

COMBINE EFFECT OF CONCURRENT TRAINING AND YOGIC ACTIVITIES ON THE PHYSIOLOGICAL AND PERFORMANCE PARAMETERS OF 10 METER AIR PISTOL SHOOTERS

¹MR. ROHIT B. ADLING

²Dr. SACHIN CHAMLE

³MR. ADITYA KULKARNI

¹ Director of physical Education

Dadapatil Rajale Arts and Science College

Adinathnager, Dist. Ahmednager

²Director of physical Education

Kai. Rasika Mahavidyalaya Deoni.

Tq. Deoni, Dist. Latur. Maharashtra.

³Director of physical Education

M.L.Dahanukar college, Mumbai

ABSTRACT

The aim of the study was to test the hypothesis that a combine concurrent training yogic activities regimen may enhance performance ability of air pistol shooters. 40 male shooters age between 18-25 years were selected as samples for the study from Ahmednager by purposive sampling and were randomized into two groups i.e. experimental and control group. Single group pre-test post-test group design was used to assess physiological and fitness parameters, and equivalent group pre-test post-test was used to assess performance parameter. The selected physiological and performance parameter were vital capacity, cardio-vascular endurance, stability, strength, reaction time and individual match score. The said parameters were measured by Spirometer, Harvard step test, Stroke static test, push-ups test, Nelson hand reaction time test and individual score through matches. Concurrent training and Yogic activities was given on alternate day's means three days for concurrent and three days for yogic activities every week for six weeks. Pre-test and post-test was taken before and after training program. Physiological variables mean and standard deviation of pre-test was (467.00±52.92, 65.74±18.28, 23.32±7.77, 19.30±6.94, 0.198±0.0279) respectively, mean and standard deviation of post-test was (505.50±60.652, 76.98±17.85, 30.35±6.746, 24.95±7.66, 0.195±0.027) respectively and the calculated 't' value of subject was 11.00 for vital capacity, 't' value for cardio-vascular endurance was 11.184, 't' value for stability was 9.249, 't' value for strength was 11.839, and the 't' value for reaction time was 3.594. Whereas the change in performance mean and standard deviation of experimental group was (20.50±6.151), while the change in performance mean and standard deviation of control group was (1.60±3.45). The calculated 't' value of performance was 11.980. All the calculated 't' values for respective physiological and performance parameters were found statistically significant at 0.05 level (p= 0.001). From the above results it can be concluded that six week combine concurrent and yogic activities training program was effective to improve the physiological and performance parameters which ultimately enhance the shooting skill of 10 meter air pistol shooters.

Key words: Combine training, selected physiological and performance parameters.

INTRODUCTION

Shooting originated as a means of survival, and it was practiced in order to hunt game for food. As the industrial revolution made hunting for food less necessary for many people, shooting evolved into a sport. Sport shooting has been a competitive sport in a variety of forms since the mid-1800s. Shooting is an Olympic sport. There are 19 different categories of shooting competitions of shooting recognized at the Olympic game. Shooting is the third largest Olympic sport in terms of medal, participants and countries, while it is the second most popular international sport behind track and field, and the only sport to be held at both the summer and winter Olympic Games.

In the present world, Sports have become extremely competitive. It is not mere participation or practice that makes an individual victorious. Qualitative sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and coaching, computer application and psychology and so on. To achieve top level performance in the international arena one must have a fitness regimen and systematic execution. It is not only because of training, but also because of psychological, and physiological aspects that goals are achieved. Experts in the field of sports have put their mind into it and made tremendous efforts to find out ways and means to achieve top level performance.

Shooting is an Olympic sport which requires consistency and accuracy. The performance in any competitive sport event depends on physical fitness, techniques, tactics and skills. Air Pistol event is predominantly a skill-based sport where consistency, accuracy, and concentration are key features over one particular body type. All fundamentals of pistol shooting such as position, grip, sight alignment, breath control, trigger control, physical condition, and psychology of shooting, when perfected, simply enables the shooter to perform.

RESEARCH METHODS AND PROCEDURE

As researcher wanted to study combine effect of concurrent training and yogic activities on the physiological and performance parameter of 10 meter air pistol shooters, the study was conducted by experimental method.

For the present study pre-test-post-test equivalent group design was used to measure performance parameter whereas, for measuring physiological parameters single group pre test-post test experimental design was used. To achieve the purpose of the study, purposively sampling technique was used. A sample of 40 male subjects was selected with the help of purposively sampling as subject for the present study. Subjects were further dispersed in two groups randomly i.e. 20 in experimental and 20 in control group.

The subjects were treated with concurrent training for 50 minutes. First 25 minutes for aerobics exercises and next 25 minutes for isometric exercises with 5 minutes full body stretching between the aerobics and isometric session in a day with 10 minutes general warming-up exercises followed by concurrent training and 10 minutes limbering down exercises after aerobics and isometric exercises, whereas the yogic activity perform on next days. One day for concurrent (aerobics and isometric) and another next day for yogic activities. So there was three session of concurrent training and three sessions of yogic activities in a week.

Researcher has used specific tools were used to measure fitness parameters and match performance of the pistol shooting. For measuring cardio-vascular endurance Harvard Step test was used where as for measuring Vital Capacity, stability, strength, reaction time the tools used were Spiro meter, static balance test, push-ups test, Nelson hand reaction time test and also 40 shots match to measure performance.

RESULTS

Table 1
Descriptive statistics of pre and post test

Test		N	Mean(ml)	Std. Deviation	Std. Error Mean
Vital capacity	Pre-test	20	467.00	52.92	11.83
	Post-test	20	505.50	60.65	13.56
Cardio-Vascular endurance (pulse)	Pre-test	20	65.74	18.28	4.08
	Post-test	20	76.98	17.85	3.99
Stability (sec)	Pre-test	20	23.32	7.77	1.73
	Post-test	20	30.35	6.74	1.50
Strength (no)	Pre-test	20	19.30	6.94	1.55
	Post-test	20	24.95	7.66	1.71
Reaction Time (sec)	Pre-test	20	0.198	0.0279	0.0062
	Post-test	20	0.195	0.0276	0.0061

From the table 1: The mean in pre test of vital capacity, Cardio-Vascular endurance (pulse), Stability (sec), Strength (no), Reaction Time (sec) was 467.00, 65.74, 23.32, 19.30, 0.198 respectively. with standard deviation of vital capacity, Cardio-Vascular endurance (pulse), Stability (sec), Strength (no), Reaction Time (sec) was 52.92, 18.28, 7.77, 6.94, 0.0279 respectively .The mean in post test of vital capacity, Cardio-Vascular endurance (pulse), Stability (sec), Strength (no), Reaction Time (sec) was 505.50, 76.98, 30.35, 24.95, 0.195 respectively with standard deviation of vital capacity, Cardio-Vascular endurance (pulse), Stability (sec), Strength (no), Reaction Time (sec) was 60.65,17.85, 6.74, 7.66, 0.0276 respectively that were conducted by the researcher.

Table 2
Paired Sample Test

Test	T (value)	Df	Sig. (2 tailed)	Mean difference	Std. error Difference
Vital capacity	11.00	19	0.001	38.50	3.50
cardio-vascular endurance	11.184	19	0.001	11.23	1.00
Stability	9.24	19	0.001	7.03	0.76
Strength	11.83	19	0.001	5.65	0.47
Reaction Time	3.594	19	0.002	0.0032	0.000890

In the table 2 of paired sample T test mean difference for vital capacity and C.V.Endurance, stability, strength, reaction time of pre-test and post-test of subjects was 38.50,11.23,7.03,5.65,0.0032 respectively, this difference when tested by Paired Samples 't' test, 't' value was found 11.00,11.184,9.24,11.83,3.594 respectively. Which was statistically significant at 0.05 (p=0.001) significance level for 19 degree of freedom. This shows that there was statistically significant improvement in all components that of the subjects due to treatment.

Table 3
Descriptive Statistic of Performance of Experimental and Control Groups

Group	N	Mean(score)	Std. Deviation	Std. Error Mean
Experimental	20	20.50	6.15	1.37
Control	20	1.60	3.45	0.77

Table 3 shows that there were 20 subjects each in experimental and control group. The mean gain in Performance scale for experimental group was 20.50 with standard deviation of 6.15 similarly, for the control group the mean gain in similar variable was 1.60 with standard deviation of 3.45.

Table 4
Independent Samples Test of change in performance of air pistol shooters of Experimental and Control Group

Leven's test for equality of variance			t-test for Equality of Means		
F	Sig	T	df	Sig (2 tailed)	Mean difference
3.75	0.06	11.980	38	0.001	18.90

From the table 4 the Leven's test for equality of variance when applied to the change in performance of 10 meter air pistol shooters scale for experimental group and control group, the F value was found to be 3.75 which were not statistically significant. Hence variance of change in experimental group and control group were equal.

The mean of change in performance of experimental and control group were compared with independent t-test.

The mean difference was 18.90 and 't' value was 11.98 with degree of freedom 38 which was statistically significant at 0.05significance level ($p = 0.001$).This indicates that there was significant effect of 6 weeks combine concurrent training and yogic activities on the performance and physiological parameter of Experimental group.

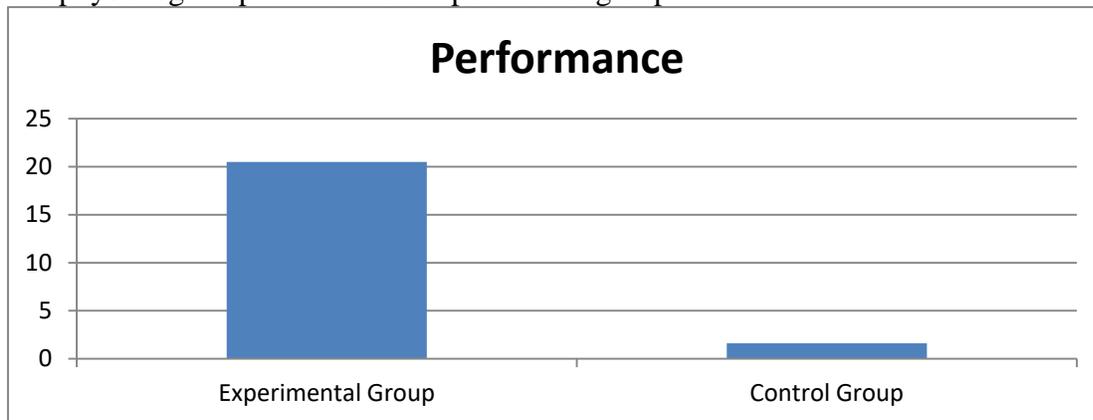


Figure 1 Performance

CONCLUSION

From the above analysis and interpretation of data following findings may be drawn.

1. Combine concurrent training and yogic activities improve vital capacity significantly.
2. Combine concurrent training and yogic activities improve cardio-vascular endurance significantly.
3. Combine concurrent training and yogic activities improve strength significantly.
4. Combine concurrent training and yogic activities improve balance significantly.
5. Combine concurrent training and yogic activities improve reaction time, although statistically it shows a downward trend, which indicates that there was an improvement in shooters reaction time. Thus, the response to once stimuli improves statistically as compare to pre-test and post-test of subjects.
6. Combine concurrent training and yogic activities improve performance of 10 meter air pistol shooters.

REFERENCES

1. Madanmohan, Mahadevan SK, Balakrishnan S, Gopalakrishnan M, Prakash ES.(2008) Effect of six weeks yoga training on weight loss following step test, respiratory pressures, handgrip strength and handgrip endurance in young healthy subjects. *Indian J Physiol Pharmacol*; 52: 164-170.
2. Joshi M and Telles S.(2008). Immediate effects of right and left nostril breathing on verbal and spatial scores. *Indian J Physiol Pharmacol*.52:197-200.
3. Makwana K, Khirwadkar N, Gupta HC.(1988). Effect of short term yoga practice on ventilatory function tests. *Indian J Physiol Pharmacol*. Ju 32:202-208.
4. Hamid A, Faraji H, Moghadam M G, Samadi.(2011). A evaluated the effect of concurrent resistance and endurance training on body composition, aerobic power and muscular endurance *Kinesiology* 2:155-162
5. Khosravi M, Tayebi SM, Safari H.(2013). Single and Concurrent Effects of Endurance and Resistance Training on Pulmonary Function. *Iran J Basic Med Sci*.; 16: 628-34.
6. Muthuraj, M. and Singh, Y. Wise Blesses Singh (2011). Effect of concurrent strength and endurance training and detraining on vital capacity. *Internat. J. Phy. Edu.*, 4 (1) : 77-80.
7. Aba.Angela C.Francesco B.Andrea M.(2011), The effects of isometric resistance training on stretch reflex induced tremor in the knee extensor muscles. *Journal of Applied Physiology* June 15, 2013 vol. 114 no. 12 1647-1656
8. 'Aerobic exercise', *Food and Fitness: A Dictionary of Diet and Exercise*, Michael KentOxford University Press, 1997.
9. Alway SE, Sale DG, MacDougall JD.(1990). Twitch contractile adaptations are not dependent on the intensity of isometric exercise in the human triceps surae. *Eur J Appl Physiol Occup Physiol*.;60(5):346-52
10. F.M.Anne, Y.M.Guillaume., A. M.Nicol., K.Benget. (2012). Comparison of neuromuscular adjustments associated with sustained isometric contractions of four different muscle groups *Journal of Applied Physiology* May 15, 2013 vol. 114 no. 10 1426-1434
11. Arnall.D.A, Steven .F.L, Jay.L, Silverster.K.C,(1990) Connsequences of Combining Strength and Endurance Training Regimens. *Journal of physical theray*. vol. 70 no. 5 287-294