

Effect of Varied Frequency and Duration of Aerobic Dancing on Selected Physical Variables of Handball Players**E.Deeva¹ & Dr. S.Nagarajan²**¹Ph.D., Research Scholar, Alagappa University College of Physical Education, Karaikudi, Tamilnadu, India.²Professor, Alagappa University College of Physical Education, Karaikudi, Tamilnadu, India.**Abstract**

The purpose of the study was to determine the effect of varied frequency and duration of aerobic dancing on selected physical variables of handball players. To achieve the purpose of the present study, Sixty Untrained healthy school boys of Kendriya Vidyalaya Bengaluru Region, Karnataka, India were selected as subjects at random and their ages ranged from 14 to 17 years. The subjects were divided into four equal groups of twenty each. group-I acted as experimental group-I (30 minutes with 50% intensity aerobic exercise, group-II acted as experimental group-II (45 minutes with 60% intensity aerobic exercise), group-III acted as control group the requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The duration of experimental period was 12 weeks. After the experimental treatment, all the sixty subjects were tested on their physical variables. This final test scores formed as post test scores of the subjects. the pre test and post test scores were subjected to statistical analysis using analysis of covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post-hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses. In comparing the effect of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control groups physical variables, from the obtained f-ratio, it was observed that 60% intensity group showed significant difference on increasing speed and explosive power.

Keywords: Aerobic Dance, Frequency, Duration, Physical, Handball.**Introduction**

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups, and a cooling down period at the end. Aerobics included scientific exercise programs using running, walking, swimming and bicycling. The book came at a fortuitous historical moment, when increasing weakness and inactivity in the general population was causing a perceived need for increased exercise. It became a best seller. Cooper's data provided the scientific baseline for almost all modern aerobics programs, most of which are based on oxygen consumption equivalency. Aerobic exercise and fitness can be contrasted with anaerobic exercise, of which strength training and weight training are the most salient examples. The two types of exercise differ by the duration and intensity of muscular contractions involved, as well as by how energy is generated within the muscle. Initially during aerobic exercise, glycogen is broken down to produce glucose, which is then broken down with the help of oxygen to generate energy. In the absence of these carbohydrates, fat metabolism is initiated instead. The latter is a slow process, and is accompanied by a decline in performance level. This gradual switch to fat as fuel is a major cause of what marathon runners call "hitting the wall". Anaerobic exercise, in contrast, refers to the initial phase of exercise, or to any short burst of intense exertion, in which the glycogen or sugar is consumed without oxygen, and is a far less efficient process. Operating anaerobically, an untrained 400 meter sprinter may "hit the wall" short of the full distance (Cooper, 1985).

Methodology

The purpose of the study was to determine the effect of varied frequency and duration of aerobic dancing on selected physical variables of handball players. To achieve the purpose of the present study, Sixty Untrained healthy school boys of Kendriya Vidyalaya Bengaluru Region,

Karnataka, India were selected as subjects at random and their ages ranged from 14 to 17 years. The subjects were divided into four equal groups of twenty each. group-I acted as experimental group-I (30 minutes with 50% intensity aerobic exercise, group-II acted as experimental group-II (45 minutes with 60% intensity aerobic exercise), group-III acted as control group the requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The duration of experimental period was 12 weeks. After the experimental treatment, all the sixty subjects were tested on their physical variables. This final test scores formed as post test scores of the subjects. the pre test and post test scores were subjected to statistical analysis using analysis of covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post-hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Results

Table-I
Computation of analysis of covariance of mean of varied intensity and frequency of aerobic exercises and control group on speed

	50% Varied Intensity & Frequency of Aerobic Exercises Group	60% Varied Intensity & Frequency of Aerobic Exercises Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre-Test Mean	7.54	7.52	7.55	BG	0.01	2	0.005	0.08
				WG	3.54	57	0.06	
Post-Test Mean	7.16	7.01	7.54	BG	3.13	2	1.57	39.25*
				WG	2.11	57	0.04	
Adjusted Post-Test Mean	7.16	7.02	7.54	BG	3.05	2	1.53	153.00*
				WG	0.71	56	0.01	

An examination of table - I indicated that the pretest mean on speed of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control group were 7.54, 7.52 and 7.55 respectively. The obtained F-ratio for the pre-test was 0.08 and the table F-ratio was 2.39. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 56. The post-test mean on speed of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise the control group were 7.16, 7.01 and 7.54 respectively. The obtained F-ratio for the post-test was 39.25 and the table F-ratio was 2.39. Hence the pre-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 56. The adjusted post-test mean on speed of the of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control group were 7.16, 7.02 and 7.54 respectively. The obtained F-ratio for the adjusted post-test mean was 153 and the table F-ratio was 2.39. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 55.

Figure - I
Bar diagram showing the varied intensity and frequency of aerobic exercises and control group on speed

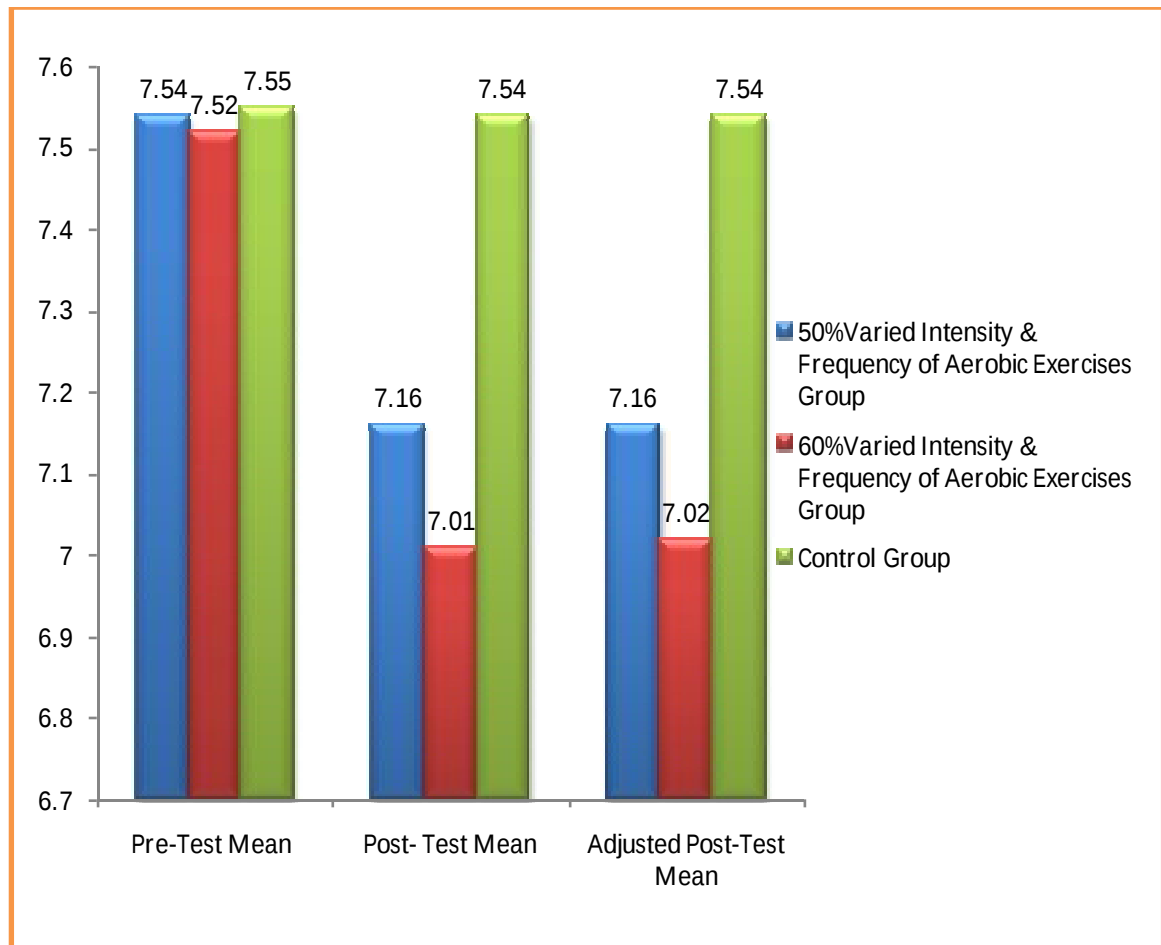


Table - II
The scheffe's test for the differences between the adjusted post test mean on speed

Adjusted Post-test means			Mean Difference	Required CI
PTWWG	PTCWG	CG		
7.16	7.02	---	0.14*	0.09
7.16	---	7.54	0.38*	
---	7.02	7.54	0.54*	

* Significant at 0.05 level of confidence

Table-II shows that the mean on speed difference between 50% intensity and 60% intensity control group, and control group were 0.14, 0.38, and 0.54 respectively on speed are greater than the confidence interval value 0.09, which shows significant difference at 0.05 level of confidence.

Table-III
Computation of analysis of covariance varied intensity and frequency of aerobic exercises and control group on explosive power

	50% Varied Intensity & Frequency of Aerobic Exercises Group	60% Varied Intensity & Frequency of Aerobic Exercises Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre-Test Mean	1.34	1.33	1.35	BG	0.01	2	0.005	1.25
				WG	0.22	57	0.004	
Post-Test Mean	1.55	1.66	1.37	BG	0.85	2	0.43	47.78*
				WG	0.49	57	0.009	
Adjusted Post-Test Mean	1.55	1.65	1.37	BG	0.81	2	0.41	51.25*
				WG	0.47	56	0.008	

An examination of table - III indicated that the pre-test mean on explosive power of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control group were 1.34, 1.33 and 1.35 respectively. The obtained F-ratio for the pre-test was 1.25 and the table F-ratio was 2.39. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 57. The post-test mean on explosive power of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control group were 1.55, 1.66 and 1.37 respectively. The obtained F-ratio for the post-test was 47.78 and the table F-ratio was 2.39. Hence the pre-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 56. The adjusted post-test mean on explosive power of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control group were 1.55, 1.65 and 1.37 respectively. The obtained F-ratio for the adjusted post-test mean was 51.25 and the table F-ratio was 2.39. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 55.

Figure - II
Bar diagram showing the varied intensity and frequency of aerobic exercise and control group on explosive power

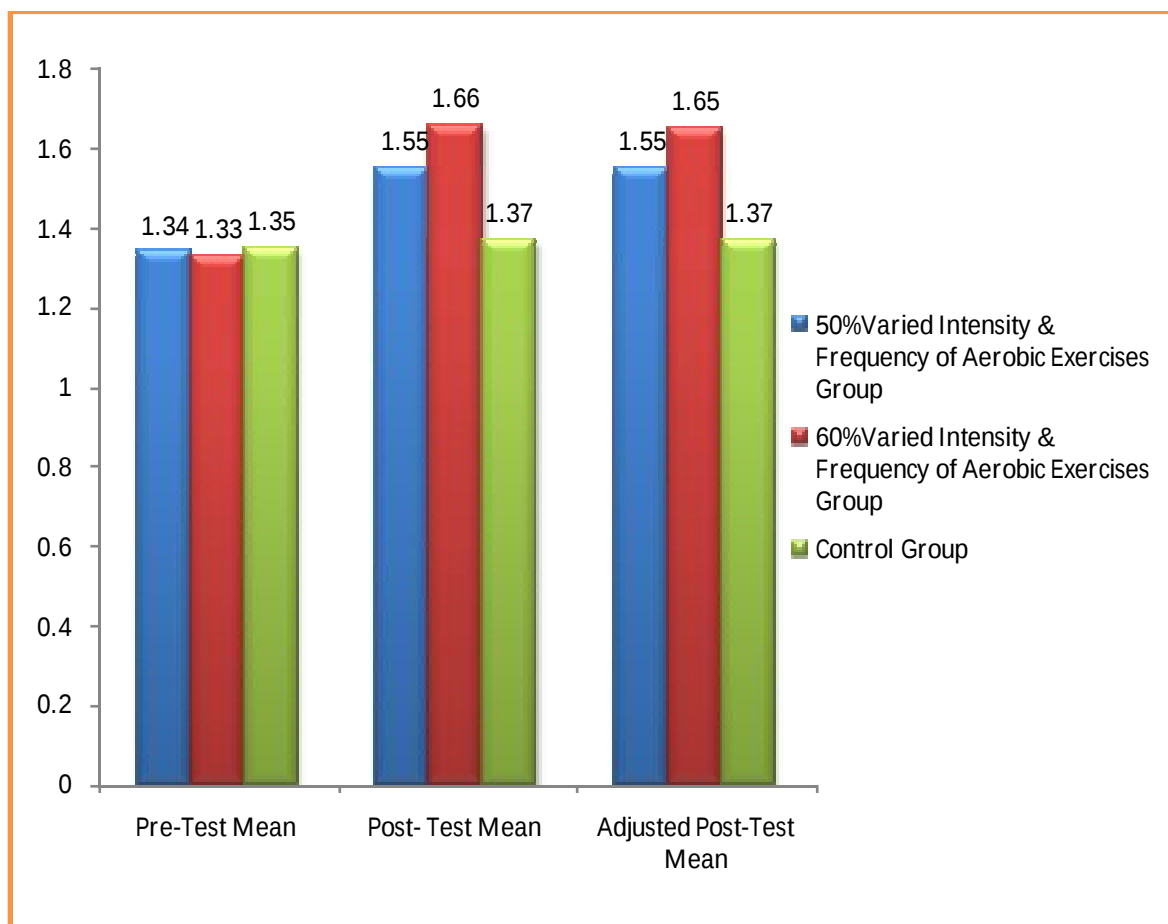


Table - IV
The scheffe's test for the differences between the adjusted post test mean on explosive power

Adjusted Post-test mean			Mean Difference	Required CI
50% Intensity	60% Intensity	CG		
1.55	1.65	---	0.10*	0.06
1.55	---	1.37	0.18*	
---	1.65	1.37	0.28*	

*** Significant at 0.05 level of confidence**

Table-IV shows that the mean on explosive power difference between 50% intensity and 60% intensity and control group were 0.10, 0.18 and 0.28 respectively on explosive power are greater than the confidence interval value 0.06, which shows significant difference at 0.05 level of confidence.

Conclusion

In comparing the effect of 30 minutes with 50% intensity aerobic exercise, 45 minutes with 60% intensity aerobic exercise and control groups physical variables, from the obtained f-ratio, it was observed that 60% intensity group showed significant difference on increasing speed and explosive power.

References

- Alpert, B., Field, T. M., Goldstein, S. & Perry, S. (1990). Aerobics enhances cardiovascular fitness and agility in preschoolers. *Health Psychology*, Vol 9(1), 48-56.
- Aranga, P. & Kulothungan, P. (2011). Effect of Different Intensity Aerobic Exercise on Body Composition Variables among Middle Aged Men, *Recent Trends in Yoga and Physical Education*, Vol. I, p. 276.
- Baroni, B.M., Leal Junior. E.C. (2010). Aerobic capacity of male professional futsal players. *J Sports Med Phys Fitness*. 50(4):395-9.
- Cooper, K.H. (1969). *New Aerobics*. New York: Bantam Books, p.30.
- Cooper, K.H. (1985). *Aerobics Program For Total Well-Being: Exercise, Diet , And Emotional Balance*. New York: Bantam Books.
- Ibrahim, Azeem. S (2010). Study on the relationship between skill performance and selected physical fitness variables of hand ball players. *Br J Sports Med* ; 44.
- Mahendran, P. (2009). Effect of 12 Weeks Aerobic Exercises on Selected Health Related Physical Fitness and Physiological Variables of Adolescents. Unpublished M.Phil Thesis, Pondicherry University, Pondicherry.
- Nandi, S., Adhikari, H, & Bera, T.K., (2004). Effects of Aerobic exercise, Yogic Practice and the combination of both on Cardio respiratory endurance. *Yoga Mimamsa*, Vol.XXXV, 3-4: 152-159.
- kr senthil, "User pattern of Libraries by students of Government colleges in Tamilnadu : A Study" (2019). Library Philosophy and Practice (e-journal). 2788. <https://digitalcommons.unl.edu/libphilprac/2788>
- Senthil Kumar, K., Recent Trends of ICT Services and the Present Scenario of Some Selected Engineering College Libraries in Coimbatore District, Tamilnadu: A Study (February 2017). *Asian Journal of Applied Science and Technology (AJAST)*, Volume 1, Issue 1, Pages 199- 202, February 2017 . Available at SSRN: <https://ssrn.com/abstract=2928955>