-value (1.273) is less than the tabulated t-value (2.10) at 0.05 levels. So it indicates that there has not been a significant difference between inter-college shooting players and inter-college archery players.

Figure-1: Mean and Standard Deviation of Steadiness of the Male Players of Shooting



Inter College Shooting Players and Inter College Archery Players were compared on the basis of mean, standard deviation and standard error mean.

Discussion of Findings:

The study was based on the hypothesis that there exist significant differences of steadiness between inter-college male shooting players and archery players. But the hypothesis is not accepted. According to the result obtained, it is established that there is not a significant difference of steadiness between inter-college male shooting players and archery players. If we look into psychological status of both the categories, both have almost similar profile as per the requirement of games. According to the result of the study, mean value of archers shows better steadiness than shooters. The reason can be the weight of the rifle used by the shooters is heavier than the bow used by archers. Other factors such as concentration and

attention of the players while collecting the data may also affect the result. The insignificant result between two groups can be due to the small size of samples selected.

References:

1. Cady, E. F. Hart and Brain, L. Tracy (2008). Yoga as steadiness training: effects on motor variability in young adults. *Trends in Cognitive Sciences*, 9(9), pp. 431-438.
2. D. H. Laidlaw, M. Bilodeau and R. M. Enoka (2000). Steadiness is reduced and motor unit discharge is more variable in old adults. *British Journal of Psychology*, 57, pp. 139-144.
3. Borg, G. and Sjoberg, H. (1981). The variation of hand steadiness with physical stress. *Perceptual and Motor Skill*, 43(3), pp. 904-906.
4. Gaganpreet Kaur, Shweta Shenoy Sandhu and Jaspal Singh Sandhu (2007). Comparison of arm-hand steadiness for shooting perfection in armed force and Punjab police, pp. 56-59.
5. Jasbir Singh (2011). Comparative study of depth perception and steadiness among archers at different distances. Unpublished Master's Thesis, Physical Education Dissertation, Punjabi University Patiala, pp. 48-50.