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Effect of Trataka on the Shooting Performance of District Level Shooters

Rakesh Datta[1]* Dr. Jogiswar Goswami[2]

[1] Ph.D. Scholar, ASPESS, Amity University Uttar Pradesh

[2] Associate Professor, ASPESS, Amity University Uttar Pradesh

Abstract – The researcher frames a research question on effect of trataka on the shooting performance of the district level children. For the purpose of the study, the researcher selected 30 children aged 13±2 years. These randomly selected participants were randomly allocated to the groups formed i.e. experimental group and control group. The independent variable was trataka practice. The participants practiced trataka for 12 week thrice a week. The participants gazed at flame of candle in a dark room for 15 minutes per session. The data was collected pre and post getting the treatment. For the data analysis ANCOVA technique was employed to get the results. Based on the results of the study, the researcher has concluded that there is a positive and significant effects on shooting performance due to the trataka practice.

Keywords: Trataka, Shooting, Performance

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INTRODUCTION

The sport of shooting is comprised of various competitive and recreational sporting activities which involve the test of accuracy, exactness, and speed with guns, rifles, and shotgun etc. Shooting as a cumulative sport involves can be categorized into various disciplines and their division may be based on equipment, shooting distance, targets, time limits and degree of athleticism. Trataka originates from Sanskrit language which denotes an act of gazing, looking, or staring continuously at some point and in reality it is a very basic form of meditation. It is performed it is performed while sitting in a stationary position and the participant tries to focus on an object. Trataka is very useful in enhancing cognitive capacity. It is divided in two categories i.e. internal and external trataka.

Trataka is a whole technique of getting body and mind in a track so that harmony can be attained and is conventionally thought to yield a condition of wellbeing. It is also very useful for the better performance of sports persons. It may bring down the level of anxiety and increase the focus on the task in hand. Practice of trataka improves the coordination of mind and body, consequently enhancing accuracy in achieving harmony in perception and performance.

Shooting is a sport which demands accuracy, ability to hit at the target and sound co-ordination between eye, brain and muscles. The positioning of mind at right place is very much important as that of body. In the process of shooting, the shooter is required to hold the breath and position himself conveniently so that the target may be hit. Various factors such as pre competition anxiety and high blood pressure may lead to the difficulties in breath holding and other related issues. Consequently it may hamper the performance. The panting may divert the shooter's attention from focusing on the target and disables the person from shooting accurately at the target. . Thus trataka and meditation helps the person to carry out the task with precision. The control over the emotions and ability to focus more may lead to the control over emotions, breath and running nerve currents in the body. (Hatha Yoga Pradipika).

The purpose of the present study was to determine the effect of trataka practice on the shooting performance of the school level shooters.

METHODOLOGY

For the purpose of the study a total of 30 district level shooters whose age ranged between 13±2 years were selected for the study. All the participants were regularly training for shooting. The shooters haven't engaged themselves in any kind of meditative or trataka practice till the study was undertaken. The participants voluntarily took part in the study and parents and teachers were

taken in confidence. The participants were trained at district stadium. The participants were selected randomly and they were given training.

EXPERIMENTAL DESIGN

Experimental design is the system of structuring the process of selection, methods of testing, administrating the training etc. it is the designed blueprint of the whole study which supports in the dodging the confounding variables on the results of research study. The design used in the study is pretest and posttest design. The manifestation of the experimental design is as follows:

O TREATMENT(S1-S15) O

O CONTROL (S1-S15) O

O = OBSERVATIONS

S = SUBJECTS

The design depicts that the pre - test for both the groups will be done before the initiation of the experimental protocol begins. After the cessation of treatment, the post- test data was recorded for all the selected dependent variables.

The dependent variables selected for the study was:

Shooting performance: Each participant was given 10 attempts and each shoot had maximum score of 10.

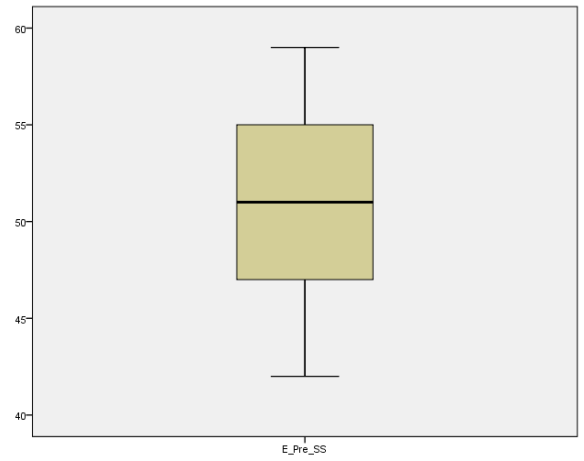
The independent variable was trataka practice. The participants practiced trataka for 12 week thrice a week. The participants gazed at flame of candle in a dark room for 15 minutes per session.

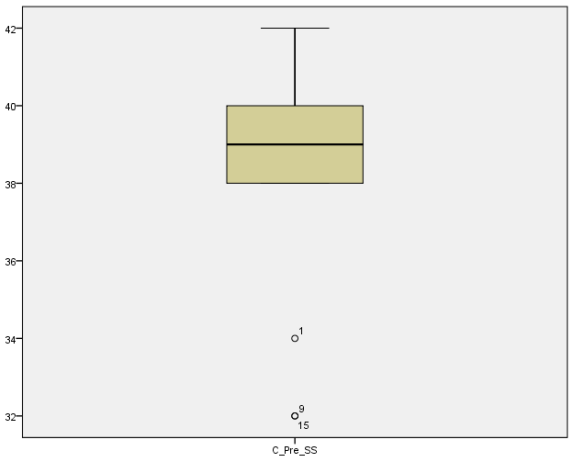
STATISTICAL TECHNIQUE

The data was analyzed with the help of SPSS 20. Descriptive statistics i.e. mean and standard deviation was used to describe the nature of data. The significance of difference in the pre and posttest mean values was tested using dependent t test. The posttest mean values of control and experimental groups were compared by using independent t test. To test the significance if difference of mean values of control and experimental groups after eliminating the effect of covariates, ANCOVA was used. The level of significance was set at 0.05.

RESULTS:

The researcher has employed Box M Plots to check the outliers in the data sets and these plots are presented below in the figures.





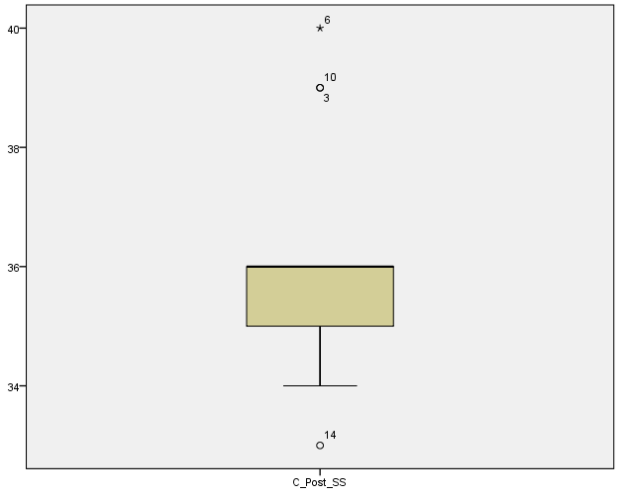


Figure 1-4: Box M Plots for the Data on Shooting Performance Collected From Experimental and Control Group before and After the Treatment Time

It is evident from the figure 1-4 that no outliers are present in the first two data sets which belongs to the experimental group. However, a few outliers are definitely present in the last two data sets which shows that the data is little skewed, and this might affect the results of the study. To test the normality of the data, the researcher has employed tests of normality and the same has been presented in the Table 1.

Table 1

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
E_Pre_SS	.118	15	.200*	.955	15	.606
E_Post_SS	.162	15	.200*	.903	15	.105
C_Pre_SS	.283	15	.002	.829	15	.009
C_Post_SS	.300	15	.001	.866	15	.029

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Where E=Experimental, SS=Shooting Score (Performance)

Table 1 shows the values of Shapiro-Wilk statistics and their significance value. Insignificance of these statistics will fulfill the assumption for the quantitative statistics. It is evident that the significance value of first two data sets is more than 0.05 which means that these are insignificant. But, last two data sets were found to be significant as the sig. value is less than 0.05. Due to the less sig. value in last two data sets, the results of the study might include some errors in them.

The researcher has calculated the descriptive statistics for all the data sets and the same has been presented in Table 2.

Table 2

Descriptive Statistics for the Data on Shooting Performance

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
E_Pre_SS	15	42.00	59.00	50.866	1.4002	5.42305	29.410
E_Post_SS	15	75.00	87.00	79.800	1.0337	4.00357	16.029
C_Pre_SS	15	32.00	42.00	38.133	.79801	3.09069	9.552
C_Post_SS	15	33.00	40.00	36.000	.49761	1.92725	3.714
Valid N (listwise)	15						

Where E=Experimental, SS=Shooting Score (Performance)

Table 2 shows the descriptive statistics of the pre and post shooting performance of the participants belongs to the experimental and control groups. The table shows that the mean and SD for E_Pre_SS, E_Post_SS, C_Pre_SS and C_Post_SS were found to be 50 (5.42), 79 (4.0), 38 (3.09) and 36 (1.92) respectively.

To confirm the effectiveness of the treatment the researcher has employed dependent t-test and the same has been presented in table 3.

Table 3

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	E_Pre_SS - E_Post_SS	-28.93333	6.21595	1.60495	-32.37561	-25.49105	-18.028	14	.000
Pair 2	C_Pre_SS - C_Post_SS	2.13333	3.46135	.89372	.21650	4.05017	2.387	14	.032

Table 3 is showing the results of the dependent t-test which has been applied to the data set of experimental group pre-post and control group pre-post. The 2-tailed sig. value for pair 1 shows that the t value (-18.02) is significant as its corresponding sig. value is less than 0.05. Since, the t value is significant it is evident that the treatment to the experimental group was effective in improving the shooting performance. The same results can be seen in case of pair 2 also. But, since the second group did not get any training, this change in the performance might be attributed because of the internal variation or the reliability of the test.

The descriptive statistics for the post data of shooting scores of experimental and control group is presented in table 4.

Table 4

Descriptive Statistics

Dependent Variable: Post_SS

Treatment	Mean	Std. Deviation	N
Experimental	79.8000	4.00357	15
Control	36.0000	1.92725	15
Total	57.9000	22.48731	30

It is evident from the table 4 that the score of control group is very less than the experimental group. The Mean and SD of experimental and control group on shooting performance was found to be 79.8 (4.0) and 36 (1.92) respectively.

Before employing tests of between-subjects effects or analysis of covariance the researcher has analyzed the data for its one more important assumption i.e. equality of error variances and the same has been presented in the table 5.

Table 5

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Post_SS

F	df1	df2	Sig.
11.999	1	28	.002

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Pre_SS + Treatment

The assumption of equality of error variances has been tested through levene's test and it is evident from table 5 that the F-ratio for the same has come significant which again tells us about the violation of the assumption.

The tests of between-subjects effects have been presented in table 6 below.

Table 6

Tests of Between-Subjects Effects

Dependent Variable: Post_SS

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Pre_SS	5.873	1	5.873	.586	.451
Treatment	4190.733	1	4190.733	418.257	.000
Error	270.527	27	10.020		
Total	115237.000	30			
Corrected Total	14664.700	29			

a. R Squared = .982 (Adjusted R Squared = .980)

Table 6 clearly shows that the treatment was found to be significant as its corresponding value is less than 0.05. On the contrary, it is evident that the pre value on the shooting performance was found to be nearly equal as the corresponding value of PRE-SS was found to be more than 0.05.

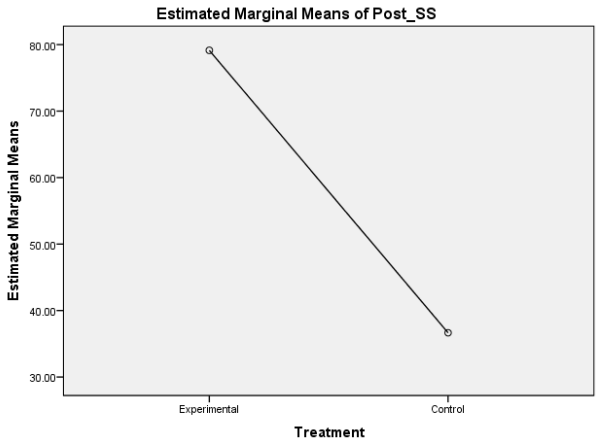


Figure 5: Graphical Representation of the Scores of Post Shooting Performance of Control and Experimental Group

DISCUSSION OF FINDINGS:

The study was conducted with a purpose to find out the effect of trataka practice on the shooting performance of district level school going children. The findings of the study demonstrate that there is a significant effect of trataka practice on the shooting performance of young shooters. The significant effect of the particular training on shooting performance might have come because of the effects of trataka as it helps in the development of focus and bringing equilibrium between body and mind. When the trataka practice was repeated regularly, the neural activity in the brain arising due to factors such as anxiety and other social pressures goes down significantly and it results in least disturbance caused by parasympathetic nervous system dynamics.

The trataka practice might have resulted in the better control over the physiological factors such as blood pressure, heart rate and releases of

epinephrine and cortisol hormones. As the trataka practice was carried out just before the shooting training sessions, it might be argued that the subjects were better able to incorporate the positive effects of trataka practice with their shooting module. A long term association for whole training period

CONCLUSION

Based on the results of the study the researcher has concluded the trataka training has a positive and significant effect on the shooting performance of the school going children.

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Corresponding Author

Rakesh Datta*

Ph.D. Scholar, ASPESS, Amity University Uttar Pradesh

rakeshdattayoga@gmail.com