

EFFECT OF PRANAYAMA ON SELECTED PHYSIOLOGICAL VARIABLES OF STUDENTS STUDYING IN PHYSICAL EDUCATION DEPARTMENT**Manoj kumar Prajapati***

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Abstract:

The main objective of the study was to find out the effect of Pranayama on selected physiological variables of students of Physical Education of Sant Gadgebaba Amravati University of Maharashtra State. 40 Male P.G. Students were selected on the bases of purposive sampling method for the study. All the subjects were equally distributed into two groups. Group 'A' in experimental and group 'B' is control. The experimental group 'A' under gone Pranayama training program and the control group 'B' was free group. The data were collected before and at the end of two month of training program by administrating Harvard Step Test for measuring cardiovascular endurance; Wet Spirometer for measuring of vital capacity and Sahli Haemometer for measuring hemoglobin percentage. The criterion measures were recorded in Liters/minutes for vital capacity, Physical Fitness Index was calculated for cardiovascular endurance, the hemoglobin percentage recorded in gm/100ml of blood. **Conclusion:** There were showing significant difference between vital capacity, Hemoglobin & Cardiovascular Endurance of P.G. Students.

Keywords: Pranayama, Physiological Variables & P.G. Students.

Objective of the Study:

The main objective of the study was to find out the effect of Pranayama on selected physiological variables of students of Physical Education of Sant Gadgebaba Amravati University of Maharashtra State.

Hypothesis of the Study:

It was hypothesized that there will be significant effect of Pranayama training on Cardiovascular Endurance, Vital Capacity, and Hemoglobin.

Methodology:

40 male students of Post Graduate Teaching Department of Physical Education Amravati were selected as subjects by employing purposive sampling method are used. All the subjects were equally distributed into two groups. Group 'A' in experimental and group 'B' is control. The experimental group 'A' under gone Pranayama training program and the control group 'B' was free group. The period of training program was two months.

The data were collected before and at the end of two month of training program by administrating Harvard Step Test for measuring cardiovascular endurance; Wet Spiro meter for measuring of vital capacity and Sahli Haemometer for measuring haemoglobin percentage. The criterion measures were recorded in Liters/minutes for vital capacity, Physical Fitness Index was calculated for cardiovascular endurance, the hemoglobin percentage recorded in gm/100ml of blood. To find out the significant effect of pranayama training the analysis the variance (F- ratio) was applied and significant mean difference between the pre- test and post- test scores of experimental group with control group was

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determined. The data was further analyzed by post hoc test (critical difference). The level of significant was at 0.05 level of confidence.

Table No. I
Analysis of Covariance for Data on Vital Capacity
on Experimental and Control Group

Source	DF	SSPRE	SSPOST	TRTSP	SSPOST	MSPOST	F
Between Group	1	0.186	3.567	0.815	2.963	2.963	19.307
With in Group	37	8.031	6.616	2.744	5.679	0.153	
Total	38	8.217	10.183	3.559	8.642		

'F' at 1 and 37 degree of freedom of 0.05 level of significance is 4.1 i.e.,
N=40, 'F' $(0.05)_{1,37} = 4.1$

As the obtained 'F' = 19.307 is greater than the table value of 'F' $(0.05)_{1,37} = 4.1$, there is significant difference between the groups and hence there is a need of applying post hoc test to see the differences.

Table No. 1.1
Pre Mean Comparisons of Vital Capacity

Group	MEAN	Mean Difference
Experimental Group	4.0465	0.1364
Control Group	3.9101	

Table No. 1.2
Post Mean Comparisons of Vital Capacity

Group	MEAN	Mean Difference	Critical Difference	Remark
Experimental Group	4.52925	0.5972503	19.30816	*
Control Group	3.932			

*significant at 0.05 level of confidence. SV value at 1 and 37 of df at 0.05 level is 4.1 significant difference, (tabulated 'F' $(0.05)_{1,37} = 4.1$) Table - I, reveals that there is significant improvement in experimental group as the obtained 'F' value of (19.307) is greater than the table value 'F' $(0.05)_{1,37} = 4.1$.

Table - 1.1 and 1.2 also reveal that there are significant differences in the pre-mean comparison and post-mean comparison of experimental group, as the critical difference (19.30816) respectively are greater than that of table value (4.1). The comparison of means has been graphically presented in Fig No. 1.

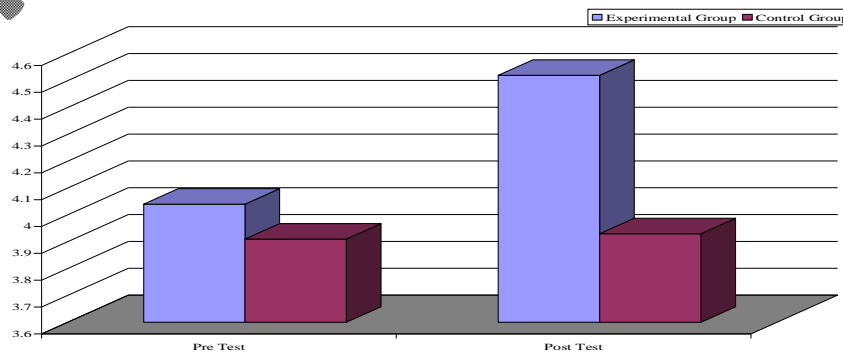


Table No. 2
Analysis of Covariance for the Data on Harvard Step Test for Cardio- Vascular
Endurance of Experimental Group and Control Group

Source	DF	SSPRE	SSPOST	TRTSP	SSPOST	MSPOST	F
Between Group	1	0.031	1433.656	6.406	1409.522	1409.522	58.358
With in Group	37	534.969	2797.438	1009.188	893.664	24.153	
Total	38	535.000	4231.094	1015.594	2303.186		

'F' at 1 and 37 degree of freedom of 0.05 level of significance is 4.1.i.e., $N = 40$, ' F ' $(_{0.05})_{1,37} = 4.1$.The obtained ' F ' = 58.358 is more than the table value of $F = (_{0.05})_{1,37} = 4.1$, so there is significant difference between the groups and hence there it is indicating the need of applying Post-Hoc test to see the differences.

Table No. 2.1
Pre Mean Comparisons of Cardio- Vascular Endurance

Group	MEAN	Mean Difference
Experimental Group	88.8275	0.0535
Control Group	88.77399	

Table No. 2.2
Post Mean Comparisons of Cardio- Vascular Endurance

Group	MEAN	Mean Difference	Critical Difference	Remark
Experimental Group	98.88351	11.97351	58.35717	*
Control Group	86.90999			

*significant at 0.05 level of confidence.SV value at 1 and 37 of df at 0.05 level is 4.1.

Table 2.1 reveals that there is significant difference between the mean of experimental group and control group in pre- test comparison. Where as table 2.2 shows a significant difference between the means of control and experimental group in Post test comparison as the value of critical difference (58.35717) is greater than the table value (4.1). The comparison of means has been graphically presented in Fig No. 2.

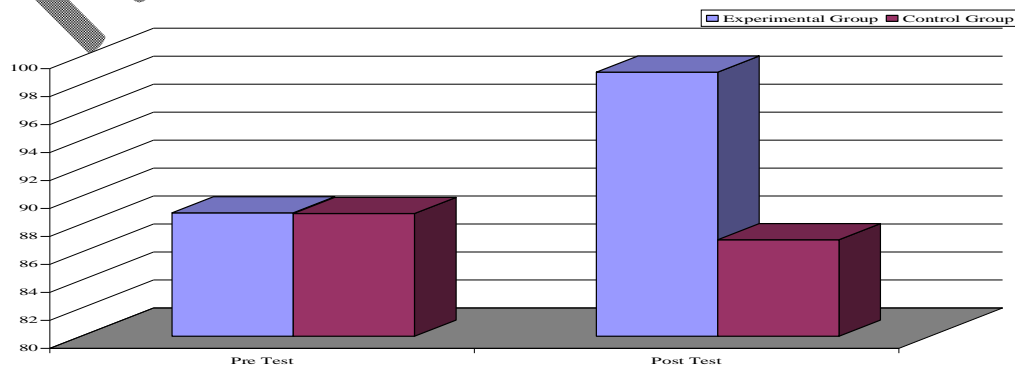


Table No- 3
Analysis of Covariance for the Data on Sahli - Haemo-Meter Test
for Hemoglobin % of Experimental and control Groups.

Source	DF	SSPRE	SSPOST	TRTSP	SSPOST	MSPOST	F
Between Group	1	0.036	12.688	-0.676	12.835	12.835	25.355
With in Group	37	18.137	19.023	2.304	18.730	0.506	
Total	38	18.173	31.711	1.628	31.566		

Significant at 0.05 level of confidence 'F' at 1 and 37 degree of freedom at 0.05 level of significance is 4.1 i.e., $N = 40$, $'F'_{(0.05) 1,37} = 4.1$.

The obtained 'F' = 25.355 is more than the table value of 'F' $(0.05) 1,37 = 4.1$, So there is significant difference between the groups and hence there is a need of applying post hoc test see the difference .

Table No. 3.1
Pre Mean Comparisons of Haemoglobin %

Group	MEAN	Mean Difference
Experimental Group	13.63	0.006
Control Group	13.69	

Table No. 3.2
Post Mean Comparisons of Haemoglobin %

Group	MEAN	Mean Difference	Critical Difference	Remark
Experimental Group	14.4925	1.1265	24.681	*
Control Group	13.366			

*significant at 0.05 level of confidence. SV value at 1 and 37 of df at 0.05 level is 4.1.

Table No. 3 reveals that there is significant difference between the mean of experiment group and control group in pre- test comparison where as table 3.2 shows a significant difference between the means of control and experimental group in post test comparison as the value of critical difference (24.681) is greater that the table value (4.1). The comparison of means has been graphically presented in Fig. No. 3.

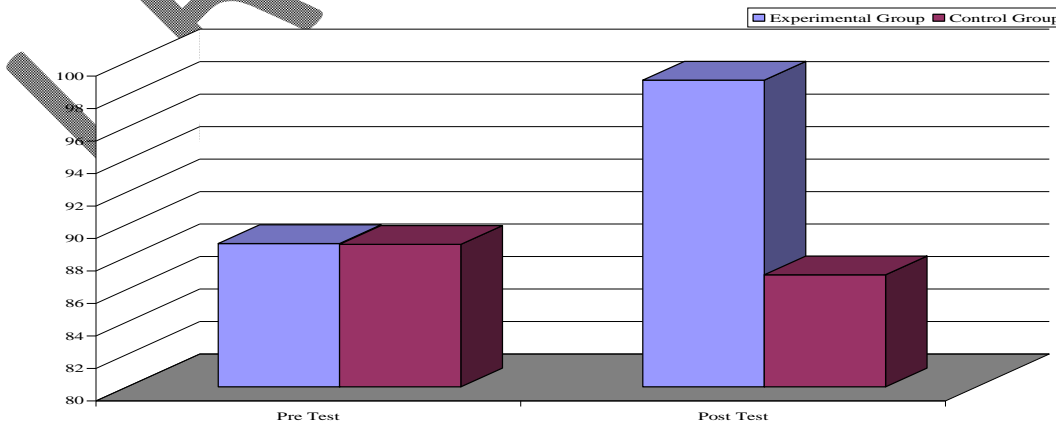


Figure No- 3.

Discussion of Finding:

- In case of vital capacity improvement, the reason of the significant effect from the analysis of covariance (ANCOVA) is that the obtained value of 'F' = 19.307, and further the critical difference value (19.30816) of post mean comparisons are greater than the table value of 'F' $(0.05)_{1.37} = 4.1$. Hence, there is a significant improvement on the vital capacity of students of Post Graduate Department of Physical Education by the two month (60 days) Pranayama training Program.
- In case of Haemoglobin % improvement, the reason of the significant effect from the analysis of covariance (ANCOVA) is that the obtained value of 'F' = 25.355, and further the critical difference value (24.681) of post mean comparisons are greater than the table value of 'F' $(0.05)_{1.37} = 4.1$. Hence, there is a significant improvement on the vital capacity of students of Post Graduate Department of Physical Education by the two month (60 days) Pranayama training Program.
- The findings of the significant improvement on the vital capacity, cardiovascular endurance and Haemoglobin % of the selected subjects of experimental group might be due to the nature of training program and quick physical and physiological adaptation.

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