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Effect of yogic practices with aerobic training on selected physical and physiological variables among high school boys

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Abstract

The purpose of the study was to find out the effect of yogic practices with aerobic training on selected physical and physiological variables among high school boys. To achieve the purpose of the study, fifty high school boys were selected randomly from government schools, Coimbatore District. The subjects aged from 14 to 18 years. The selected subjects were divided into two equal groups namely experimental and control groups of 25 subjects each. The training period was limited to eight weeks. The yogic practices with aerobic training was selected as independent variables and cardio respiratory endurance, muscular strength endurance, resting pulse rate, and breath holding time were selected as dependent variable and it was measured by Cooper 12 min run/walk, modified sit up, cardio radial pulse, and nose clip. The obtained data from the experimental group and control group before and after the experimental period were statistically analyzed with dependent 't'-test to find out significant improvements. The level of significance was fixed at 0.05 level confidence for all the cases. The results of the study was found cardio respiratory endurance, muscular strength endurance, resting pulse rate and breath holding time of experimental group due to the effect of yogic practices with aerobic training.

Keywords: cardio respiratory endurance, muscular strength endurance, resting pulse rate, breath holding time and school boys

Introduction

The body in yoga is the vehicle for the development of wisdom, of spiritual awakening, and as such the body is held to be sacred and mastery of our body is considered the foundation for spiritual progress. In yoga we learn a discipline of the body which comes out of awareness and attentiveness, tuning in to our body's subtle energy flows and the life-giving rhythm of our breathing. The idea is that through entering more deeply and subtly into our physical experience, we can become more connected with ourselves, more grounded, and less swayed by anxieties or neurotic cravings for things that will not truly satisfy us. This can be a very positive influence on our approach to life, offering an antidote to the alienated rushing and disconnection from ourselves that characterizes much of our modern world.

Aerobic training

Aerobic literally means "with oxygen", and refers to the use of oxygen in muscles' energy-generating process. Aerobic exercise includes any type of exercise, typically those performed at moderate levels of intensity for extended periods of time that maintains an increased heart rate. In such exercise, oxygen is used to "burn" fats and glucose in order to produce adenosine triphosphate, the basic energy carrier for all cells. Initially during aerobic exercise, glycogen is broken down to produce glucose, but in its absence, fat metabolism is initiated instead. The latter is a slow process, and is accompanied by a decline in performance level. The switch to fat as fuel is a major cause of what marathon runner's call "hitting the wall." There are various types of aerobic exercise. In general, aerobic exercise is one performed at a moderately high level of intensity over a long period of time.

Methodology

The purpose of the study was to find out the effect of yogic practices with aerobic training on selected physical and physiological variables among high school boys. To achieve the purpose of the study, fifty high School Boys were selected randomly from government schools, Coimbatore District. The subjects aged from 14 to 18 years. The selected subjects were divided into two equal groups namely experimental and control groups of 25 subjects each. The training period was limited to eight weeks and for six days per week. The yogic practices with aerobic training was selected as independent variables and cardio respiratory endurance, muscular strength

endurance, resting pulse rate, and breath holding time were selected as dependent variable and it was measured by cooper 12 min run/walk, modified sit up, cardio radial pulse, and nose clip. All the subjects were tested two days before and immediately after the experimental period on the selected dependent variables. The obtained data from the experimental group and control group before and after the experimental period were statistically analyzed with dependent ‘t’-test to find out significant improvements. The level of significance was fixed at 0.05 level confidence for all the cases. It would be find out finally the effect of yogic practices with aerobic training on the high school boys in scientific methods.

The selected tests were measured by following units for testing

S. No	Criterion Variables	Test Items	Unit Measurements
1.	Cardio respiratory endurance	12 min run/walk	Meters
2.	Muscular strength endurance	Modified sit ups	Counts
3.	Resting pulse rate	cardio radial pulse	Seconds
4.	Breath holding time	nose clip	Seconds

Results and discussions

The effect of independent variables on each criterion variables was considered by dependent ‘t’ – test on the data achieved for cardio respiratory endurance, muscular strength

endurance, resting pulse rate, and breath holding time. The pretest and post test means of experimental group and control group have been analyzed and existing in Table I.

Table 1: Mean and dependent ‘t’ – test for the pre and post tests on cardio respiratory endurance, muscular strength endurance, resting pulse rate, and breath holding time of experimental and control groups

S. No	Variable	Group/Test	Mean	SD	SEM	‘t’ ratio
1.	Cardio respiratory endurance	Experimental Pre – test	19.57	27.42	5.48	4.42*
		Experimental Post - test	45.96	7.89	1.58	
		Control Pre – test	45.46	8.06	1.65	2.7
		Control Post – test	31.33	26.16	5.34	
2.	Muscular strength endurance	Experimental Pre – test	32.55	1.30	0.42	5.74*
		Experimental Post - test	34.15	1.41	0.32	
		Control Pre – test	29.10	1.30	0.69	1.09
		Control Post – test	29.08	1.41	0.51	
3.	Resting pulse rate	Experimental Pre – test	3.68	1.75	0.35	8.68*
		Experimental Post - test	4.65	1.84	0.37	
		Control Pre – test	3.64	1.29	0.26	1.06
		Control Post – test	3.41	1.37	0.28	
4.	Breath holding time	Experimental Pre - test	13.15	1.69	0.34	7.58*
		Experimental Post - test	15.70	1.49	0.30	
		Control Pre – test	13.17	1.73	0.35	2.08
		Control Post – test	11.48	3.70	0.75	

*Significance at 0.05 level of confidence

The table I, shows that, the obtained ‘t’-ratio between the pre and post test means of experimental group were 4.42, 5.74, 8.68, 7.58 and control group were 2.7, 1.09, 1.06, 2.08 respectively. The table values required for significant difference with df 24 at 0.05 level of confidence. Since the obtained ‘t’ – ratio value of experimental and control group on cardio respiratory endurance, muscular strength endurance, resting pulse rate, and breath holding time were greater than the table value 2.063,it was concluded that the yogic training

followed by aerobic training had significantly improved cardio respiratory endurance, muscular strength endurance, resting pulse rate, and breath holding time of experimental group. The pre and post test mean value of experimental and control group on cardio respiratory endurance, muscular strength endurance, resting pulse rate, and breath holding time were graphically represented in the figure 1.

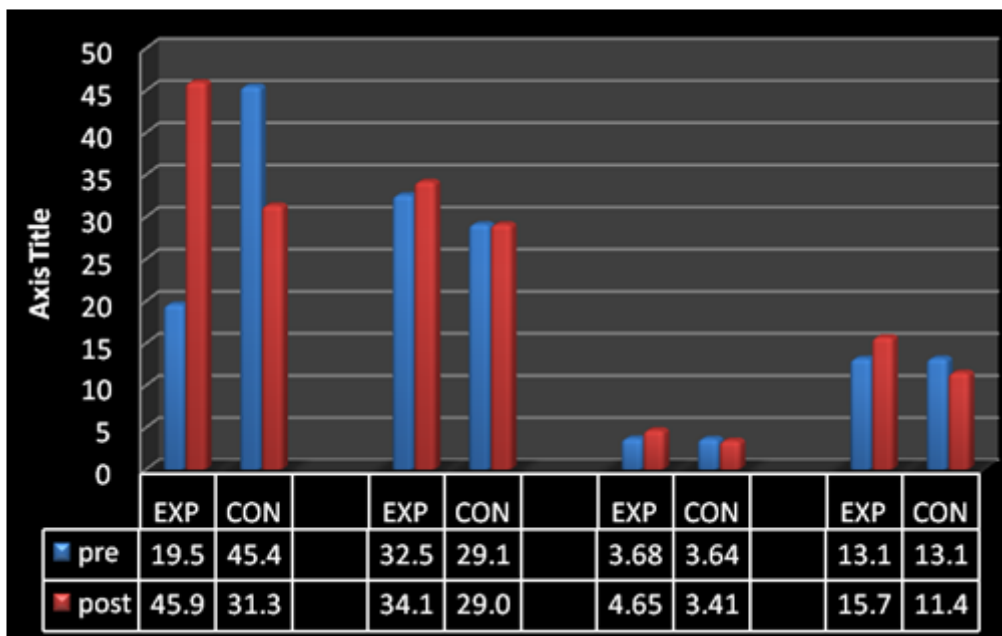


Fig 1: Bar diagram showing the pre and post mean value for yogic practices with aerobic training group and control group of high school boys

Discussion on findings

The finding of the study reveals that the yogic practices followed by aerobic training group cause significant improvement in their physical and physiological variables. In the view of control group there was no significant improvement in their physical and physiological variables. The findings of the study corroborate with, Padmanathan (2020) [4], Nirav Vaghela (2019) [3], Nirendan (2019) [8], Singh (2019) [6], Yating (2017) [2], Khatun (2016) [9] and Jyotsna Aggarwala (2016) [1] in their study, they stated that yoga and aerobic training exercise developed physical and physiological variables.

Conclusions

The results of the study showed that the Breath Holding Time, Resting Pulse Rate, Flexibility and Balance was found significantly improved on experimental group due to the effect of yogic practices followed by aerobics training when compared to the control group.

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