Analysis the Intervention of Aerobic and Yogic Methods of Training on Selected Physiological Variables among Police Personals

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KEYWORDS

Aerobic Exercise, Yogic Practice, Breath Holding Time, Resting Pulse Rate and Vo2 Max.

ABSTRACT

Introduction; Today in this fast-growing world the competencies for the survival have gone up and one must face lot of competitions. One might be very rich in materialistic sense. But keeping a healthy state of mind is very difficult due to the large number of problems of daily life.

Objectives: The purpose of the study was to analysis the intervention of aerobic and yogic methods of training on selected physiological variables among police personals.

Methods: To achieve this purpose of the study forty five police personals working in and around Tiruchirappalli District, Tamilnadu were randomly selected as subjects. The age of the subjects were ranged between 18 to 23 years. The selected subjects were divided in to three equal groups of fifteen subjects each. Group I underwent aerobic exercise training, Group II underwent yogic practice Training for three days per week for twelve weeks. Group III acted as control that did not participate in any training. The physiological variables such as breath holding time, resting pulse rate and vo2 max were selected as dependent variables and they were measured by stopwatch, digital blood pressure monitor and multi stage shuttle run test and the unit of measurement was recorded in seconds, mm/hg and ml/kg/min respectively. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant different, if any among the groups. The 0.05 level of confidence was fixed as the level of significance.

Conclusions: The aerobic exercise and yogic practice training groups shows significant improvement on selected physiological variables compared to control groups.

1. Introduction

An intervention combining aerobic exercise with yogic practices among police personnel is likely to significantly improve various physical and physiological variables, including cardiovascular fitness, flexibility, muscular strength, stress reduction, and mental well-being, with yoga potentially offering an edge in aspects like breath control and mindfulness, while aerobic training enhances overall endurance and stamina, making it a holistic approach for police officers facing physically and mentally demanding duties.

Integrating aerobic exercise with yogic practices can provide a comprehensive training approach for police personnel, leading to improvements in physical fitness, mental well-being, and overall performance by addressing both the physical demands of the job and the psychological stress associated with law enforcement duties.

It is a programme of exercise designed to improve the skills and increase the energy capacity of an athlete for a particular event. “Sports training aims at achieving high performance in sports competitions. It is a process which is spread over a long per iod of time and is a competition cum performance-oriented endeavor as well”. Asana means holding the body in a particular posture to bring stability to the body and poise to the mind. The practices of asana bring purity in tabular channels firmness to the body and vitality to the body and the mind. Term pranayama in yoga, is often translated more specifically as "breath control". Literal translations include "suspension of breath" and regulation of breath".

In recent days, most of the people around the world are practicing yoga regularly to get and stay fit and healthy. In modern age, life is becoming very complex that seen and unseen hazards to health and have proliferated to an alarming many ailments like asthma, ulcer, migraine, heart attack, back pain, blood pressure, diabetes etc. Due to the pollution also the health status is disturbed. Many people do not breathe properly and are unaware of this fact. Proper breathing profoundly improves our whole physical and mental wellbeing. The breath is intimately connected with our state of health and improper breathing will often reflect various disturbances of body and mind. The breath is perhaps the only physiological process that can be either voluntary or involuntary. One can breathe with awareness and control the breathing process consciously or one can ignore it and breathe reflexively or unconsciously. If the breath is unconscious, it falls under the control of primitive parts of the brain, where emotions, thoughts and feelings of which we have little or no awareness become involved. In this way the regularity and rhythm of the breath are disturbed and it flows in an uncoordinated way, creating havoc in the body and mind.

Ordinarily when people talk about pranayama they generally mean those yogic practices, which involved some kind of manipulation of the breathing activity. But when one looks at the tradition of the yoga. One finds that the concept of pranayama has much greater width and its techniques include vast array of very subtle elements apart from the simple manipulation of breathing activity.

The Breathing Techniques are based on the concept that breath is the source of life in the body. Yoga students gently increase their breath control to improve the health and the function of both body and mind. These two systems prepare the body and mind for Meditation, making it easier for students to achieve a quiet mind and be free from everyday stress. Regular daily practice of all three parts of this structure of Yoga produce a clear, bright mind and a strong, capable body.

Yoga benefits as an exercise, near-perfect fitness routine, yoga provides the means for people of any age not only to get and stay in shape but also to develop balance, coordination, and a sense of centeredness. It renews, invigorates, and heals the body - stretching and toning the muscles, joints, and spine and directing blood and oxygen to the internal organs (including the glands and nerves). Yoga is distinctly different from other kinds of exercise. It generates motion without causing strain and imbalances in the body. When practiced correctly, yoga has no such negative effects on either the inner or outer body. When done with dedication and purpose, yoga can be a quite demanding, yet an immensely rewarding type of exercise. While not inherently aerobic, it involves almost every muscle in the body and challenges the body to work in a different and often more passive way. Since the limbs function as free weights, resistance is created by moving the body's center of gravity. This strengthening gives way to endurance as poses are held for longer periods of time. Unlike conventional forms of exercise, such as weight training, walking, biking or hiking, hatha yoga stresses quality of movement over quantity. A consistent yoga practice can quiet the mind and refresh the body, bringing health, relaxation, and happiness. Yoga postures are the physical positions that coordinate breath with movement and with holding the position to stretch and strengthen different parts of the body.

Yoga is a method of learning that aims to attain the unity of mind, body, and spirit through these three main Yoga structures: Exercise, Breathing, and Meditation. The exercises of Yoga are designed to put pressure on the Glandular Systems of the body, thereby increasing its efficiency and total health. The body is looked upon as the primary instrument that enables us to work and evolve in the world, a Yoga student; therefore, treats it with great care and respect.

The aim of yoga is to attain perfection of the intellect, both the head and the heart, so that, the artist becomes devoted, true and pure. This demands an almost total relinquishment of interest in other activities of life except the chosen path. The mind is fluid and runs after sensual pleasures. Art demands total undivided focal attention. Hence Patanjali explains that the mind must be controlled and then submitted to serve the artistic nature of yoga to its highest potency. Yoga or any art requires acute sharpness of intellect and alert organs of perception. In yoga there is no competition but it requires freedom to think and reconstruct with a desire to perform better. Then it brings to the yogi the most exalted enlightenment. From now on, wherever the yogi is and whatever he does, his thoughts are rooted in spiritual communion, which takes him to the Zenith of spiritual life. (B.K.S. Iyengar 1993).

Aerobic exercise uses continuous, rhythmic movement of large muscle groups to strengthen your heart and lungs (cardiovascular system). When you exercise, your muscles demand more oxygen -rich blood. This makes your heart beat faster to keep up. When you follow a program of regular aerobic exercise, your cardiovascular system grows stronger and can meet the muscles' demands without as much effort. In addition, your muscles adapt and become more efficient at performing activity. 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 runners 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. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. (Chidambaraja and Saravanan 2012). Regular practice of yoga and aerobics helps to keep our body fit, controls cholesterol level, reduces weight, normalizes blood pressure and improves heart performance. According to the National Institutes of Health, when people actively seek to reduce the stress in their levels by quieting the mind, the body often works to heal itself. In this sense yoga and aerobic can be seen not only as a way to get into shape on several levels, but also as a tool for self- healing. (Yokesh 2011).

2. Objectives

The purpose of the study was to analysis the intervention of aerobic and yogic methods of training on selected physiological variables among police personals.

3. Methodology

To achieve this purpose of the study forty five police personals working in and around Tiruchirappalli District, Tamilnadu were randomly selected as subjects. The age of the subjects were ranged between 18 to 23 years. The selected subjects were divided in to three equal groups of fifteen subjects each. Group I underwent aerobic exercise training, Group II underwent yogic practice Training for three days per week for twelve weeks. Group III acted as control that did not participate in any training. The physiological variables such as breath holding time, resting pulse rate and vo2 max were selected as dependent variables and they were measured by stopwatch, digital blood pressure monitor and multi stage shuttle run test and the unit of

measurement was recorded in seconds, mm/hg and ml/kg/min respectively. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance (ANCOVA) was used to analyze the significant different, if any among the groups. Since, three groups were compared whenever they obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's post hoc test to find out the paired mean difference, if any. The 0.05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance which was considered as an appropriate.

4. Results

Table I: Computation of Analysis of Covariance on Breath Holding Time, Resting Pulse Rate and Vo2 Max among Aerobic Exercise, Yogic Practice and Control Groups

Variables	Test	Aerobic Exercise Group	Yogic Practice Group	Control Group	Source of Variation	SS	Df	MSS	'F' Ratio
Breath Holding time	Pre	23.64	28.66	23.37	BG	56.34	2	28.17	2.51
					WG	470.84	42	11.21	
	Post	29.52	28.88	24.51	BG	240.52	2	120.26	8.92*
					WG	566.47	42	13.48	
	Adjusted Post Test	29.78	28.88	24.62	BG	31.18	2	15.59	21.65*
					WG	29.57	41	7 0.72	
Resting Pulse Rate	Pre	75.20	75.40	75.00	BG	1.20	2	0.60	0.36
					WG	70.0	42	1.67	
	Post	72.80	68.40	74.73	BG	316.4	2	138.02	120.82*
					WG	54.93	42	1.31	
	Adjusted Post Test	72.80	68.42	74.87	BG	336.20	2	168.35	298.73*
					WG	23.11	41	0.56	
VO2 Max	Pre	68.27	68.13	68.07	BG	0.31	2	0.36	0.33
					WG	19.60	42	0.47	
	Post	71.20	75.07	68.40	BG	336.18	2	168.89	307.84*
					WG	22.93	42	0.55	
	Adjusted Post Test	75.16	75.07	68.43	BG	334.28	2	167.14	331.59*
					WG	20.67	41	0.50	

Significant at 0.05 level of confidence is 0.05 is (2, 41) = 3.222 and (2, 42) = 3.226

The table I shows that the pre-test mean values on breath holding time, resting pulse rate and VO2 max of aerobic exercise, yogic practice and control groups are 23.42, 23.64 and 23.37; 75.20, 75.40 and 75.00; 68.27, 68.13 and 68.07 respectively. The obtained 'F' ratio 2.51, 0.36 and 0.33 for pre test score was less than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence So the study indicated that there was a insignificant difference on breath holding time, resting pulse rate and VO2 max.

Table I shows the post test mean values on breath holding time, resting pulse rate and VO2 max of yogic practice, aerobic exercise and control groups are 28.66, 29.52 and 24.51; 72.20, 68.40 and 74.73; 71.20, 75.07 and 68.40 respectively. The obtained 'F' ratio 8.92, 120.82 and 307.84 for post test score was greater than the table values 3.21 for df 2 and 42 required for significance at 0.05 level of confidence. The results of the study indicated that there was a significant difference among the post test means of aerobic exercises, yogic practice and control groups on breath holding time, resting pulse rate and VO2 max.

Table I also shows the adjusted post test mean values on breath holding time, resting pulse rate and VO2 max of aerobic exercise, yogic practice and control groups are 28.88, 29.78 and 24.62; 72.80, 68.42 and 74.87; 75.16, 75.07 and 68.43 respectively. The obtained 'F' ratio

21.65, 298.73 and 331.59 for adjusted post test score was greater than the table value 3.225 for df 2 and 41 required for significance at 0.05 level of confidence on breath holding time, resting pulse rate and VO2 max. The results of the study indicated that there was a significant difference among the adjusted post test means of aerobic exercises, yogic practice and control groups on breath holding time, resting pulse rate and VO2 max.

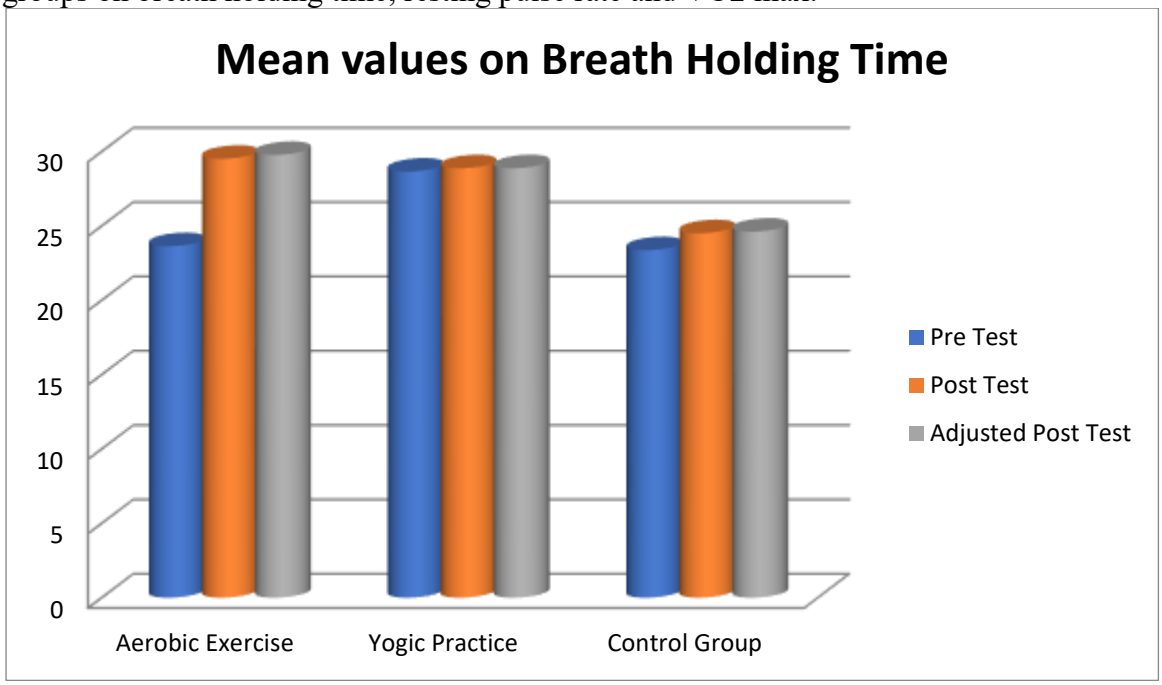

Figure 1: Pre and Post Test Mean values on Breath Holding Time Experimental and Control Groups

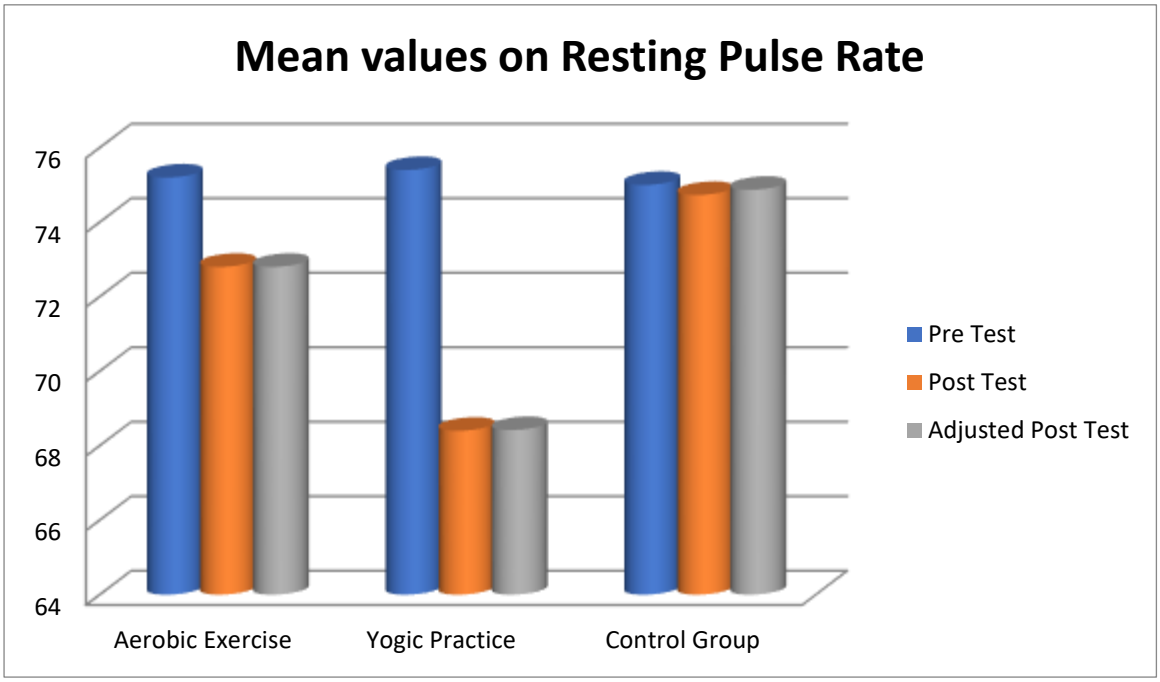

Figure 2: Pre and Post Test Mean values on Resting Pulse Rate of Experimental and Control Groups

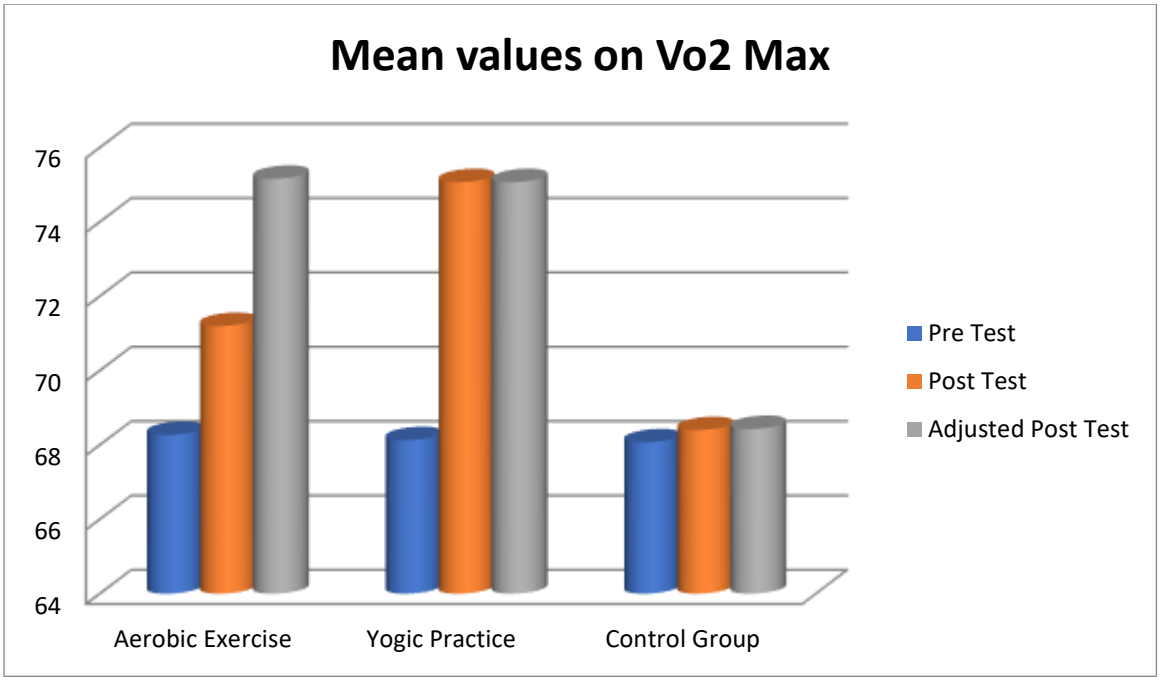

Figure 3: Pre and Post Test Mean values on Vo2 Max of Experimental and Control Groups

5. Discussion on Findings

The results of the present study indicate that the significant differences were noticed between aerobic exercise and yogic practice when compared to control group. The selected physiological variables such as breath holding time and resting pulse rate (reduction) and VO2 max was significantly improved due to the influence of aerobic exercise and yogic practice training among police personals. The findings of the study in corroborate with, the studies of Padmanathan (2020), Nirav Vaghela (2019), Nirendan (2019), Singh (2019) and Yating (2017) in their study, they stated that yoga and aerobic training exercise developed physical and physiological variables.

6. Conclusions

1. The aerobic exercise and yogic practice training groups shows significant improvement on selected physiological variables compared to control groups. These improvements occurred because of planned systematic training among police personals.
2. When compare to aerobic exercise and yogic practice training groups the aerobic exercise training group shows better results among police personals.

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