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Effect of Pranayama Techniques on Selected Lung Functions among Intercollegiate Players

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Abstract

The purpose of this study was to find out the effect of pranayama techniques on selected lung functions among intercollegiate players. To achieve the purpose of the present study, thirty intercollegiate players from Selvam Groups of Institutions, Namakkal district, Tamilnadu were selected as subjects at random and their age ranged from 18 to 25 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The groups were assigned as control group and experimental group in an equivalent manner. The training group participated the training for a period of eight weeks and the post-tests were conducted. The subjects were tested prior to and after the experimentation on vital capacity, fast vital capacity, slow vital capacity and maximum voluntary ventilation. The following statistical techniques were adopted to treat the collected data in connection with established hypothesis and objectives of this study. Analysis of covariance (ANCOVA) was used to test the treatment effect of the training programmes on all the variables used in the study.

Keywords: Vital Capacity, Fast Vital Capacity, Slow Vital Capacity, Maximum Voluntary Ventilation.

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Introduction

Yoga is a group of physical, mental, and spiritual practices or disciplines which originated in ancient India. There is a broad variety of Yoga schools, practices, and goals in Hinduism, Buddhism, and Jainism. Among the most well-known types of yoga are Hatha yoga and Rāja yoga. The origins of yoga have been speculated to date back to pre-Vedic Indian traditions, it is mentioned in the Rigveda, but most likely developed around the sixth and fifth centuries BCE, in ancient (Kimberly, 2000). India's ascetic and Sramaṇa movements. The chronology of earliest texts describing yoga-practices is unclear, varyingly credited to Hindu Upanishads and Buddhist Pali Canon, probably of third century BCE or later. The Yoga Sutras of Patanjali date from the first half of the 1st millennium CE, but only gained prominence in the West in the 20th century. Hatha yoga texts emerged around the 11th century with origins in tantra. Yoga gurus from India later introduced yoga to the west, following the success of Swami Vivekananda in the late 19th and early 20th century. In the 1980s, yoga became popular as a system of physical exercise across the Western world. Yoga in Indian traditions, however, is more than physical exercise; it has a meditative and spiritual core. One of the six major orthodox schools of Hinduism is also called Yoga, which has its own

epistemology and metaphysics, and is closely related to Hindu Samkhya philosophy.

Methodology

To achieve the purpose of the present study, thirty intercollegiate players from Selvam Group of Institutions, Namakkal, Tamilnadu were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=30) were randomly assigned to two equal groups of fifteen players each. The groups were assigned as pranayama techniques and control group in an equivalent manner. The training group participated for a period of eight weeks and the post-tests were conducted and the control group has not given any training.

Statistical Techniques

The following statistical techniques were adopted to treat the collected data in connection with established hypothesis and objectives of this study. Analysis of covariance (ANCOVA) was used to test the treatment effect of the training programmes on all the variables used in the study.

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Table 1

Computation of mean and analysis of covariance of vital capacity of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	2.83	2.82	BG	0.001	1	0.001	0.027
			WG	0.874	28	0.031	
Post Test Mean	3.27	2.84	BG	1.404	1	1.404	40.221*
			WG	0.977	28	0.035	
Adjusted Post Mean	3.27	2.84	BG	1.342	1	1.342	124.181*
			WG	0.292	27	0.011	

* Significant at 0.05 level Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of vital capacity of experimental and control groups were 3.27 and 2.84 respectively. The obtained F-ratio of 124.181 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of

the study indicates that there was a significant difference among experimental and control groups on vital capacity. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Table 2

Computation of mean and analysis of covariance of fast vital capacity of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	3.67	3.71	BG	0.012	1	0.012	0.156
			WG	2.084	28	0.074	
Post Test Mean	4.32	3.72	BG	2.688	1	2.688	29.190*
			WG	2.578	28	0.092	
Adjusted Post Mean	4.34	3.71	BG	2.979	1	2.979	74.198*
			WG	1.084	27	0.040	

* Significant at 0.05 level, Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of fast vital capacity of experimental and control groups were 4.34 and 3.71 respectively. The obtained F-ratio of 74.198 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The

result of the study indicates that there was a significant difference among experimental and control groups on fast vital capacity. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Table 3

Computation of mean and analysis of covariance of slow vital capacity of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	2.96	3.03	BG	0.038	1	0.038	1.051
			WG	1.017	28	0.036	
Post Test Mean	3.49	3.06	BG	1.439	1	1.439	50.005*
			WG	0.806	28	0.029	

Adjusted Post Mean	3.51	3.04	BG	1.570	1	1.570	65.252*
			WG	0.649	27	0.024	

* Significant at 0.05 level, Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of slow vital capacity of experimental and control groups were 3.51 and 3.04 respectively. The obtained F-ratio of 65.252 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The

result of the study indicates that there was a significant difference among experimental and control groups on slow vital capacity. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Table 4

Computation of mean and analysis of covariance of maximum voluntary ventilation of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	106.85	107.35	BG	1.905	1	1.905	0.013
			WG	4258.551	28	152.091	
Post Test Mean	140.25	106.72	BG	8429.945	1	8429.945	67.498*
			WG	3496.983	28	124.892	
Adjusted Post Mean	140.45	106.52	BG	8632.082	1	8632.082	324.713*
			WG	717.760	27	26.584	

* Significant at 0.05 level, Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of maximum voluntary ventilation of experimental and control groups were 140.45 and 106.52 respectively. The obtained F-ratio of 324.71 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on anaerobic power. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Conclusions

From the results obtained, the following conclusions were drawn:

1. It was observed that the experimental group has significantly improved the selected lung functions of intercollegiate players.
2. The experimental group had achieved significant improvement on selected lung functions among intercollegiate players when compared to control group.

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