International Journal of Advanced Research and Development
ISSN: 2455-4030
Impact Factor: RJIF 5.24
www.advancedjournal.com
Volume 3; Issue 4; July 2018; Page No. 92-94

A comparative analysis of reaction ability of 10 m air pistol and air rifle shooters

Anurag[1]
[1] Assistant Professor, DAV College, Sadhaura, Yamuna Nagar, Haryana, India

Abstract
Background: The hand reaction time is a key factor in the shooting sports. It decides your success in the shooting performance.
Objectives: The purpose of the present study was to investigate the hand reaction time between 10m air pistol and rifle shooters.
Design of the study: Descriptive cum exploratory research design.
Methodology: For accomplish the study total 60 players of 10m air pistol shooting were selected as sample. Out of the total sample 30 were male and 30 were female respectively. The level of participation was inter-university championship for both male and female shooters. The age of the sample were ranged from 18 to 28 years. To compare the sample characteristics independent sample t test was used and level of significance was set at 0.05 respectively.

Keywords: statistics balance, 10m air pistol shooting, hand reaction ability

Introduction

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 airguns, in forms such as handguns, rifles and shotguns) and bows/crossbows.

Different disciplines of shooting sports can be categorized by equipment, shooting distances, targets, time limits and degrees of athleticism involved. Shooting sports may involve both team and individual competition, and team performance is usually assessed by summing the scores of the individual team members. Due to the noise of shooting and the high (and often lethal) impact energy of the projectiles, shooting sports are typically conducted at either designated permanent shooting ranges or temporary shooting fields in the area away from settlements.

What is reaction time or response time?

Reaction time or response time refers to the amount of time that takes places between when we perceive something to when we respond to it. It is the ability to detect, process, and respond to a stimulus.

Reaction time depends on various factors

- **Perception:** Seeing, hearing, or feeling a stimulus with certainty is essential to having good reaction time. When the starter shoots the gun at the beginning of a race, the sound is received by the athlete's ears (they perceive the stimulus).
- **Processing:** In order to have good reaction time, it's necessary to be focused and understand the information well. Following the previous example, the runners, after hearing the gun, will be able to distinguish the sound from other background noise and know that it is time to start running (process the stimulus).
- **Response:** Motor agility is necessary in order to be able to act and have good response time. When the runners perceived and correctly processes the signal, they started moving their legs (respond to the stimulus).

The National Rifle Association of the United Kingdom (NRA) was established in 1860 to raise the assets for a yearly national rifle meeting “for the consolation of Volunteer Rifle Corps and the advancement of Rifle-shooting all through Great Britain”.

For comparative reasons, worried over poor marksmanship amid the American Civil War, veteran Union officers Col. William C. Church and Gen. George Wingate framed the National Rifle Association of America in 1871 to promote and empowering rifle shooting consistently. In 1872, with money related assistance from New York express, a site on Long Island, the Creed Farm, was acquired to build a rifle go. Named Creedmoor, the range opened in 1872, and turned into the site of the primary National Matchesuntil New York legislative issues constrained the NRA to move the matches to Sea Girt, New Jersey. The notoriety of the National Matches soon constrained the occasion to be moved to its present, substantially bigger area: Camp Perry. In 1903, the U.S. Congress made the National Board for the Promotion of Rifle Practice (NBPRP), a warning board to the Secretary of the Army, with an about indistinguishable contract to the NRA. The NBPRP (now known as the Civilian Marksmanship Program) additionally takes an interest in the National Matches at Camp Perry.

Research process and methodology

For accomplish the study total 60 players of 10m air pistol shooting were selected as sample. Out of the total sample 30 were male and 30 were female respectively. The level of participation was inter-university championship for both male and female shooters. The age of the sample were ranged from

18 to 28 years. To compare the sample characteristics independent sample t test was used and level of significance was set at 0.05 respectively.

Administration of the Test

Here is a straightforward response time test utilizing just a ruler, and a smidgen of ascertaining. This is a decent science class venture. This test utilizes the known properties of gravity to decide to what extent it takes a man to react to the dropping of a question by estimating how far the protest can falls before being gotten. A significantly less complex test, a variety of this test however not including any estimation, requires making your own particular Reaction Timer. There are some monetarily accessible varieties of this test - see this survey of Reaction Sticks.

Equipment Required

1 meter long ruler or Yardstick, number cruncher.

Procedure

The individual to be tried stands or sits close to the edge of a table, laying their elbow on the table with the goal that their wrist reaches out finished the side. The assessor holds the ruler vertically noticeable all around between the subject's thumb and pointer, yet not touching. Adjust the zero stamps to the subject's fingers. The subject ought to show when they are prepared. All of a sudden, discharge the ruler and let it drop - the subject must catch it as fast as conceivable when they see it fall. Record in meters the separation the ruler fell. Rehash a few times (e.g. 10 times) and take the normal score.

Calculation

Calculate the average distance the meter stick fell. Use the table below to determine how long it took the ruler to fall the measured distance (distance in cm, time in seconds). The table is based on the following formula, where d = the distance the ruler fell in meters, g = the acceleration of gravity (9.8 m/s^2), and t = the time the ruler was falling (seconds) t = sqrt (2d/g)

Results

Table 1: Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Hand Reaction Time	10m air pistol shooters	10	10.4080	2.71811	.85954
	10m air rifle shooters	10	4.2520	1.80676	.57135

The table 1 shows the statistics of both groups and it was observed that mean and standard deviation of university male pistol shooters was 10.40 ± 2.71 and rifle shooters was 4.25 ± 1.80 respectively. The mean of the 10m air rifle shooter is lower than the 10m pistol shooters and the std. error mean of 10m air pistol shooters were 0.859 and rifle shooters were 0.571 which shows slightly variation in sample.

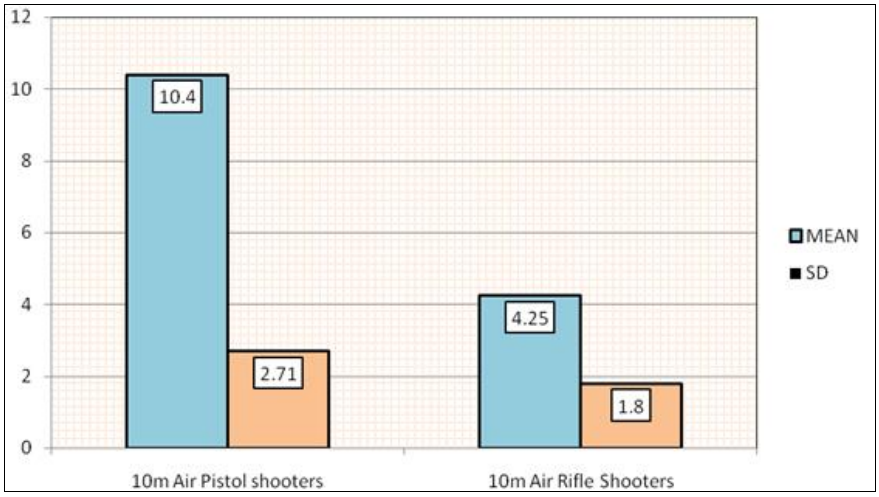

Fig 1: Mean and Standard Deviation of Selected Groups

Table 2: Independent Sample't' Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	DF	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HRT	Equal variances assumed	1.063	.316	5.964	18	.000	6.15600	1.03211	3.98762	8.32438

Table 2 explore the value of t test for equality of means and it was observed that value of t was 5.964 which shows significant two tailed difference between 10m air rifle shooters and 10m pistol shooters in their hand reaction time. The score of mean difference was 6.156 which show higher difference between both selected groups. The confidence intervals (CI) of both groups were 3.98±8.32 respectively. The lower bound where the 95% confidence lie was 3.98 and upper bound was 8.32.

Conclusion

After analysis the obtained data it was observed the there is a

significant difference found in hand reaction ability between 10m air pistol shooters and 10m air rifle shooters. The mean score of 10m air rifle shooters is 4.25 and mean score of 10m air pistol shooters is 10.40 respectively. The t-value (5.964) shows significant difference between the selected groups. Higher mean shows better reaction ability. It means 10m air pistol shooters has better hand reaction ability then 10m air rifle shooters.

References

1. Wong, Aaron L, Haith Adrian M, Krakauer, John W. Motor Planning. The Neuroscientist: A Review Journal Bringing Neurobiology, Neurology and Psychiatry. 2015; 21(4):385-398.
2. Handgun Sports. NSSF| National Shooting Sports Foundation.
3. Rifle Sports NSSF | National Shooting Sports Foundation.
4. Shotgun Sports • NSSF | National Shooting Sports Foundation.
5. Archery 101 by Archery 360.
6. Archery | World Archery.
7. Noise exposure assessment and abatement strategies at an indoor firing range. - PubMed – NCBI.
8. Noise levels at shooting range - timesofmalta.com.
9. Volunteers & the NRA, researchpress.co.uk Archived, at the Wayback Machine, 2012.
10. Australia, Sporting Shooter's Association of Sporting Shooters' Association of Australia (SSAA). SSAA. Org. au. Retrieved, 2016.
11. Shooting Equipment and history - Olympic Sport History. Www. olympic. Org. Retrieved, 2016.
12. Parveen. Assessment of the status of injury knowledge prevention and management at various levels of sports persons. International Journal of Physiology, Nutrition and Physical Education, 2017, 505-507.
13. Sangwan Parveen S. A Comparative Study of Throwing Ability between Different. Star Research Journal, 2017, 14-16.