

Effect of Yogic Practices on Vital Capacity among Secondary School Students

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Abstract

*Yoga is a way to harmonious development of mankind that is physical, mental, intellectual, emotional and spiritual aspect of life. Present study was planned to examine the impact of various yogic practices on vital capacity. The study was conducted on 80 secondary school students of government senior secondary school sector 23 Chandigarh. Present study was planned, keeping in mind the effect of yogic practice i.e. asana, pranayama and dhayana on the variable vital capacity. All eight (80) subjects divided into equal four groups (each group comprised of 20 samples). Treatment of Asana practices was given to Asana group, Pranayama and Dhayanaware given to the pranayama and dhayana group. No experimental treatment was imparted to control group. Pretest-posttest of true experimental design was chosen for the present investigation. Treatment of belonging to experimental groups i.e. Asana (Physical posture), Pranayama (Yogic breathing) and Dhyana group differed significantly than the control group. Vital capacity indicating positive effect of selected yogic practices (Asana, Pranayama and Dhyana). It was resulted that yogic posture consumes little energy and produce maximum physiological efficiency in term of vital capacity. **Key words:** Asana, Pranayama and Dhyana.*

Yoga is a way to harmonious development of mankind that is physical, mental, intellectual, emotional and spiritual aspect of life. The development of a

family, a society, a nation and the world depends upon the development of an individual. Individual is the foundation stone of the society. The concept of yoga is that each seed has an inherent capacity gifted by the nature to grow in shape of a big tree. The process of growing into a big tree, laden with flowers and fruits, needs proper soil, irrigation, sunlight, heat and other support. Likewise human beings right from childhood to the old age, need proper diet, education and other facilities in order to become a healthy person and the process of yoga is meant for the total development of an individual. It is clear that the creator of this trinity has made every material and living organism with a definite purpose in order to make the creation well managed and balanced. The human body gets enormous energy and strength. With the help of yogic treatment it gets enlightened about its potential and can make best use of power lying within. Human life is a precious gift of nature, which is not meant for purposeless stress and frustration. Therefore, one should understand responsibilities towards body to make it healthy and worthy for ourselves and for the society at large. The growing children of our society are very vulnerable to this haphazard living style prevalent in our society; therefore, it is very important and essential to impart yogic education to our children. One's controlled ability to change body position and direction rapidly and accurately. (Kansal, Devinder. K 1996)

Objective of the study

To measure the effect of yogic practices on vital capacity of the students 15-17 years of age of secondary school children of Chandigarh.

Hypothesis

There exist significant effect of yogic practices on Vital Capacity among senior secondary school children of age between 16-19 years of age.

Tool Used

- i) Vital Capacity: Spirometer

Methodology

The present study was conducted on male subjects of 16 to 19 years of age, studying in XI and XII grades in Government Senior Secondary School, Sector 23, Chandigarh. To ensure the selection of subject having normally sound mind in sound body, the investigator checked the health records maintained by the school with the help of a small team of physical instructors and eliminated (20) subjects finally selecting (80) students. Further the selected subjects were assigned the following four (4) groups.

1. Experimental(Asana) Group I
2. Experimental(Pranayama) Group II
3. Experimental(Dhayana) Group III
4. Control Group

Due emphasis was laid on aspects like age, height, weight, past game / sports experience / participation and health records before allocating the groups to ensure homogeneity. Prior to the organization of the programme or pre-test; a meeting of all the selected sample were held in which the principal and the teachers of physical education of the said school were present. The purpose of the study along with various testing procedures and training program were explained to them in detail. Later on the selected subjects were also explained the same so that, they could grasp the importance and should suffer from no confusion what-so-ever regarding the hard work and interest they would have to put in. All the subjects agreed to co-operate whole heartedly.

Experimental design: A simple random group design was adopted for this study as it seemed to be the most appropriate one. The eighty (80) subjects were classified into four equal groups with twenty (20) subjects in each group. Three

experimental groups ie Asana, Pranayama, Dhyana and fourth as a control group.

Training design: The training lasted twelve weeks. There were three sessions of one hour for each group in a week. Time was controlled for each group and the sessions commenced at 7.00 A. M. sharp. The training design was broadly classified as follows.

1. **Experimental Group I** (Asana): Following exercises short listed & administered on experimental group-I :

Surya Namaskara
Paschimotianasana
Sarvangasana
Halasana
PavanMuktasana
UthitPadmasana
Shavasana

2. **Experimental Group II** (Prayanama): Following was practiced by experimental group-II

Surya Bhedana
Kapalbhati
Sitali
Sitakari

3. **Experimental Group III** (Dhyana): Following was administered to Experimental Group III.

Dot Tratka
Candle Tratka

Statistical Analysis

To analyse the significance of the differences among all groups as a result of training, the analysis of covariance (ANCOVA) was applied since the study

employed the random group design and the four group were not equal with reference to the factors examined through the analysis of covariance, the final means and the adjusted final means were listed for significance. In the case of variables where the F-ratio (ANCOVA) was found significant with regard to paired adjusted means post-hoc test was applied. Significance level chosen to test the hypothesis was chosen at .05 which was recognized as appropriate in relation to the research process adopted and the equipment used in the study. Finally to find out the significance of the differences between pre-test and post-test means of the two experimental groups and control group 't' test was applied.

Table -A

Assessment of Covariance for experimental(Three) group and control groups on the variable vital capacity

	Asana	Pranayama	Dhyana	Control	Ss	DF	MS	F
Pre-test means	2340.00	2415.00	2195.00	2640.00	A: 2068480.0 W:21890750.0	3 76	689493.3 288036.2	2.39
Post-test means	2580.00	3260.00	2465.00	2635.00	A: 76561008.0 W:15950660.0	3 76	2550336.0 209877.1	12.15*
Adjusted post-test means	2618.52	3248.28	2600.67	2472.53	A: 7271819.0 W:612447.0	3 75	2423940.0 81659.3	29.68*

$P < .05 = 2.73^*$

Table A presents the pre-test, post-test and adjusted post-test means of Asana , pranayama , Dhyana treatment on each experimental groups and control group. The pre-test means for are found 2340.00, 2415.00, 2195.00,

and 2640.00 respectively. The resultant 'F' ratio 2.39 has not been observed statistically significant ($p < .05$).

The post-test means for the all these four groups are 2580.00, 3260.00, 2465.00 and 2635.00 respectively. The resultant 'F' ratio 12.15 is concluded statistically significant at 0.05 level of confidence.

The adjusted post-test means for the same groups are 2618.52, 3248.28, 2600.67 and 2472.53 respectively. Hence the analysis of covariance resulted in 'F' ratio of 29.68 which has been found statistically significant ($p < .05$). This indicates that the groups are significantly different at the end of the twelve weeks period of yogic practices on vital capacity. Since 'F' ratio obtained for the adjusted final means has been found significant, Scheffe's post-hoc test of significance has been applied to determine that in which of the paired adjusted means an actual difference existed. The result of post-hoc has been presented in table 7(b).

Table B

Paired Adjusted Final means of all experimental and control groups on variable vital capacity.

Adjusted Means				Differences Between Means	Scheffe's Post-hoc
Asana	Pranayama	Dhyana	Control		
2618.52	3248.28	-	-	629.76	258.43
2618.52	-	2600.67	-	17.85	258.43
2618.52	-	-	2472.53	145.99	258.43
-	3248.28	2600.67	-	647.61	258.43
-	3248.28	-	2472.53	775.75	258.43
-	-	2600.67	2472.53	128.14	258.43

From the description presented in Table B it has been found that there is no significant difference in the adjusted means between groups of Asana and Dhyana, Asana and Control, Dhyans and Control groups. The adjusted mean value of pranayama group (2618.52) and Dhyana group (2600.67) indicates Pranayama and Dhyana group better in comparison to control group (2472.53).

However, Pranayama group is found statistically significant in comparison to Asana, Dhyana and control groups as the difference between the adjusted means 629.76, 647.61 and 775.75 of these groups were found greater than the obtained critical ratio.

Discussion

Yogic exercises also contribute to the psychological fitness of an individual. Having a look at table A it can be gathered that significant differences existed among the groups at post-test stage. The adjusted post-test means also exhibited significant differences. Since, the adjusted post-test means were significant post-hoc analysis was conducted to find out the direction of differences. The treatment groups did not exhibit significant difference with the Control group. However pranayama group was significantly better than the other two experimental groups and control group on the variable vital capacity. During normal breathing only about 50% of the air sacs were filled where as in yogic breathing every sac (alveoli) is filled with fresh air and intake of oxygen is much more. Due to deep and slow berthing optimum time of 10 to 20 sacs is available for complete inter changes of gases by diffusion. The findings of present investigation confirms the finding of Udupa and singh (1972). The result of their present study shown beneficial effects of systematic training practice of hatha yoga. Birkel et al (2000) The findings in this study indicate that this "improvement in vital capacity was not affected by either sex or the lung condition of the subject. These practices can contribute to a healthier

lifestyle for those who wish to enhance their awareness of their breath and its benefits to the body, as well as for those with impaired breath”.

Conclusion

It was concluded that yogic practice have significant impact on vital capacity.

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