EFFECTS OF SIX MONTHS TRAINING OF PRANAYAMA ON DIFFERENT PARAMETERS OF VITAL CAPACITY

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ABSTRACT

The purpose of the study was to study the effect of six months training of pranayama on vital capacity. The subjects for the present study consisted of fifteen experimental group and same number in control group who were given training of pranayama six months and data was collected in pre and post test form. Forced Vital capacity and Peak expiratory flow were measured for this study. Spiro meter, Weighing machine, measuring scale and computer set were used to measure the variables of the study.

KEY WORDS:- *Training, Pranayama, Vital capacity, Spiro meter, Variable*

INTRODUCTION:

Human beings have very active and creative by nature and physical active has been part of their life. In the present age we are going through a very rapid change. The advancement of scientific knowledge, technique and methods in every field, even in the field of physical health. The factors like vital capacity, of the body are also imported in the field of physical education. Therefore certain factors which effect vital capacity must be known to everyone and the way to improve vital capacity is also known to all. Pranayama is the way to improve or increase the vital capacity. Pranayama is an important, yet little known part of yoga. Students of yoga in remote ashrams have practiced its techniques for centuries and now it is practiced in our all universities. Yoga took an important place in our life. Pranayama is an exact science. Breathing external manifestation of Prana, the vital force. By exercising control over this breathing you can control the subtle Prana inside. Control of Prana means control of mind. The process, by which the Prana is controlled by regulation of external breath, is termed Pranayama. If you can completely control all the forces of the Universe, mental and physical. Smriti Kapoor et. al (2008) Clinical effect of combination of pranayama and kriya on the performance of shooters. The study aimed

at finding out the effect of combination of pranayama and kriya on the performance of shooters in terms of breath-holding time, lung function status and shooting performance. We studied50 shooters of the Indian Army (age 20-30 years). Out of them, 30 shooters were given training in the techniques of pranayama and kriya for 3 weeks. The rest served as control. Variables were measured before and after the training in both the groups. We found highly significant improvement ($p<0.001$) in all the three variables. So we concluded that pranayama and kriya are efficacious for better performance of shooters.

Daniel Rodenstein et. al (2003) They reported that young swimmers have larger lung volumes and a greater cardio respiratory functioning capacity than other children. Mandan Mohan et. al. (2003) It was reported that yoga training (asans and pranayams) for six months improved lung function, respiratory muscle strength, skeletal muscle strength and endurance in 12-15 years old Indian. William and Terry (2002) they conducted a study to determine if specifically training the respiratory muscles using a power lung resistance device could change pulmonary function or exercise performance and the results showed positive changes in pulmonary function. Dempsey and Wagner (1999) 50% of highly trained male athletes and greater number of female athletes develops exercise induced arterial hypoxemia during maximal exercise. These athletes unable to maintain arterial oxygen saturation show decrease the indicators of endurance performance and a reduced maximal aerobic capacity. These observations have filled research over the last two decades to investigate the possible mechanisms, which include intra pulmonary shunting of blood, relative alveolar hypoventilation, ventilation perfusion inequality and pulmonary diffusion limitations. These mechanisms have attracted great deal of attention but the underlying causes of ELAH have yet to be completely understood.

OBJETIVE

The objective of the study was to find the effect of pranayama training on vital capacity parameters of vital capacity.

HYPOTHESIS

It was hypothesized that pranayama increases the level of vital capacity in experimental group but not in control group.

TOOLS

Spiro meter, measuring scale and computer set were used to collect data for study.

VARIABLES: - The Following variables were selected for present study:-

1. **Forced Vital Capacity:-** Forced vital capacity was measured in liters.
2. **Peak expiratory flow:-** Peak expiratory flow in liters per second.

TEST ADMINISTRATION: The test was done in the computer laboratory of physical education department, Punjabi university, Patiala. The test was done individually one by one. As the first step in test, the subjects were oriented with the purpose of test before starting the actual test. The demo was given to each subject, so that they can perform it easily.

PROCEDURE: Each subject inhales forceful then forceful exhaled in the mouthpiece of Spiro meter. By doing this maneuver get completed. During maneuver there was a real time flow/volume & volume/time graph. System automatically calculated the value and displayed them on screen. If I was satisfied with the test then I save it otherwise I took it again the system automatically retained the best test. Subjects came for two times after every trial their vital capacity was noted. The subject was thanked for their co-operation.

STATISTICAL TECHNIQUES: The data was analyzed and compared with the help of statistical procedure in which Arithmetic Mean, Standard deviation, df and t-test were used to compare the data.

RESULTS:

The t-test was applied to the selected anthropometric variables and the results pertaining It is presented below in table:-

TABLE:-1

Comparison of force vital capacity of pre and post test of experimental group

Experimental group	Mean	S.D.	t-value
Pre-test	1.9	0.76	4.40*
Post-test	2.9	0.59	

Significant at 0.01 level (P<0.01) df=28

Tabulated value at 0.01 level (2.763)

TABLE:-2

Comparison of force vital capacity of pre and post test of control group

Control group	Mean	S.D.	t-value
Pre-test	1.9	0.79	0.00042
Post-test	2.7	0.50	

Significant at 0.01 level (P<0.01) df=28

Tabulated value at 0.01 level (2.763)

TABLE:-3

Comparison of peak expiratory flow of pre and post test of experimental group

Experimental group	Mean	S.D.	t-value
Pre-test	3.61	1.64	3.41*
Post-test	5.04	1.07	

Significant at 0.01 level (P<0.01) df=28

Tabulated value at 0.01 level (2.763)

TABLE:-4

Comparison of peak expiratory flow of pre and post test of control group

Control group	Mean	S.D.	t-value
Pre-test	3.46	1.73	0.0087
Post-test	4.79	1.04	

Significant at 0.01 level (P<0.01) df=28

Tabulated value at 0.01 level (2.763)

DISCUSSION AND FINDINGS:

The statistical analysis of data shows that there is significant difference between pre and post test of force vital capacity in experimental group. But the mean and standard deviation values of

force vital capacity variables in pre test were 1.86 and 0.79 where as in post test it was 2.77 and 0.50 respectively. Obtained 't' value is less than the tabulated value. The result found that there is no significant difference between pre and post test of force vital capacity parameter of vital capacity in control group. There is found significant difference in peak expiratory flow of pre and post test values in experimental group. Insignificant difference was found in control group. The present study has advocated the results of the study by several researchers which had done in (2002) by Terry and William which indicated that if pulmonary function or exercise performance could be changed by specifically training the respiratory muscles using a power lung resistance device and the results showed positive changes in pulmonary function, while this research shows that the pranayama practice improve the positive changes in vital capacity parameters. The results established the fact that pranayama (yoga) increases the level of vital capacity which makes people active and fit.

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