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Investigate the effect of aerobic training and yogic practices on selected physical fitness components of police personals

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Abstract
This study was designed to investigate the effect of aerobic training and yogic practices on selected physical fitness components of police personals. To achieve the purpose of the study (N=45) forty-five men police personals were selected Armed Police Force Battalion, Tiruchirappalli, Tamilnadu, India as subjects. The age of the subjects ranged from 21 to 25 years. The selected subjects were divided into three equal groups (N=15). Group I underwent aerobic training. Group II underwent yogic practice. Group III acted as a control group that they did not undergo any specialized training program other than their daily routine. The physical fitness components such as speed, agility and strength were selected as dependent variables and they were assessed by 50-meter dash, shuttle run test and push ups respectively. The subjects were concerned with their particular training for twelve weeks, alternatively three days per week. The collected data from three groups before and immediately after the training program on selected criterion variables were statistically analyzed with analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis. The result of the study reveals that the aerobic training and yogic practices group achieved significant improvement on selected physical fitness components such as speed, strength and agility of police personals.

Keywords: Physical fitness, speed, agility, strength

Introduction

Physical activity is any bodily activity that enhances or maintains physical fitness and overall health. Physical fitness is functioning of the blood vessels, heart, lungs and muscles at optimum efficiency. Regular physical exercises maintain our body healthy and prevent from diseases. Physical exercise is important for maintaining physical fitness and can contribute to maintaining a healthy weight, regulating the digestive system, building and maintaining healthy bone density, muscle strength, and joint mobility, promoting physiological well-being, reducing surgical risks, and strengthening the immune system. Some studies indicate that exercise may increase life expectancy and the overall quality of life.

In sports, training is generally understood to be synonym of doing exercise. In a narrow sense training is physical exercise for the improvement of performance. Training involves constructing an exercise programme to develop an athlete for a particular event. Many studies have reported that physical exercises would improve physical, physiological, psychological and performance parameters in most of the sports. Opined that training is a programme of exercise designed to improve the skills and increase the energy capacity of an athlete for a particular event.

Aerobics is a physical exercise combines rhythmic aerobic exercise with stretching and strength training routines with the goal of improving all elements (flexibility, muscular strength and cardio-vascular fitness) it is usually performed to music and may be practiced in a group setting led by an instructor, although it can be done solo and without musical equipment with the goal of preventing illness and promoting physical fitness, practitioners perform various routines comprising a number of difference dance like exercise formal aerobics classes are divided into different level of intensity and complexity.

Aerobics classes may allow participants to select their level of participation according to their fitness level. Physiologically the term aerobic means the activities with oxygen gradual practice facilities oxygen and nutrients to the extremities and heart. So that demands of the body are satisfied. Muscles become stronger and more enduring whereas body becomes more agile and flexible by following over loading principals in aerobic dance and combination of other aerobic activities leads to favourable change in circular-respiratory system body composition and certain fitness factors. Research reports also revealed that aerobics training has favourable influence on psycho-hormonal developments.

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.

Yoga is a complete system of physical, mental, social and spiritual development. For generations, this philosophy was

passed on from the master-teacher to the student. Yoga is skill in action and a practical philosophy that aims at uniting the body, mind and spirit for health and fulfillment. It is a methodological effort towards self-perfection. It helps in expanding the limits of our consciousness and gain mastery over mind. Yoga as such provides a complete philosophy for living for it, comprises techniques that act as our mind and emotions.

Yoga is a form of exercise that unites breath, mind, body, and spirit. The word and practice yoga conjure up images of Eastern philosophy and ancient practices. Modern day yoga practice has been discovered in the Western world by many people want to strengthen their bodies in a new way. Yoga is not the fast pace cardiovascular workout like running, dance class, or a sport like tennis. Yoga is learning how to slow your thoughts way down, place all your attention on the present moment, and create an oasis of stillness in your movements.

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.

The practice of yoga helps individuals including sports persons to achieve higher physical, mental, emotional and energy levels. It enables them to realize the importance of life beyond the result of sports and games. At the physical level asanas, kriyas, mudras and pranayama stabilize and balance the lop-sided physical drills necessary for sporting activity. Yoga plays vital role in improving the physiological conditions of vital organs namely cardiovascular, respiratory, digestive, eliminative, endocrine, nervous and muscle-skeletal system. It also strengthens, clean and purifies the body consciously.

Methodology

The purpose of the study was to investigate the effect of aerobic training and yogic practices on selected physical fitness components of police personals. To achieve the purpose of the study (N=45) forty-five men police personals were selected Armed Police Force Battalion, Tiruchirappalli, Tamilnadu, India as subjects. The age of the subjects ranged from 21 to 25 years. The selected subjects were divided into three equal groups (N=15). Group I underwent aerobic training. Group II underwent yogic practice. Group III acted as a control group that they did not undergo any specialized training program other than their daily routine. The physical fitness components such as speed, agility and strength were selected as dependent variables and they were assessed by 50-meter dash, shuttle run test and push ups respectively. The subjects were concerned with their particular training for twelve weeks, alternatively three days per week. The collected data from three groups before and immediately after the training program on selected criterion variables were statistically analyzed with analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis.

Table 1: Analysis of Covariance on the Mean Values of Aerobic Training (ATG) and Yogic Practices (YPG) on Selected Physical Fitness Components of Police Personals and Control Group (CG) on Speed, Strength and Agility (In Numbers and Meters)

Variables	Test	ATG	YPG	CG	SoV	SS	df	MS	'F' Ratio
Speed	Pre-Test Mean	8.79	8.72	8.22	BG	0.087	2	0.043	1.02
					WG	1.774	42	0.042	
	Post Test Mean	8.25	8.32	8.76	BG	2.192	2	1.096	25.40*
					WG	1.812	42	0.043	
	Adjusted Post Test Mean	8.26	8.34	8.75	BG	2.028	2	0.1014	24.14*
					WG	1.722	41	0.042	
Strength	Pre-Test Mean	12.20	12.46	12.53	BG	0.933	2	0.465	0.91
					WG	201.867	42	4.806	
	Post Test Mean	15.46	15.60	12.73	BG	78.533	2	39.267	8.48*
					WG	194.267	42	4.625	
	Adjusted Post Test Mean	15.49	15.59	12.71	BG	79.912	2	39.956	8.61*
					WG	190.234	4	4.640	
Agility	Pre-Test Mean	11.98	12.05	12.07	BW	0.064	2	0.032	0.40
					WG	3.332	42	0.079	
	Post Test Mean	11.49	11.46	11.94	BG	2.180	2	1.090	18.63*
					WG	2.457	42	0.059	
	Adjusted Post Test Mean	11.48	11.46	11.94	BG	2.183	2	1.092	18.26*
					WG	2.451	41	0.060	

*Significant at. 05 level of confidence. (The table values required for significance at. 05 level of confidence for 2 and 42 and 2 and 41 are 3.158 and 3.161 respectively).

The above table 1 shows the adjusted post-test means for speed, strength and agility of three groups as aerobic training group (ATG) and yogic practices group (YPG) and control group. For speed, the adjusted post-test means were 8.26, 8.34 and 8.75; for strength, the means were 15.49, 15.59, and 12.71; for agility the means were 11.48, 11.48, and 11.94 respectively. The F obtained ratio for speed, strength and agility were 24.14, 8.61 and 18.26 respectively. The obtained adjusted post-test means were highly significant as the value were greater than the required critical value at 0.05 level of confidence. The adjusted post-test was found to be significant, and the Scheffe's test was used as a post hoc test to find out the paired mean differences, if any.

Significant differences were noticed in the results between aerobic training group (ATG) and yogic practices group (YPG) and control group. The adjusted post-test means values of aerobic training group (ATG) and yogic practices group (YPG) and control group on speed, strength and agility were graphically represented with figure-1-3.

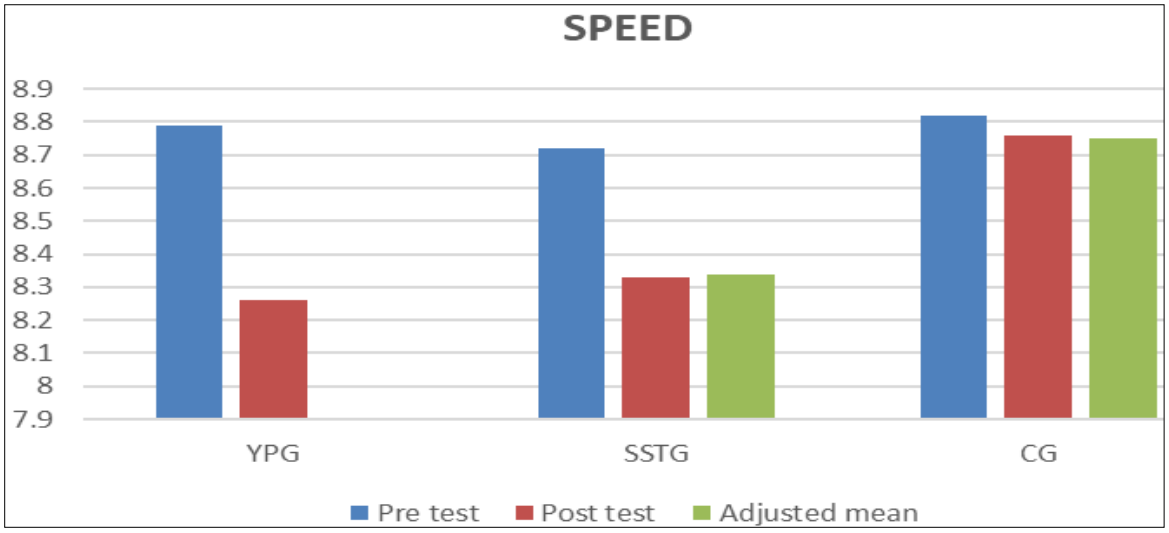

Fig 1: Pre-Test, Post-Test and Adjusted Post-Test Mean Values of Aerobic Training (ATG), Yogic Practices (YPG) and Control Group on Speed

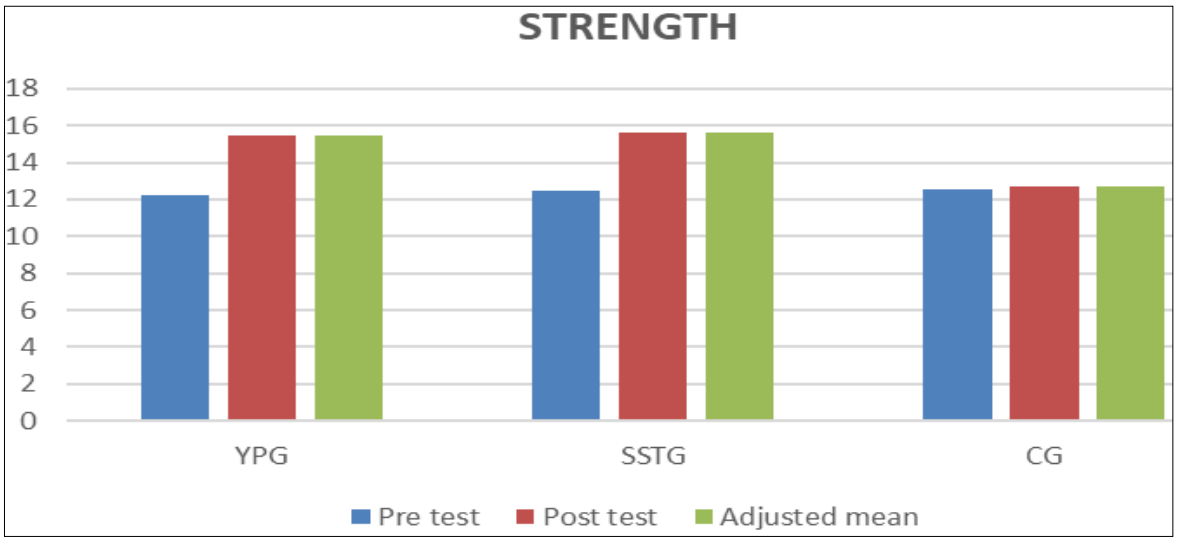

Fig 2: Pre-Test, Post-Test and Adjusted Post-Test Mean Values of Aerobic Training (ATG), Yogic Practices (YPG) and Control Group on Strength

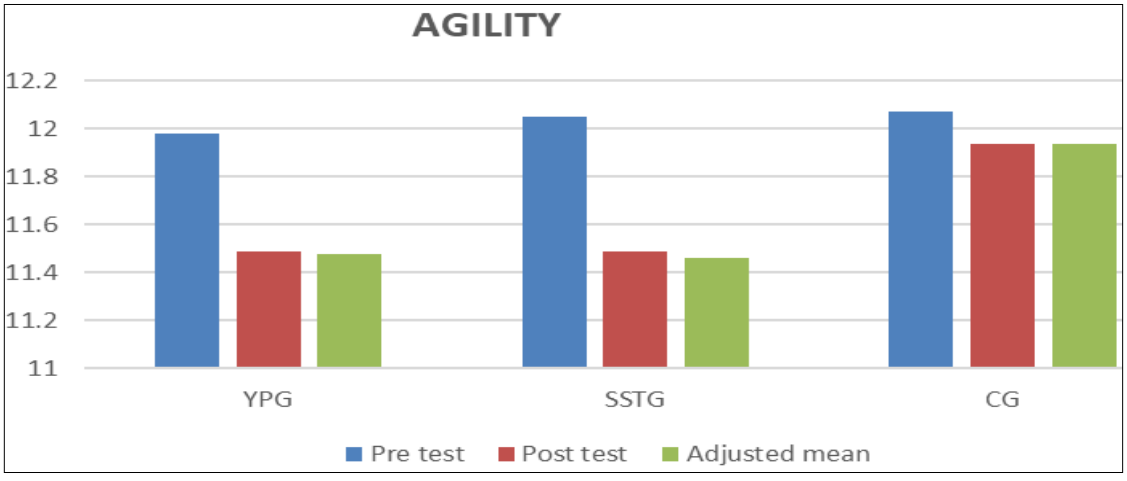

Fig 3: Pre-Test, Post-Test and Adjusted Post-Test Mean Values of Aerobic Training (ATG), Yogic Practices (YPG) and Control Group on Agili

Discussions on Findings

The result of the study reveals that the aerobic training and yogic practices group achieved significant improvement on selected physical fitness components such as speed, strength and agility of police personals. *The findings of the study corroborate with, Padmanathan (2020)* [9]*, Nirav Vaghela (2019)* [8]*, Nirendan (2019)* [12]*, Singh (2019)* [10]*, Yating (2017)* [7]*, Khatun (2016)* [13] *and Jyotsna Aggarwala (2016)* [6] *in their study, they stated that yoga and aerobic training exercise developed physical fitness variables.*

Conclusions

From the analysis of the data, the following conclusions were drawn

1. The aerobic training and yogic practices group has shown significant improvements on selected physical fitness components such as speed, strength and agility of police personals.
2. The aerobic training group has significantly enhanced on selected physical fitness components when compare to yogic practices group of police personals.
3. *In the view of control group there was no significant improvement on* selected physical fitness components.

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