

EFFECTS OF PRANAYAMA ON SELECTED PHYSIOLOGICAL VARIABLES OF PHYSICAL  
EDUCATION STUDENTS



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**Abstract:**

The main objective of this study was to find out the effect of Pranayama on selected Physiological variables of Physical Education Students. 30 Physical Education Students were taken for the present study. Subjects were divided in two groups' i.e: Control & Experiment Group. The subjects were tested on the selected variables pre and post fifteen weeks practice of Pranayama. For statistical analysis 't' was used at 0.05 level of significance. On the bases of analysis, it was concluded that the increase in breath holding capacity, decrease in respiratory rate and pulse rate was due to the influence of Pranayama.

**Keywords:** Pranayama, Physiological Variables & Physical Education Students.

**Introduction:**

"Pranayama is control of Breath". "Prana" is Breath or vital energy in the body. On subtle levels prana represents the pranic energy responsible for life or life force, and "ayama" means control. So Pranayama is "Control of Breath". One can control the rhythms of pranic energy with Pranayama and achieve healthy body and mind. Patanjali in his text of Yoga Sutras mentioned pranayama as means of attaining higher states of awareness; he mentions the holding of breath as important practice of reaching Samadhi. Hatha Yoga also talks about 8 types of Pranayama which will make the body and mind healthy. Five types of prana are responsible for various pranic activities in the body; they are Prana, Apana, Vyan, Udana & Samana. Out of these Prana and Apana are most important. Prana is upward flowing and Apana is downward flowing. Practice of Pranayama achieves the balance in the activities of these pranas, which results in healthy body and mind.

Physiology is the branch of biology relating to the function of organs and organ systems, and how they work within the body to respond to challenges. It covers life from the single cell, where it overlaps with biochemistry and molecular biology, through questions about how individual organs work (e.g. heart, lungs, kidneys) right up to the whole-organism level, where physiologists tackle questions about hormonal influences on behaviour and the function of the brain. Physiology therefore has something to say about every aspect of life: our integrated approach makes physiologists invaluable contributors in studies ranging from genetics to psychology. Neuroscience is a branch of physiology, and this very important sub discipline is covered within the Physiology of Organisms course.

In its applied aspects, physiology deals with the function and malfunction of parts of the human body with reference to health and disease (areas relating to medicine), how to improve crop yield (areas relating to plant sciences) as well as the practical problems of animal, plant and microbial performance and their responses to challenging conditions (areas relating to ecology).

In science at the moment, there is a tendency to look downwards rather than upwards, at molecular mechanisms in preference to the often less tractable problems posed by systems as a whole. Physiology is no exception, and the temptations to concentrate on molecular aspects of the subject - areas where new information is easier to come by, and where conceptual problems are less obvious - have never been stronger. But, as Research Councils are keen to emphasize, the largest gaps in our knowledge are often how the molecules translate into the function - and malfunction - of the organism as a whole. These questions are difficult to answer and sometimes, as in the case of the brain, difficult to formulate as well! Part of the training of a physiologist is to learn to think, argue and to see problems on a wider scale, without losing sight of the whole organism.

**Objective of the Study:**

The main objective of this study was to find out the effect of Pranayama on selected Physiological variables of Physical Education Students.

**Methodology:**

30 Physical Education students were taken for the present study of Dr. R.M.L.A. University, Faizabad (U.P). Subjects were divided in two groups' i.e: Control & Experiment Group. Age of the subjects was ranging from

19-24 years. The subjects were tested on the selected variables pre and post fifteen weeks practice of Pranayama (Anulom Vilom, Kapalbhathi & Bhastrika). For statistical analysis 't' test was used at 0.05 level of significance.

**The selected physiological variables were as follows:-**

**Breath Holding Capacity:** It was measured in 'Seconds' to the feeling of tolerance.

**Respiratory Rate:** It was measured in breathing movements of abdomen and chest.

**Resting Pulse Rate:** It was counted by the numbers of beats in a minute.

**Statistical Analysis of the Data:**

**Table No-I**  
**Mean Difference between Pre and Post Test of different variables of Two Groups**

Group	Variables	Test	M	SD	't'
Experimental (N=15)	Breath Holding Capacity	Pre	38.42	5.90	2.47*
		Post	42.70	5.22	
	Respiratory Rate	Pre	16.67	1.80	3.87*
		Post	15.35	1.15	
	Resting Pulse Rate	Pre	73.40	3.05	3.05*
		Post	69.50	2.98	
Control (N=15)	Breath Holding Capacity	Pre	35.20	5.70	0.64
		Post	35.70	5.35	
	Respiratory Rate	Pre	19.00	1.74	1.68
		Post	18.00	2.40	
	Resting Pulse Rate	Pre	72.80	3.10	1.95
		Post	70.10	2.87	

Significant at 0.05 level

tab. 0.05 (28) = 1.98

Above table no-I clearly reveals that there are significant differences between the means of pre and post test in Breath Holding Capacity, Respiratory Rate and Resting Pulse Rate of Experimental Group. Whereas there was no significant differences found in the means of pre and post test in Breath Holding Capacity, Respiratory Rate and Resting Pulse Rate of Control Group.

**Conclusion:**

It was concluded that the increase in Breath Holding Capacity, decrease in Respiratory Rate and Pulse Rate was due to the influence of Pranayama.

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