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## Effects of asanas and varied pranayama practices on physiological variables among inter collegiate players

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### Abstract

The purpose of this study was to find out the effects of Asanas and varied pranayama practices on physiological variables among inter collegiate players. To achieve the purpose of the study (N=60) sixty inter collegiate players were randomly selected from three engineering College AIT, KCT and SRE College, Coimbatore and their age ranged between 18 and 25. The subjects were divided into three equal groups. Experimental Group I named as Asanas and varied pranayama (Sithali and Sitkari), Experimental Group II named as Asanas and varied pranayama (Bhastrika and Kapalbhathi) practices and Group III acted as control group (CG) pre – test was conducted for all the groups on selected variables and the score was recorded in their respective units as pre – test score. After pre – test the experimental group were treated with their respective training for three day per week for a period of twelve weeks. After completion of twelve weeks of training post – test was conducted on selected variables and the score were records in their respective units as post – test score. The pre and post test scores were analyzed with analysis of Co – variance and Schaffe’s post hoc test. In all the cases.0.5 level of significance was fixed. The results of the study showed that there was a significant difference found among the experimental groups. Asanas and varied pranayama (Bhastrika and Kapalbhathi) practices Group is found to be better than other groups.

**Keywords:** Cardio respiratory endurance, VO<sub>2</sub> max and breath hold time

### 1. Introduction

Today yoga is being a subject of varied interest, gained world popularity. The classical techniques of Yoga date back more than 5,000 years. It is the science of life and an ideal way of living, providing rhythm to the body, melody to the mind, harmony to the soul and thereby symphony to life. In short, Yoga is a way to achieve total health, peace, bliss and wisdom. Physical, mental and spiritual aspects of yoga help to make one’s life purposeful, useful and noble. Thus Yoga is an art, science and philosophy, which influence the life of man at each level. Therefore, the effect of yoga must be felt in every movement of our day- to- day lives. Yoga is an ancient Indian science which teaches man how to live in unity within himself and with those around him. Yoga is a way of life. It is an integrated system of education for the body, mind and inner spirit. This art of right living was perfected and practiced in India thousands of years ago but, as yoga deals with universal truths, its teachings are valid today as they were in the ancient times. We have a very peculiar concept about pranayama being simply a practice of breathing. There are also many other aspects of pranayama, like the influences of the breath on body, mind and psyche, and then there is the aspect of prana. We have to remember that, although pranayama is a simple technique of inhalation and exhalation, internal breath retention and external breath retention, many physiological and psychological changes take place within the body and we have to become aware of them. We know that through the breath we can alter the function of our nervous and cardiovascular systems and the brain, and induce a state of relaxation.

### 2. Methodology

The purpose of this study was to find out the effects of Asanas and varied pranayama practices on physiological variables among inter collegiate players. To achieve the purpose of the study (N=60) sixty inter collegiate players were randomly selected from three engineering College AIT, KCT and SRE College, Coimbatore and their age ranged between 18 and 25. The subjects were divided into three equal groups.

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Experimental Group I named as Asanas and varied Pranayama (Sithali and Sitkari), Experimental Group II named as Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices and Group III acted as control group (CG) pre – test was conducted for all the groups on selected variables and the score was recorded in their respective units as pre – test score. They are doing the regular asana and pranayama practice the experimental group were given asana and pranayama practice for 3 days a week for twelve weeks in total. Among the physiological variables only Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time were selected variables. Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time were assessed by standardized tests.

**2.1 Analysis of the Dada**

The data collected from the experimental groups and control group on pre and after experimental on selected variables were statistically ermined by analyzes of covariance (ANCOVA) if there was any significant difference among the treatment means of each variable. Scheffe’s post hoc test was applied to test the signficance of difference between the paired adjusted means at 0.05 level of confidence. The analysis of covariance (ANCOVA) on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time of experimental groups and control group have been analyzed and presented in Table- I.

**Table 1:** Analysis of covariance for experimental groups and control group on physiological variables among inter collegiate players.

Variables	Adjusted post test means			SV	SS	df	MS	‘f’
	AVPSS	AVPKB	CG					
Cardio respiratory endurance	2390.36	2420.04	2164.09	Between	665752.44	2	332876.22	71.80
				Within	259611.73	56	4635.92	
VO <sub>2</sub> max	50.47	48.14	53.13	Between	248.87	2	124.44	14.01
				Within	497.11	56	8.87	
Breath hold time	28.91	29.82	27.71	Between	43.38	2	21.69	27.39
				Within	44.33	56	0.79	

\*Significant at 0.05 level of confidence (The table value required for significance at 0.05 level with df 2 and 55 is 3.16)

Table 1 shows that the adjusted post test mean value of Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time for Group I named as Asanas and varied Pranayama (Sithali and Sitkari) practices, Group II named as Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices and Group III acted as control group (CG) were 2390.36, 2420.04, 2164.09, 50.47, 48.14, 53.13, 28.91, 29.82 and 27.71 respectively. The obtained ‘f’ – ratio 71.80, 14.01 and 27.39 for the adjusted post test mean was more than the

table value 3.16 for df 2 and 55 required for significance at 0.05 level of confidence. The results of the study indicate that there was a significant mean difference on post test means of experimental group and control group on the decrease of Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time. To determine which of the paired mean had a significant difference scheffe’s post hoc test was applied and the results are presented in table II.

**Table 2:** The scheffe s test for the difference between the adjusted post tests paired mean on physiological variables among inter collegiate players

Certain Variables	AVPSS	AVPKB	CG	MD	CI
Cardio respiratory endurance	2390.36	2420.04	--	29.68	54.04
	2390.36	--	2164.09	226.27	
	---	2420.04	2164.09	255.95	
VO <sub>2</sub> max	50.47	48.14	--	2.33	2.36
	50.47	--	53.13	2.66	
	---	48.14	53.13	4.99	
Breath hold time	28.91	29.82	--	0.91	0.70
	28.91	--	27.71	1.20	
	---	29.82	27.71	2.11	

\*Significant at 0.05 level of confidence

Table II shows that the adjusted post mean for differences on Asanas and varied Pranayama (Sithali and Sitkari) practices, Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices and control group, Asanas and varied Pranayama (Sithali and Sitkari) practices, Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices and control group on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time were (29.68, 226.27, 255.95) (2.33, 2.66,

4.99) and (0.91, 1.20, 2.11) respectively. The values were greater than the confidence interval value (54.04) (2.36) and (0.70) which shows significant differences at 0.05 level of confidence. The adjusted post test means values of experimental group and the control group on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time were graphically represented in the figures.

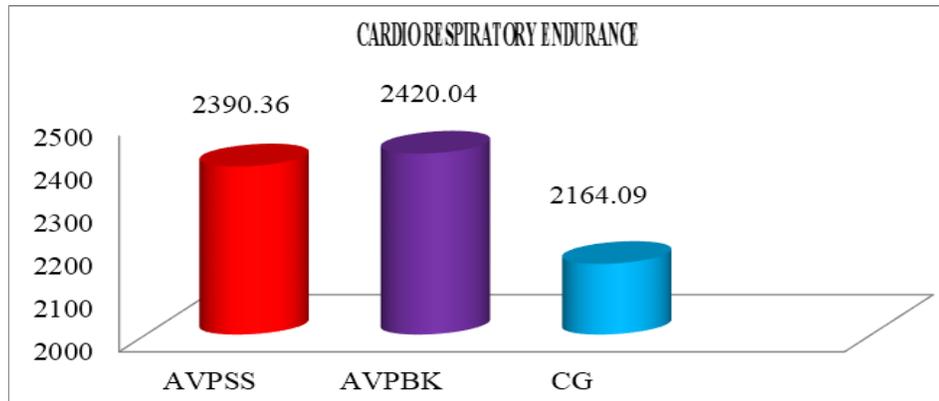


Fig 1: Bar diagram on ordered adjusted mean on cardio respiratory endurance for (AVPSS), (AVPBK) and (CG)

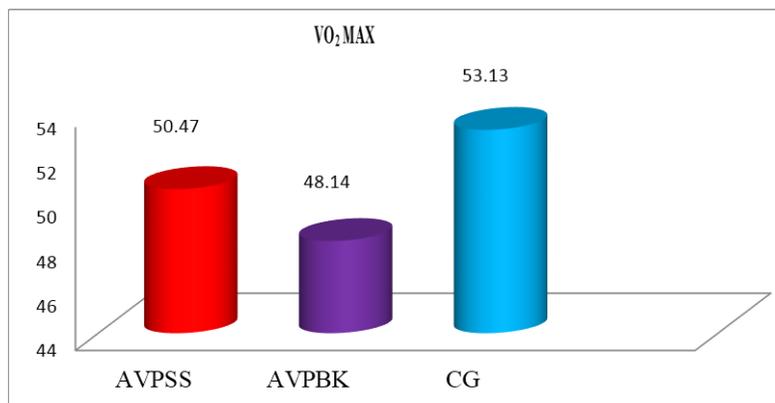


Fig 2: Bar diagram on ordered adjusted mean on vo<sub>2</sub> max for (AVPSS), (AVPBK) and (CG)

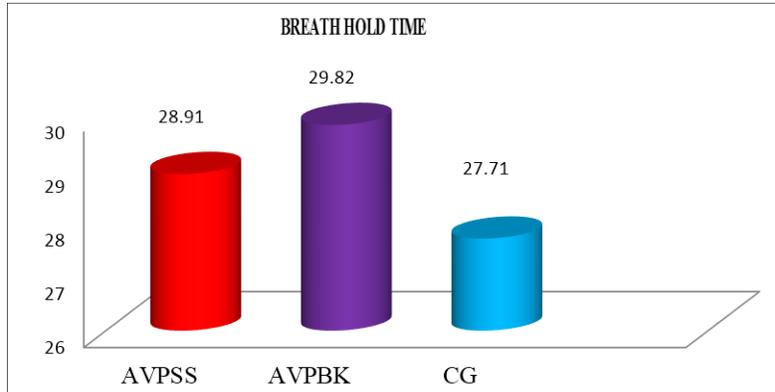


Fig 3: Bar diagram on ordered adjusted mean on breath hold time for (AVPSS), (AVPBK) and (CG)

**2.2 Finding**

From the results of the study that there was a significant difference in Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time between the adjusted post test mean of Asanas and varied Pranayama (Sithali and Sitkari) practices, Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices and control group. However the Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices increased in Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time was significantly. Decrease in Asanas and varied Pranayama (Sithali and Sitkari) practices. Therefore it may be result that the Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices group was found to be better than the Asanas and varied Pranayama (Sithali and Sitkari) practices.

**3. Discussion on Finding**

Both the experimental groups showed significant improvement on pre to post test on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time with control group. When comparing the effects of (AVPSS) and (AVPBK) the Asanas and varied Pranayama (Bhastrika and Kapalbhati) practices group showed significant improvement on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time of inter collegiate players. (Chanavirut *et al.*, 2006) In summary, the present study suggests that short-term Yoga exercise improves respiratory breathing capacity by increasing chest wall expansion and forced expiratory lung volumes. These data provide more scientific evidence to support the beneficial effect of Yoga practice on respiration and muscle strength. (Karan pal *et al.*, 2004)

These observations suggest that regular practice of Hatha yoga and Omkar meditation can bring significant improvement in the autonomic balance, respiratory performance and well-being. It also facilitates secretion of melatonin from the pineal gland, which may be acting as a psycho sensitive hormone. It is possible that if yoga and meditation are administered along with routine army exercises, both physical and mental performance can be improved.

#### 4. Conclusion

1. It was concluded Asanas and varied Pranayama (Sithali and Sitkari) and (Bhastrika and Kapalbhathi) practices group showed better improvement on pre to post test on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time.
2. It was concluded that Asanas and varied Pranayama (Sithali and Sitkari) and (Bhastrika and Kapalbhathi) practices group showed better improvement when compared to control group on pre to post test on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time.
3. The Asanas and varied Pranayama (Bhastrika and Kapalbhathi) practices showed better improvement than the Asanas and varied Pranayama (Sithali and Sitkari) practices group on Cardio respiratory endurance, VO<sub>2</sub> max and Breath hold time.

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