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ISOLATED AND COMBINED EFFECTS OF YOGIC PRACTICES AND WALKING ON SELECTED PHYSIOLOGICAL VARIABLES AMONG SCHOOL BOYS

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ABSTRACT

The aim of this study the scholar is interested to determine the isolated and combined effects of yogic practices and walking on selected physiological variables among high school boys. To achieve the purpose of this study the investigator selected schools boys who were from Mahodary High School, Birbhum district, West Bengal. The subjects were selected randomly and their age was between 14 and 16 years. They were assigned into four groups of which one group served as yogic practices groups, the second group served as a walking group, the third group combined walking exercise and yogic practices group and the fourth group served as the control group. The training programs for this study were six weeks of yogic practices for experimental group I and six weeks walking for group II, six weeks of combined walking and yogic practices for experimental group III, and the control group was not given any training except for their routine. The results of this study proved that compared with the control group the yogic practices group, significantly improved the selected physiological variables, except in the case of mean arterial blood pressure. The results of this study proved that compared with the control group the walking group significantly improved the selected physiological variables, except in the case of vital capacity.

Keywords : Yoga, Walking, resting pulse rate, mean arterial blood pressure and vital capacity.

INTRODUCTION : The aim of this study was to find out the isolated and combined effects of yogic practices and walking on selected physiological variables among high school boys. To achieve the purpose of the study was to find out the isolated and combined effects of yogic practices and walking on selected physiological variables, namely, resting pulse rate, blood pressure, and vital capacity among schoolboys. To facilitate the study 60 school Boys from Mahodary High School, Birbhum District, and West Bengal were randomly selected as subjects and their ages between 14 and 16 years.

OBJECTIVES OF THE STUDY : To find out the isolated effect of yogic practice on selected physiological variables among school boys. To find out the isolated effect of walking on selected physiological variables among school boys. To find out the combined effect of yogic practices and walking on physiological variables among high school boys.

HYPOTHESES : 1. It was hypothesized that the yogic practices group would significantly decrease the resting pulse rate, blood pressure and improve vital capacity than the control group. **2.** It was hypothesized that the walking group would significantly decrease the resting pulse rate, blood pressure and improve vital capacity than the control group.

3. It was hypothesized that the combined group practicing yogic practices and walking would significantly decrease resting pulse rate, blood pressure and increase vital capacity than the other groups. **4.** It was hypothesized that the yogic practices group would significantly decrease resting pulse rate, blood pressure and increase vital capacity than the walking group.

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PROCEDURE : The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=60) were randomly assigned to four equal homogeneous groups of fifteen Boys each. Among the four groups, the control group was strictly under control, without undergoing any special activity. The experimental groups were undergone with the experimental treatments. The groups were assigned as Experimental Groups I, II, III and control group respectively. Pre tests were conducted for all the subjects on selected physiological variables such as resting pulse rate, blood pressure and vital capacity. The experimental groups participated in their respective walking, yogic practices and combined walking and yogic practices for a period of six weeks. The post tests were conducted on the above said dependent variables after a period of six weeks. The training programme was scheduled at 6.30a.m to 7.30 a.m. on week days excluding Sundays. The differences between the initial and final scores in selected Physiological variables were subjected to statistical treatment using Analysis of Covariance (ANCOVA) to find out whether the mean differences were significant or not. The Scheffe's post hoc test was used to find out the paired means significance difference. (Thirumalaisamy, 1998).

RESULT AND DISCUSSION : The statistical analysis comparing the initial and final means of resting pulse rate due to isolated and combined effect of yogic practices and walking on resting pulse rate is presented in Table I.

Table I : Computation Of Analysis Of Covariance Of Resting Pulse Rate **(Total Scores in Number)**

	Yogic	Walking	Combined	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	49.13	51.67	51.67	53.1	Between	124.27	3	41.42	1.20
					Within	1936.13	56	34.57	
Post Test Mean	47.20	49.27	47.67	53.5	Between	366.00	3	122.00	3.66*
					Within	1866.40	56	33.33	
Adjusted Mean	49.34	49.02	47.42	51.8	Between	148.66	3	49.55	18.49*
					Within	147.41	55	2.68	
Mean Diff	-1.93	-2.40	-4.00	0.33					

*Significant

Table F-ratio at 0.05 level of confidence for 3 and 56 (df) =2.77, 2 and 55(df) =2.77.

As shown in Table I, the obtained F value on the scores of pre-test means 1.20 was less than the required F value, which proved that the random assignment of the subjects was successful and their scores in resting pulse rate before the training were equal and there were no significant differences.

The obtained F value on the scores of post-test means 3.66 was greater than the required F value 2.77, which proved that the interventional programs, yogic and walking exercises were significantly improved the resting pulse rate of the subjects.

Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F value 18.49 was greater than the required value of 2.77 and hence it was accepted that the yogic practices, walking exercises, and combination of yogic practices and walking training, significantly improved resting pulse rate of the subjects.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II.

Table II :Scheffe's Confidence Interval Test Scores on Resting pulse rate (Scores in Numbers)

MEANS				Mean Difference	Required . C I
Yogic Practices	Walking	Combined	Control		
49.3	49.0			0.3	1.7
49.3		47.4		1.9*	1.7
49.3			51.8	2.5*	1.7
	49.0	47.4		1.6	1.7
	49.0		51.8	2.8*	1.7
		47.4	51.8	4.4*	1.7

* Significant

From the results presented in Tables I and II, it was proved that the interventional program yogic practices, walking and combination of yogic and walking exercises significantly improved the resting pulse rate of the schoolboys. There was no significant difference between the yogic group and walking group and the combined group and the walking group. It was also proved that the combined group was better than the yogic group and control group in improving the resting pulse rate of the subjects. The statistical analysis comparing the initial and final means of mean arterial blood pressure due to isolated and combined effect of yogic practices and walking on mean arterial blood pressure is presented in Table III.

Table III: Computation Of Analysis Of Covariance Of Mean Arterial Blood Pressure **(Total Scores in Number)**

	Yogic	Walking	Combined	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	98.30	97.57	99.07	97.6	Between	23.11	3	7.70	0.59
					Within	732.70	56	13.08	
Post Test Mean	97.77	93.50	95.33	99.9	Between	351.95	3	117.32	5.73*
					Within	1146.87	56	20.48	
Adjusted Post Test Mean	97.71	93.68	95.03	100.1	Between	364.46	3	121.49	6.25*
					Within	1068.37	55	19.42	
Mean Diff	-0.53	-4.07	-3.73	2.33					

*Significant

The obtained F value on the scores of post-test means 5.73 was greater than the required F value 2.77, which proved that the interventional programs, yogic and walking exercises were significantly improved mean arterial blood pressure of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F value 6.25 was greater than the required value of 2.77 and hence it was accepted that the yogic practices, walking exercises, and combination of yogic practices and walking training, significantly improved mean arterial blood pressure of the subjects.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table IV.

Table IV : Scheffe's Confidence Interval Test Scores on Mean arterial blood pressure (Scores in Numbers)

MEANS				Mean Difference	Required . C I
Yogic Practices	Walking	Combined	Control		
97.7	93.7			4.0	4.6
97.7		95.0		2.7	4.6
97.7			100.1	2.4	4.6
	93.7	95.0		1.3	4.6
	93.7		100.1	6.4*	4.6
		95.0	100.1	5.1*	4.6

* Significant

The pre-test, post-test, and ordered adjusted means were presented through a bar diagram for a better understanding of the results of this study in Figure II. Table IV shows the post hoc analysis of obtained ordered adjusted means of the yogic, walking, and combined and control group. From the results presented in Tables III and IV, it was proved that the interventional program walking exercises and combined exercises significantly improved the mean arterial blood pressure of the schoolboys. Analysis of adjusted means through Scheffe's post hoc test proved that there were significant differences existed between walking exercises and control group and combined exercises and control group. All other comparisons were not significant. Thus was no significant difference between the yogic group and the walking group and the yogic group and combined group, yogic group, and control group, walking group and combined group.

Results on Vital Capacity : The statistical analysis comparing the initial and final means of vital capacity due to the isolated and combined effect of yogic practices and walking on vital capacity is presented in Table V.

Table V: Computation Of Analysis Of Covariance Of Vital Capacity **(Total Scores in ml)**

	Yogic	Walking	Combined	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	1812.67	1766.67	1824.00	1814.7	Between	29725.00	3	9908.33	0.13
					Within	4388360.00	56	78363.57	
Post Test Mean	2183.33	2089.33	2084.00	1876.7	Between	753713.33	3	251237.78	2.96
					Within	4751320.00	56	84845.00	
Adjusted Mean	2181.30	2098.77	2079.14	1874.1	Between	766569.62	3	255523.21	3.14
					Within	4478427.43	55	81425.95	
Mean Diff	370.67	322.67	260.00	62.00					

*Significant

Table F-ratio at 0.05 level of confidence for 3 and 56 (df) =2.77, 2 and 55 (df) =2.77. As shown in Table V, the obtained F value on the scores of pre-test means 0.13 was less than the required F value, which proved that the random assignment of the subjects was successful and their scores in vital capacity before the training were equal and there were no significant differences. The obtained F value on the scores of post-test means 2.96 was greater than the required F value 2.77, which proved that the interventional programs, yogic and walking exercises were significantly improved the vital capacity of the subjects. Taking into consideration of the pre-test

means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F value 3.14 was greater than the required value of 2.77 and hence it was accepted that the interventional program of six weeks training, significantly improved vital capacity of the subjects. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table VI.

Table VI : Scheffe's Confidence Interval Test Scores on Vital capacity (Scores in ml)

MEANS				Mean Difference	Required C I
Yogic Practices	Walking	Combined	Control		
2181.3	2098.8			82.5	300.4
2181.3		2079.1		102.2	300.4
2181.3			1874.1	307.2*	300.4
	2098.8	2079.1		19.6	300.4
	2098.8		1874.1	224.6	300.4
		2079.1	1874.1	205.0	300.4

* Significant

The pre-test, post-test, and ordered adjusted means were presented through a bar diagram for a better understanding of the results of this study in Figure VI. Table VI shows the post hoc analysis of obtained ordered adjusted means of the yogic, walking, and combined and control group. From the results presented in Tables V and VI, it was proved that the interventional program of six weeks yogic exercises significantly improved the vital capacity of the schoolboys. Analysis of adjusted means through Scheffe's post hoc test proved that there were significant differences existed between the yogic exercises group and the control group.

CONCLUSION : Within the limitations and delimitation of this study, the following conclusions are arrived at. It was concluded that the combined walking and yogic practices group was significantly better than the yogic practices group, walking, and control group in the improvement of resting pulse rate. It was concluded that the yogic practices group was significantly better than the control group in improving vital capacity among schoolboys. It was concluded that the walking group was significantly better than the control group in reducing mean arterial blood pressure. It was concluded that the yogic practices group was significantly better than the walking group in improving vital capacity as measured through the Wet Spirometer. It was concluded that the yogic practices group was significantly decreased than the walking group in resting pulse rate as measured through Stethoscope.

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