Comparative Effect of Selected Yogic Practices and Up-Hill Training on Physiological Parameters of Players

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ABSTRACT

The main purpose of this study was to compare "Comparative Effect of Selected Yogic Practices and Up-Hill Training on Physiological Parameters of Players". For this purpose Forty Five male players were selected from Degree College of Physical Education, Amravati by adopting simple random sampling method and age of the subjects was ranging from 18 to 28 years. The subjects were divided into three groups, each group consisted of 15 players, in which group-A and group-B were experimental groups and group C was control group. Up-Hill Training were assigned to Group A, Yogic Exercises were assigned to group B and no specific exercises was given to control group C. The training period was consisted of eight weeks. During the training, principle of overload was adopted for the optimum development of the desired objective of the study. The training were performed for five days in week, two times a day, in morning 6:00 am to 8:00 am and in afternoon 4:00 pm to 6:00 pm and a complete rest was given on Saturday and Sunday. The subjects of group-C were not given any specific training but they used to take part in daily practice and took part in their regular program as well.

It was hypothesized that Yogic Practices and Up-Hill Training will affect the Physiological Variables of the players.

Heart Rate was measures manually whereas Vital Capacity, Systolic Blood Pressure and Diastolic Blood Pressure of the players were measured by Wet Spirometer and Sphygmomanometer respectively and the scores were recorded. Data pertaining to the study were collected before the start of training programs and immediately after the completion of eight weeks training programs. The collected data were arranged systematically in a table for further statistical treatments.

Independent and Dependent t-test was employed to find out effect of Yogic Exercises and Up-Hill Training between different groups as well as One Way Analysis of Variance (ANOVA) was employed to compare the effect of selected Yogic Exercises and Up-Hill Training on selected Physiological Variables of the Players. The level of significance was set at 0.05 for testing the hypothesis. The findings of the statistical analysis revealed that there was significant difference in the Physiological Variables viz. Heart Rate, Vital Capacity, Systolic Blood Pressure and Diastolic Blood Pressure in both experimental and control group.

Keywords: Exercises, Up-Hill Training, Heart Rate, Vital Capacity, Systolic Blood Pressure and Diastolic Blood Pressure.

Findings

To determine the significant difference between the two groups's for and among the different selected Physiological Variables, the Independent t-test, Dependent t-test (between pre and post) and ANOVA statistical technique was employed independently for each variable. The level of significance to test the hypothesis was set at 0.05. The findings pertaining to the study have been shown in Table 1, 2, 3 and 4.

Table-1

Summary of Mean, Standard deviation and 't'- ratio for the Data on Post-Test of Physiological Components between the Experimental And Control Group of Players

Group	Mean	Standard Deviation	Mean Difference	Standard Error of Mean Difference	t-ratio
Experimental A (Up-Hill Training)	225.95	14.762	55.15	6.138	8.984*
Control	170.800	18.642			
Experimental B (Yogic Exercises)	203.95	19.535	33.15	6.971	4.755*
Control	170.800	18.642			

*Significant at 0.05 level　　　　　　　　　　　　　　Tabulated t $_{0.05(13)}$ = 2.160

It is evident from Table-1 that significance of difference are found in the variables of Physiological Variables viz. Heart Rate, Vital Capacity, Systolic Blood Pressure and Diastolic Blood Pressure between Experimental Group-A (Up-Hill Training) and Control Group and in between Experimental Group-B (Yogic Exercise) and Control Group as the obtained t-valve of 8.984 and 4.755 respectively are quite higher than the tabulated t-value of 2.160 at 0.05 level of significance at 13 degree of freedom.

Table-2

**Comparison of Mean of Pre and Post Test of Experimental and
Control Group for the Data on Physiological Components of Players**

Group	Test	Mean	Difference between Post and Pre test Scores	Standard Error	t-ratio
Experimental (Up-Hill)	Pre	197.298	429.769	52.416	8.199*
	Post	225.95			
Experimental (Yoga)	Pre	197.394	98.46	28.29	3.480*
	Post	203.958			
Control	Pre	197.246	396.677	42.436	9.3476*
	Post	170.8008			

*Significant at 0.05 level   Tabulated t $_{0.05(14)}$ = 2.144

Statistical Analysis of Pre Tests and Post Tests of Experimental Group-A (Up-Hill Training), Experimental Group-B (Yogic Exercise) and Control Group has shown significant difference as the Calculated t-value of 8.199, 3.480 and 9.347 respectively are more than the tabulated t-value of 2.144 when compared independently at 0.05 level of significance at 14 degree of freedom.

Table – 3

Summary of One-way Analysis of Variance (ANOVA) for the Data on Selected Physiological Variable between Experimental and Control Group of Players

Physiological Variable	Source of Variance	Degree of Freedom	Sum of square	Mean of Sum of Square	F - ratio
Heart Rate	Between group	2	2168.426	1084.213	20.42*
	Within group	42	2229.185	53.07583	
Vital Capacity	Between group	2	1060.33	530.1649	6.62*
	Within group	42	3359.375	79.98512	
Blood Pressure (Systolic)	Between group	2	1381.42	690.7101	9.57*
	Within group	42	3030.212	72.1479	
Blood Pressure (Diastolic)	Between group	2	1614.968	807.4838	12.13*
	Within group	42	2793.949	66.5226	

*Significant at 0.05 level   Tabulated $F_{0.05(2,42)} = 3.219$

Table – 4

Paired Mean Difference for the Data on Selected Physiological Components between Experimental and Control Group of Players

Physiological Components	Mean of			Mean Difference	Critical Difference
------------	Experimental A (Up-Hill)	Experimental B (Yoga)	Control	----------------	--------------------
Heart Rate	57.433	51.807	---	5.626*	5.368
	57.433	---	40.726	16.707*	5.368
	---	51.807	40.726	11.081*	5.368
Vital Capacity	59.98	48.02	---	11.93*	6.590
	59.98	---	45.73	14.25*	6.590
	---	48.02	45.73	2.29@	6.590
Endurance (1.5 mile)	56.09	51.22	---	4.87@	6.259
	56.09	---	42.69	13.4*	6.259
	---	51.22	42.69	8.53*	6.259
Agility (Shuttle Run)	55.44	52.91	---	2.53@	6.009
	55.44	---	41.659	13.79*	6.009
	---	52.91	41.659	11.26*	6.009

*Significant at 0.05 level
@ Not Significant at 0.05 level

To determine the significance of difference of selected Physiological Components among three groups i.e. of Experimental Group-A (Up-Hill Training), Experimental Group-B (Yogic Exercise) and Control Group, One way Analysis of Variance (ANOVA) statistical technique was employed independently for each variables, where F – ratio was found to be significant, *post-hoc* test was applied to find out the paired mean difference. To test the hypothesis confidence level was set at 0.05. The findings pertaining to the study have been shown in Table 3 and 4.

It is evident from Table-3, that the significance of difference were found in the variable of Heart Rate (F = 20.42), Vital Capacity (F = 6.62), Systolic Blood Pressure (F = 9.57) and Diastolic Blood Pressure (F = 12.13) among the Groups of Players, as the obtained F–value are quite higher than that of tabulated F–value of 3.129 needed to be significant at 0.05 level for 2, 42 degrees of freedom.

Findings of *post-hoc* test reveals that there is significance of difference in between Experimental Group-A and Control Group (MD=11.612 > CD=5.6479) and Experimental Group-B and Control Group (MD=6.874 > CD=5.6479) whereas insignificant difference was found in between Experimental Group-A and Experimental Group-B (MD=4.738<5.6479) in the component of Strength. The table also reveals that there is significance difference in between Experimental Group-A and Experimental Group-B (MD=5.25>4.5124), Experimental Group-A and Control Group (MD=11.678>4.5124) and Experimental Group-B and Control Group (MD=16.933>4.5124) in the component of Muscular Endurance.

It is also observed from the table that there is significance difference in between Experimental Group-A and Control Group (MD=10.927 > CD=5.006) and Experimental Group-B and Control Group (MD=14.724 > CD=5.006) whereas insignificant difference was found in between Experimental Group-A and Experimental Group-B (MD=3.815<5.006) in the component of Cardiovascular Endurance.

The table also states that there is significance difference in between Experimental Group-A and Control Group (MD=11.348 > CD=5.392) and Experimental Group-B and Control Group (MD=12.293 > CD=5.392) whereas insignificant difference was found in between Experimental Group-A and Experimental Group-B (MD=0.945<5.392) in the component of Agility.

Discussion of Finding

The obtained results on Physiological Parameters of Players may be attributed to the nature of selected training programs which directly affect or contribute to the development of physiological parameters and ultimately development of player's performance that is vital capacity, heart rate and blood pressure.

Conclusion

Recognizing the limitations of the study and on the basis of statistical findings it may be fairly concluded that

i. Up-Hill Training and Yoga leads to the development of Physiological parameters of the Players.

ii. Significant difference was observed between Experimental Group A and Control Group and Experimental Group B and Control Group in the selected Physiological parameters.

iii. Significant difference was observed between Pre Test and Post Test of Up-Hill Training, Yoga Training and Control Group in the selected Physiological parameters.

iv. Significant mean difference was observed among Up-Hill Training, Yoga Training and Control Group in the selected Physiological Components of Heart Rate, Vital Capacity, Systolic and Diastolic Blood Pressure.

References

Chatterjee Pinaki and das paulomi, "A comparative study of vital capacity of Indian and Nepalese Young female", Journal of Physical Education and Sports Management August 2010, Vol. 1 (2), pp. 25-27.

Gopal. K.S., "Effect of Yogasana and Pranayamas on blood pressure, pulse rate and respiratory function" Indian Journal of physiological pharmacological, Vol XVII, pp. 273-276.

Joseph H. Long-continued observation in the vital capacity in health and in heart disease. Transaction of the association of American Physician (W. J. Dornan, Incorporated) (1922).