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Dr. Deba Prasad Sahu
Assistant Professor
Department of Physical
Education, Mahishadal Girls'
College, Purba Medinipur,
West Bengal, India

Dr. Sandip De
Assistant Professor
Department of Physical
Education, Mugheria Gangadhar
Mahavidyalaya, Purba
Medinipur, West Bengal, India

Correspondence:
Dr. Deba Prasad Sahu
Assistant Professor
Department of Physical
Education, Mahishadal Girls'
College, Purba Medinipur,
West Bengal, India

Effect of hatha yoga and aerobic training on physical fitness of College students

Dr. Deba Prasad Sahu, Dr. Sandip De

Abstract

The veracity of modern medical science is based on controlled clinical trials. Physical fitness is a product of the interaction of a biological organism with the social environment. It is the way an individual adjusts with his external environment, and responding to the environment. The purpose of the study was to investigate the effect of Hatha yoga, Aerobic training and combination of hatha yoga and aerobic training on physical fitness of college level students.

Method: Subjects were divided into four equal groups on random basis (Groups A, B, C & D) consisting of 25 subjects in each group. Three out of the four groups were given experimental treatments i.e. aerobic training (Group- A), Hatha yoga (Group- B) and combination of hatha yoga and aerobic training (Group- C) and while the remaining one group (Group- D) was designated as control group.

Results: Aerobic training, hatha yoga and combination of aerobic and hatha yoga is found to be more significant difference in physical fitness of college mail students.

Conclusion: The aerobic training is found to be more effective in changing the physical fitness in comparison to the effect of hatha yoga training and combination of hatha yoga and aerobic training on aforesaid physical fitness.

Keywords: hatha yoga, aerobic training, physical fitness, college male students.

1. Introduction

Personality refers to a peculiar blend of characteristics that makes a person unique. It is not a mere collection of various traits, but a particular organisation of the same. That is way the integration of these traits, or physical fitness, is never the same in any two individuals. Physical fitness is unique. Physical fitness is in fact a product of the interaction of a biological organism with the social environment. Therefore, the key to physical fitness development is socialization where biology and culture merge.

Indians had adopted Yoga as a life-style since the beginning of civilization. Mind is the king of the senses. One who has conquered his mind, senses, passions, through and reason, is a king among men. That man is fit for hatha yoga, the royal union with the universal spirit. One who has conquered his mind has complete mastery of his self. The scientific nature of the Yogic practice was first revealed in 1924, when Swami Kuvalayanandaji started his scientific research in the field of Yoga. The origins of hatha yoga have been traced back to the eleventh century A.D. The Sanskrit word ha means "sun" and the means "moon" and thus hatha, or literally sun-moon yoga, strives to balance opposing parts of the physical body, the front and back, left and right, top and bottom. In addition to breathing, hatha yoga utilizes asana, or physical postures, to bring about flexibility, balance and strength in the body. Yogis claim that although hatha yoga can make the body as strong and fit as any exercise program, its real benefits come out because it is a system of maintenance and balance for the whole body.

Each of the systems in our body (cardiovascular, neuro-muscular, respiratory and other) is influenced by exercise. Each system is affected in a manner specific to the kind of exercise performed. Aerobic exercise emphasizes improvement of the metabolic, cardiovascular, respiratory, and muscular systems.

Aerobic fitness is a complex component of physical fitness. It involves the interaction of numerous physiological processes in the cardiovascular, respiratory, and muscular system. Thus, the combined cardiovascular and respiratory system is the oxygen supply mechanism for the muscles. If we are committed aerobic exercise in combination with a sensible diet it can help to provide an overall sense of well-being and it can even help to prevent chronic illness,

disability and premature death. There are also many benefits of aerobic training like performance enhancement. Body composition changes, body heat transfer system improvement, personality development, avoid stress and anxiety etc. Thereby a humble attempt was taken in this study to investigate the effect of Hatha yoga, Aerobic training and further more the combination of hatha yoga and aerobic training on physical fitness of college level students.

2. Materials & Method

2.1. Selection of variables

One hundred male students of A.K.P.C. Mahavidyalaya, Bengai, Dist- Hooghly, West Bengal, were randomly selected as the subjects for this study with an age range of 18 to 19 years.

The subjects were participated voluntarily in the programme after examined by the physician to ascertain that they were free from any type of medical problems and were fit enough to go through Aerobic training, Hatha yoga training and combination of Aerobic and Hatha yoga training programmes for ten weeks. Subjects were divided into four equal groups on random basis (Groups A, B, C &D) consisting of 25 subjects in each group. Three out of the four groups were given experimental treatments i.e. Aerobic training (Group- A), Hatha yoga (Group- B) and combination of hatha yoga and aerobic training (Group-C) and while the remaining one group (Group- D) was designated as control group, which were not given any experimental treatment. The Physical fitness scores were obtained by using (AAHPERD) Youth fitness test, from the subjects of all the groups.

2.2. Administration of Tests

AAHPERD Youth Fitness Test was administered to the subjects, strictly in accordance to the instructions given in the

manual. The AAHPER Youth fitness test is to be conducted in two days. 1st day: Pull-ups, Bent-Knee Sit-ups, Shuttle run (10X4 yards). 2nd day: Standing Broad jump, 50 Yard Dash, 600-Year or 9 Min, Run-Walk.

2.3. Scoring of the Physical fitness

Score as peer as given in the manual.

2.4. Administration of training programme

A ten weeks aerobic training, hatha yoga training and combination Hatha yoga and aerobic training programme for three days in a week i.e., on Monday, Wednesday & Friday were conducted. The training programme was administered in the morning session of the day. The control group was continued their regular programme as usual.

2.5. Statistical Procedure

In order to investigate the comparative effect of each training method i.e. Aerobic training, Hatha yoga training, and combination of Hatha yoga and aerobic training, on physical fitness among three experimental groups and one control group of the college male students undertaken on this study, the analysis of co-variance statistics was applied.

In case of existence of significant, the post-hoc test was applied in order to investigate the existence significant differences if any, among three experimental groups namely aerobic training, hatha yoga training and combination of Hatha yoga and aerobic training and one control group of college male students.

The significant level was set at 0.05 level of confidence.

3. Results

The results were given in the following tables & figures.

Table 1: Analysis of Co-Variance of the Means of Physical Fitness among Three Experimental Groups And One Control Group

Mean	Aerobic Group (A)	Hath yoga Group (B)	Combination of Aerobic & Hath yoga group (C)	Control group (D)	Sum of square		d.f	Mean sum of square	F-ratio
					A	W			
Pre test	300.39	303.28	303.04	303.62	A	164.16	3	54.72	0.005
					W	964938.13	96	10051.43	
Post test	379.83	310.19	332.11	303.98	A	88691.74	3	29563.91	2.72*
					W	1040973.52	96	10843.47	
Adjusted post test	381.14	308.87	331.02	302.36	A	95589.11	3	31863.03	12.50*
					W	242155.88	95	2549.00	

*Significant at 0.05 level F.05 (3, 96) =2.72 F.05 (3, 95) =2.71

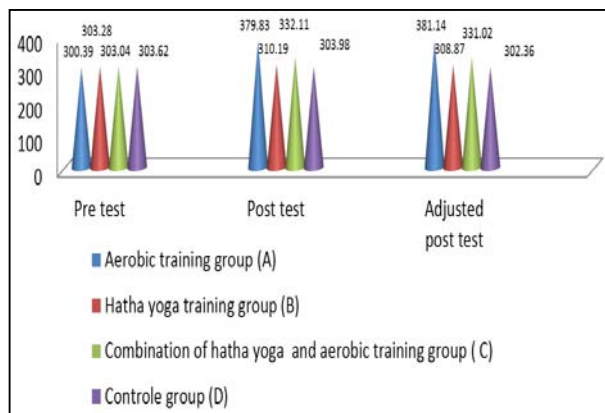


Fig 1: Comparison of Physical Fitness Among, Aerobic Training (A), Hatha Yoga Training (B), Combination of Hatha Yoga and Aerobic Training Groups (C) And One Control Group (D) In Pre, Post and Adjusted Post Test Means.

Table 1 and Figure 1, revealed no significant difference in physical fitness in pre test phase among three experimental training groups (aerobic training, hatha yoga, combination of hatha yoga and aerobic training groups) and one control group. The obtained ‘F’ value 0.005 was found to be lesser than required ‘F’ value 2.72 to be significant at 0.05 level of confidence with 3, 96 degree of freedom.

However, the ‘F’ ratio value in post test phase (2.72), and adjusted post-test phase (12.50) are found to be significant for being greater than the required ‘F’ value 2.72 and 2.71 to be significant at 0.05 level of confidence with 3, 96 and 3, 95 degree of freedom respectively.

As in analysis of co-variance the significant difference in physical fitness in adjusted post-test means among aerobic training, hatha yoga training, combination of hatha yoga and aerobic training groups and one control group was found.

Further in order to find out the existence of significant difference between paired adjusted final means, the post-hoc test was applied, which is presented in table 2.

Table 2: Paired Adjusted Final Means and Difference between Means of Four Different Groups Related To Physical Fitness

Aerobic Group (A)	Hath yoga group (B)	Combination of Aerobic & Hath yoga group (C)	Control group (D)	Mean difference	Critical difference
381.14	308.87			72.27*	5.65
381.14		331.02		50.12*	5.65
381.14			302.36	78.77*	5.65
	308.87	331.02		22.14*	5.65
	308.87		302.36	06.51*	5.65
		331.02	302.36	28.65*	5.65

*Significant at 0.05 level of confidence.

In Table 2, (post-hoc test) it was also observed that there were significant differences between each training groups and control group in which the mean value of training groups were found to be greater and then that of control group mean values. As per concerned literature it may be stated that long term training programme gradually enhance the size, muscle power and muscular endurance capacity along with development of heart and lungs ability, which in turn helps to develop physical fitness ability of the subjects.

Probably due to such reasons it may be assumed that aerobic training, hatha yoga, and combination of hatha yoga and aerobic training were having some significant effect in improving physical fitness and thus the significant increase in mean values of physical fitness of training groups from pre to post phases and adjusted post test phases observed, where as no such changes of mean values of physical fitness of control group from pre to post test phase was noticed.

This study is in consonance with the findings of Ajmer Sing, Hardayal Singh, Hockey and Drake.

4. Conclusion

Further in respect to the development of physical fitness, the role of aerobic training programme was found to be more effective in comparison to the effect of hatha yoga and combination of hatha yoga and aerobic training programmes in improving the physical fitness ability undertaken in this study.

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