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Effect of Prandharana and Tratak on Vital Capacity of Physical Education Students

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Abstract

Objective of the Study: The objective of the study was to determine the effect of Prandharana and Tratak on Vital Capacity. [The objective of the study was to find out the significant difference between adjusted post test means of experimental groups (Prandharana and Tratak) and control group in relation to Vital Capacity]

Methodology/Method: ***Selection of Subjects:*** Ninety male physical education students from Madhya Pradesh were selected as subjects for this study. The age of the subjects ranged between 18-25 years. The subjects were divided into three groups i.e. Two experimental groups (Prandharana and Tratak) and one control group.

Variable/Content: The purpose of the study, Vital Capacity Variable was selected.

Statistical Analysis: To find out the effect of Prandharna and Tratak onVital Capacity, Analysis of Co variance was used. The level of significance was set at 0.05 level.

Conclusion: Significant difference was found among the adjusted post test means of experimental groups and control group in Vital Capacity, since the F-value (12.254) was found significant at .05 level with 2, 86 df. Prandharna Group proved to be superior than Tratak Group in Vital Capacity.

Key Words: Vital Capacity, Tratak & Prandharana.

1. Introduction:

Any system or process will accept by common man if it can prove its usefulness in his day to day life aspects of life. In the past we have seen how society accepted and adopted science as an integral part of its structure as technology solved the problem of providing the basic necessities of life and offering a more comfortable life to an individual. Also, we can see that at the present time society is equally attentive for health aspect with the help of yoga. Why? 'Yoga'. Yoga is the process of self-realization. Yoga offers a man to conscious process to solve the situational and emotional problem i.e. unhappiness, emotional imbalance, stress, hyper activity etc. A man can live his positive and pure life and can reach to find out hidden potential trough yoga practices.

In other way control of mind messed up with unwanted things and thoughts while yoga practices give necessary help to operate and act at right time and right place with inner consciousness.

In action, Yoga is a special skill which makes the mind reach its subtler state: 'Yogah Karmasu Koshalam' (Geeta 2.50). Yoga is a dexterity in action. The dexterity is in maintaining relaxation and awareness in action. Relaxed action is the process. Efficiency in action is an outcome. Thus, yoga is a skillful science of gaining mastery over the mind.

Yogic techniques are known to improve one's overall performance. *Pranayama* (breathing exercise) is known to be a part of yogic techniques. Patanjali in his Yoga Sutra describes- *Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi* as eight *angas* (parts) of yoga. Amongst them, in the present materialistic world, the third and fourth part, *Pranayama* and *Asana* (Postures) are considered as very important parts and prescribed by modern medicine too. Many physicians now recommend yoga to patients at risk for heart diseases, as well as those with back pain, arthritis, depression and other chronic diseases. The beneficial effects of different *Pranayamas* are well reported and has sound scientific basis. Different types of *Pranayamas* (breathing exercises) produce different physiological responses in normal young volunteers. *Kapalbhati, Bhastrika Pranayama, Nadi suddhi Pranayama* (Alternate nostril breathing), are well known among them. These breathing exercises are reported to influence cardio-respiratory and autonomic functions and also help in reducing the scores of anxiety and stress. In the present study an attempt has been made to investigate the effects of ANB on different cardio-respiratory parameters on healthy young volunteers.

Prana means *breath* and *Ayama* means *control*. By Pranayama is meant the control of Prana and the vital forces of the body. Pranayama begins with the regulation of breath and ends in establishing full and perfect control over the life-currents or inner vital forces. In other words, Pranayama is the perfect control of the life-currents through regulation of breath. Breath like electricity is gross Prana. By establishing control over the gross Prana, you can easily gain control over the subtle Prana inside. The process by which such control is established is called Pranayama. Pranayama is the fourth limb of Ashtanga Yoga.

The Prana may be defined as the finest vital force in everything which becomes visible on the physical plane as motion and action and on the mental plane as thought. The word Pranayama, therefore, means the restraint of vital energies. It is the control of vital energy which tingles through the nerves of persons. It moves his muscles and causes him to sense the external world and think his internal thought. This energy is of such a nature that it may be called the *vis viva* of the animal organism. The control of this force is what is aimed at by the Yogis by means of Pranayama. He who conquers this, is not only the conqueror of his own existence on the physical and mental plane, but the conqueror of the whole world. For, the Prana is the very essence of cosmic life, that subtle iv principle which evolved the whole universe into its present form and which is pushing it towards its ultimate goal. To the Yogi the whole universe is his body. The matter which composes his body is the same that evolved the universe. The force which pulsates through his nerves is not different from the force which vibrates through the universe. The conquest over the body does, therefore, mean to him the conquest over the forces of nature. According to the Hindu Philosophy the whole nature is composed of two principal substances. One of them is called the Akasa or ether and the other, Prana or energy. These two may be said to correspond to matter and force of the modern scientists. Everything in this universe that possesses form or that has material existence, is evolved out of this omnipresent and all-pervasive subtle substance 'Akasa'. Gas, liquid and solid, the whole universe, consisting of our solar system and millions of huge systems like ours and in fact every kind of existence that may be brought under the word 'created', are the products of this one subtle and invisible Akasa and at the end of each cycle return to the starting point. In the same way, all the ways of forces of nature that are known to man; gravitation, light, heat, electricity, magnetism all those that can be grouped under the generic name of 'energy', physical creation, nerve-currents, all such as are known as animal forces and thought and other intellectual forces also, may be said to be the manifestations of the cosmic Prana. From Prana, they spring into existence and in Prana, they finally subside. Every kind of force in this universe, physical or mental can be resolved into this original force. There can be nothing new except these two factors in some one of their forms.

Conservation of matter and conservation of energy are the two fundamental laws of nature. While one teaches that the sum total of Akasa forming the universe is constant, the other teaches that the sum total of energy that vibrates the universe is also a constant quantity. At the end of each cycle the different manifestations of energy quiet down and become potential: so also, the Akasa which becomes indistinguishable: but at the beginning of the next cycle the energies start up again and act on the Akasa so as to involve the various forms. Accordingly, when the Akasa changes and becomes gross or subtle, Prana also changes and becomes gross or subtle. As the human body is only a microcosm to a Yogi, his body composed of the nervous system and the internal organs of perception represent to him, the microcosmic Akasa, the nerve-currents and thought-currents, and the cosmic Prana. To understand the secrets of their workings and to control them is, therefore, to get the highest knowledge and the conquest of the universe.

"Dhotirvastistatha Netishtratkam Nowlikam Tatha Kapalbhatischetani Khastkarmani Prachate".

-Hathayog Pradipika

According to Hathayog Pradeepika, there are six types of kriyas: dhauti, Basti, Neti, Nauli, Tratak and Kapalbhati. These are all yogic processes (shat karmas) which apart from imparting physical and mental peace also provide spiritual power. The first four, i.e., Dhauti, Basti, Neti and Nauli are related to purification of the body, while the last two, tratak and kapalbhati, and are related to spiritual achievements.

The expression that is shared communally thus culturally gracing this medical folk art since time immemorial is: *"One teardrop is more valuable than a pearl and more precious than one hundred drops of blood"! Of* Jesus Christ' words here are also significant: *"If thine eye be single, thy whole body will be full of light"*

Tratak is a vehicle for us to transcend the dual nature of the mind. In Buddhist doctrine, the mind is referred to as the "tyranny of the drunken monkey!" In addition to this theology, the *Vedic Sutras* inform us that the mind can be our best friend or our worst enemy! *Tratak* meditation helps us unify our awareness and transcend this duality.

Trataka involves a fixing the gaze on a small object without moving the eyelids. For practicing this take a sitting posture like Padamasana, Swastikasana, Vajrasana or sit just cross-legged with a straight back. Keep the hands on the knees. Keep the mouth closed and the face calm. A small lamp or the traditional lamp used in puja in front at a distance of four or five feet may be kept and gaze at the flame. The lamp must be placed in a place free from breeze so that the flame remains steady. Go on watching the flame without winking. The m muscles of the eyes will be strained slightly. Concentrate the mind on the flame. After a while, you will be oblivious of the flame, and tears will appear and flood the eyes. Then close the eyes and hold the mind in concentration for a while. Then wipe the tears, blow the nose if required and repeat the gazing exercise once again. After practicing two rounds of trataka as described above, keep the eyes closed and move the eyeballs first in a clockwise direction and then in a reverse fashion, moving them into the four corners of a big square imagined before you. Thus move the eyes diagonally, then vertically and after that horizontally. This is a very good eye exercise.

Pranadharna is a compound word, a combination of two words – Prana and Dharna. Prana means breath and dharna means fixation of mind. While practicing Pranadharna, the Yoga aspirant has to fix his/her mind on the incoming and outgoing breath. The mind is thus trained and conditioned. Generally, the practice of Pranadharna is done in three graded steps. If the mind of any person is under the spell of strong emotion or if it is wavering in emotional imbalance or if a person is suffering from an acute disease or pain, he or she should avoid Pranadharna. **For Prandharna first** sit at ease in a comfortable posture. Close the eyes. Count the breaths. Count exhalation and inhalation together as one breath. Breathe natural. In case the mind has wandered away and you have forgotten the count, do not try hard to recall the last counted number. Persuade your mind to count a fresh; do not force your self. Practice one round daily of 10 to 45 breaths. Coming out of the practice: Stop counting the breaths and allow normal mental activities. Open the eyes. Sit in any comfortable sitting posture **in second step**. Close eyes. Start counting the breaths. Now feel the touch of incoming and out going breaths at the wall of the nose. Feel the touch continually. Attach the mind to the soft touch of the incoming and out going breaths. Engage the mind in this feeling and enjoy it. Breathe natural and normal. Practice one round daily of 15 to 60 breaths. If mind is distracted from experiencing the touch of the breath and starts thinking of other things, do not compel the mind to feel the touch. Persuade it by expressing only an ardent wish. Coming out of the practice: Get the mind away from the touch of the breath and start counting the breaths. Afterwards, allow normal mental activities. Open the eyes. Sit in any comfortable posture preferably on the ground **for third step.** If convenient, crossed legged (*sukhasana*) or on the folded legs, toes touching the ground with sole upwards, bottom resting on the heels and knees closed and touching each other in the crotched position (*Vazrasana*). The sitting posture should be with back resting and the spinal cord in the erect position and both hands with elbows straight, resting on the knee. Close the eyes. Start counting the breaths. Then start feeling the breaths. Feel the touch of the air for 5 to 10 breaths. Afterwards take the mind on the soft palate and think and feel the thermal sensations, which are produced there because of the touch of the incoming (cool) and the outgoing (warm) air. Breathing natural and normal. Keep the eyes closed. Practice one round daily of 30 to 75 breaths. In such cases, it is advisable to practice the Pranadharna step two for longer time.

Only after the regular and long practice does one succeed in mastering the Pranadharna step three. Coming out of practice: Take the mind away from the sensation at the soft palate to touch of the breaths at the walls of the nostrils. Then start counting the breaths and lastly allow normal mental activities. Open the eyes.

In Pranadharana sit in a meditative posture like Siddhasana, Padamasana, and Swastikasana or if none of these is possible then in Sukhasana, with the back straight and eyes closed. If pranayama is practiced already then meditation becomes easier because the mind attains a peaceful state by pranayama. Keep the whole body relaxed. Keep the wall of

the abdomen fully free of any tension, stretch or pressure. Let it move forward and backward very smoothly and effortlessly with each respiration. Keep the mouth closed, allowing a very slight gap between the upper and lower jaw. Keeps the tongue touching the palate, its tip touching the backside of the upper front teeth? There is no movement of the lips, jaws and the tongue. Keep the facial muscles and those of the forehead fully relaxed. The eyelids and eyeballs should be steady and free of any tension and movement. Holding the mouth and the eyes motionless is one of the most important requirements of meditation.

When a steady and fully relaxed posture is taken in the manner described above start paying attention to the process of breathing in and out. The flow of air is uniform and smooth. Do not try to control the process. Do not hold the breath. Be aware of the flow of air without putting in any effort to control it. It is important to keep the abdominal wall relaxed. Do not utter any word. Do not see any images. Do not visualize or immune anything. Whenever we are left to ourselves we go on speaking to over selves and seeing images. That is how we entertain various thoughts. It must be remembered that unless we put an end to this process of bringing in works and images, the mind will go on thinking endlessly. For this, it is essential to hold the apparatus of speech and sight completely motionless.

1.1. Objective of the Study:

The objective of the study was to determine the effect of Prandharana and Tratak on Vital Capacity. [The objective of the study was to find out the significant difference between adjusted post test means of experimental groups (Prandharana and Tratak) and control group in relation to Vital Capacity].

2. Methodology:

2.1. Selection of Subject:

Ninety male physical education students from Madhya Pradesh were selected as subjects for this study. The age of the subjects ranged between 18-25 years. The subjects were divided into three groups i.e. Two experimental groups (Prandharana and Tratak) and one control group.

2.2. Criterion Measure:

The Vital Capacity was measured by Dry Spiro meter. The Spiro meter was brought to zero position. The subjects performed maximum inspiration and after clipping the nose, the air was blown out as intensively as possible in the mouth piece. The amount of expired air was read directly from the calibrated scale and that was the score of vital capacity and was recorded in liters.

2.3. Experimental Design:

For the study pre test – post test randomized group design, which consists of one control group (n=30) and two experimental groups (n=30 in each) was used. Equal numbers of subjects were assigned randomly to the groups. Two groups (Prandharana group and Tratak group) served as experimental groups on which treatment was assigned and the third group served as the control group.

Prandharana Group	**O_1**	**T_1**	**O_2**
Tratak Group	**O_3**	**T_2**	**O_4**
Control Group	**O_5**		**O_6**

O = Observation, T = Treatment

2.4 Administration of Training Program:

The experimental groups were imparted thirty minutes of daily practice of pranadharana and trataka respectively for ten weeks under the proper supervision and guidance of the scholar while no practice was imparted to control group.

2.5 Statistical Technique for Analysis of Data:

In order to find out the effect of Prandharana and Tratak on selected coordinative abilities and physiological variables, Analysis of Co-Variance (ANCOVA) was used. The level of significance was set at 0.05 level.

3. Findings:

Table – 1:
Descriptive Statistics of Vital Capacity of Pranadharna, Tratak and Control Groups in Pre-Test and Post-Test

Test	Groups	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Prandharana Group	3.1433	.48968	.08940	2.50	4.00
	Tratak Group	3.2633	.47233	.08623	2.50	4.00
	Control Group	3.1200	.55857	.10198	2.50	4.00
Post Test	Prandharana Group	3.2933	.47192	.08616	2.60	4.20
	Tratak Group	3.2767	.48614	.08876	2.40	4.00
	Control Group	3.0933	.56075	.10238	2.30	4.00

Table – 2
Adjusted Post Test Means of Pranadharna, Tratak and Control Groups in relation to Vital Capacity

GROUPS	Mean	Std. Error
Prandharana Group	3.324	.026
Tratak Group	3.193	.026
Control Group	3.147	.026

Table – 3
Analysis of Variance of Comparison of Means of Pranadharna, Tratak and Control Groups in relation to Vital Capacity

Test	Groups	Sum of Squares	df	Mean Square	F	Sig.
Pre Test	Between Groups	.355	2	.177	.687*	.506
	Within Groups	22.471	87	.258		
Post Test	Between Groups	.739	2	.369	1.433*	.244
	Within Groups	22.431	87	.258		

*Insignificant at .05 level
F value required to be significant at 2, 87 df = 3.10

In relation to pre test, table 03 revealed that the obtained 'F' value of 0.687 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 3.10 at 2, 87 df.

In relation to post test, insignificant difference was found among pranadharna, tratak and control groups pertaining to Vital Capacity, since F value of 1.433 was found insignificant at .05 level.

Table – 4
Analysis of Covariance of Comparison of Adjusted Post Test Means of Pranadharna, Tratak and Control Groups in relation to Vital Capacity

	Sum of Squares	Df	Mean Square	F	Sig.
Contrast	.510	2	.255	12.254*	.000
Error	1.789	86	.021		

*Significant at .05 level
F value required to be significant at 2, 86 df = 3.10

Table 04 revealed that the obtained 'F' value of 12.254 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 3.10 at 2, 86 df.

Since the F-value was found to be significant, the Least Significant Difference (L.S.D.) Post Hoc Test was applied for inter-group comparison.

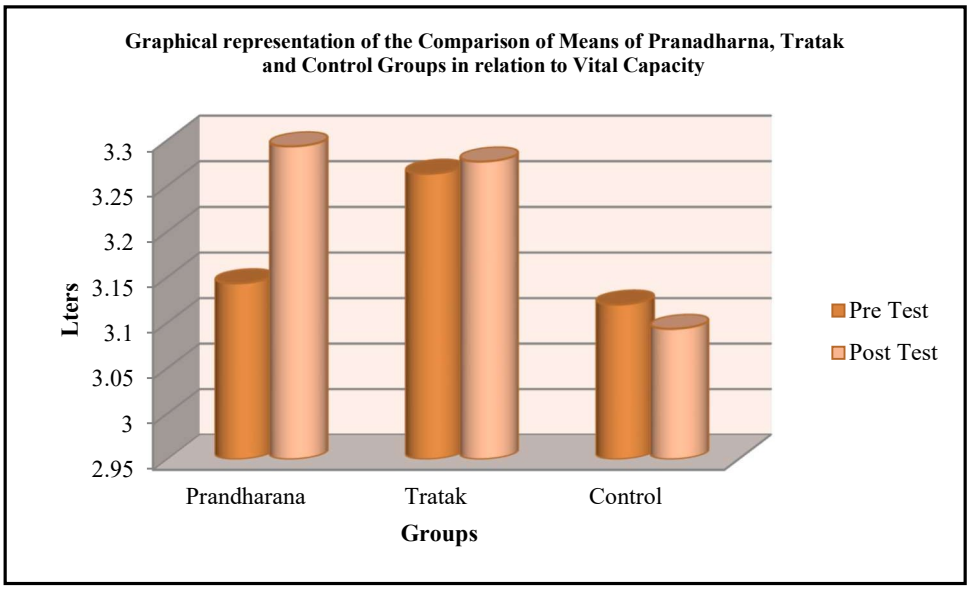
Table -5

Least Significant Difference (L.S.D.) Post Hoc Test for Comparison of the Adjusted Post Test Means of All Groups in relation to Vital Capacity

(I) GROUPS	(J) GROUPS	Mean Difference (I-J)	CD
Prandharna Group	Tratak Group	.132*	0.074
	Control Group	.178*	
Tratak Group	Control Group	.046	

*Significant at .05 level

Table 05 revealed that significant difference was found between Prandharna Group and Tratak Group; Prandharna Group and Control Group. On the otherhand insignificant difference was found between Tratak Group and Control Group.



4. Discussion of Findings:

The significant difference in Vital capacity was seen this may be due to the fact that all the subjects have been practicing Prandharna pranayam since ten weeks. In normal breathing, inspired air is not distributed uniformly. In the erect posture the unit volume of lung is greater in the lower than in the upper parts. In normal breathing after a particular degree of stretching or even before this, stretch receptors (situated in the alveolar walls) are stimulated and send message to the respiratory centre so that exhalation starts. But in Pranayama we continue the phase of inhalation with our strong voluntary control so that lungs are expanded considerably and the walls of the alveoli are stretched to the maximum. Thus the chest continues to get expanded under cortical control. The stretch receptors are thus trained to withstand more and more stretching. This helps us to hold the breath for a longer period. The duration of Kumbhaka is gradually increased by the practice of pranayama so that the respiratory centre is gradually acclimatized to withstand higher and higher CO_2 concentration in the alveoli and the blood.

5. Conclusions:

- Significant difference was found among the adjusted post test means of experimental groups and control group in Vital Capacity, since the F-value (12.254) was found significant at .05 level with 2, 86 df.
- Prandharna Group proved to be superior than Tratak Group in Vital Capacity.

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