

Comparative Effects of Fitness Programme on Selected Physiological Variables

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Abstract

The purpose of the study was to analyze the effect of fitness programme on selected physiological variables on school boys. The 80 school boys were selected by random sampling as subject and all were studying in grades VI-VIII in different schools of Gwalior region with age ranged between 11-14 years. The following variables were selected for testing the hypothesis i.e. aerobic capacity, anaerobic capacity, pulse rate, blood pressure and body composition. The training programme was conducted six day a week which was prepared by the investigator under the guidance of expert. Tests for selected variables were administered to the subjects before and after an experimental period of eight weeks. Pre test-post test (single group) Random group design was adopted for the study and for this purpose 't' test was employed.

KEYWORDS : Aerobic Capacity, Anaerobic Capacity, Body Composition, Pulse Rate, Blood Pressure.

INTRODUCTION

Physical fitness is not only one of the most important keys to be healthy but it is also the basis of dynamic and creative intellectual activity. The relation between the soundness of the body and activities of mind is subtle and complex. To keep him fit a person requires some sort of physical activity physical exercise is very important for children youth and adults of both sexes to keep themselves fit. Participation in exercise programmes and sports affects the human being physiologically, which can be discussed with special emphasis related to three areas. First, the effects of sports participation upon the physical growth and development of child. Second, the effects of training program on child's heart, cardio-vascular potential, physical work capacity etc. and third, the short term and long term effects of injury incurred by participation in youth sports program.

In order to explore the best type of conditioning on training programme which brings about better physiological changes or adaption, research scholar conceptualized to investigate to analyze the comparative effects of Fitness program on selected physiological variables school boys. The study was delimited to the boy's students of grades VI-VIII studying in different schools of Gwalior region. The present study was restricted to the following physiological variables i.e. Aerobic Capacity, Anaerobic Capacity, Blood Pressure, Pulse Rate and Body Composition. And the duration of the experiment was confined to eight week only. On the basis of research citing, text books and research scholar's own understanding it was hypothesized that there would be significant effect of training programme on selected physiological variables.

METHODOLOGY

For the present study 80 school boys were selected as subject through random sampling with age ranged between 11-14 years. The subjects were studying in grade VI-VIII in different schools of Gwalior region. The subjects were explained about the testing procedure and purpose of the study. On the basis of review of literature, expert opinion and scholar's own understanding, the following variables were selected for testing the hypothesis:-

Table - 1

S. No.	Variables	Tests	Criterion Measures
1	Aerobic capacity	Cooper's 12 minute run/walk test	meters
2	Anaerobic capacity	50 meter dash	1/100 th of a second
3	Pulse rate	Palpation method	Beats/minutes
4	Blood pressure	Inflatable arm cuff and pressure measuring gauge	mmHg
5	Body composition	skin fold test	millimeters

The training programme was conducted six day a week, i.e. Monday to Saturday. The Tests for the selected variable were administered to the subjects before and after an experimental period of eight weeks. Pre test-post test (single group) Random group design will be adopted for the study. To obtain reliable measurements, the instruments used for the present study were taken from the research laboratory of L.N.I.P.E., Gwalior (M.P.). The research scholar had found the instruments in workable conditions as per the specification of the manufacturers by taking the test on subjects. In order to find out the comparative effects of Fitness program between the pre-test and post test means on selected variables was tested by using 't' test and to test the hypothesis the level of significance was set at 0.05. The above mentioned statistical techniques were performed using SPSS version 17.

RESULTS

In order to compare the pre and post test means of the group, t - ratio was calculated and the results were given in table 2-7.

Table-2

Comparison of Mean Values between Pre and Post Test of the Selected Group for Aerobic Capacity

Variable (Aerobic)	Mean	S. D.	"t" Ratio
Pre	2.01	382.76	7.48*
Post	2.28	329.42	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 2 that the t-ratio of Aerobic Capacity of selected group was found greater than the tabulated t - value (1.99) at 0.05 level of significance and appearance of such result indicates that there was significance difference between the pre and post test comparison of selected variable i.e. Aerobic Capacity of the group.

Table-3
Comparison of Mean Values between Pre and Post Test of the Selected Group for Anaerobic Capacity

Variable (Anaerobic)	Mean	S. D.	“t” Ratio
Pre	8.13	.858	1.26
Post	9.79	11.91	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 3 that there was no significant difference in Anaerobic Capacity of selected group as the obtained t – value was found less than tabulated t – value (1.99) required to be significance. Appearance of such result indicates that pre and post test comparison of Anaerobic Capacity of the group does not differ significantly.

Table-4
Comparison of Mean Values between Pre and Post Test of the Selected Group for Fat %

Variable (Fat %)	Mean	S. D.	“t” Ratio
Pre	10.44	2.04	7.39*
Post	10.14	2.05	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 4 that the t-ratio of Fat % of selected group was found 7.39 which was greater than the Tabulated t value at .05 level of significance. Appearance of such result indicates that there was significance difference between the pre and post test comparison of Fat % among the group.

Table-5
Comparison of Mean Values between Pre and Post Test of the Selected Group for Resting Heart Rate

Variable (Resting Heart Rate)	Mean	S. D.	“t” Ratio
Pre	76.63	3.91	11.44*
Post	73.80	3.07	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 5 that the t-ratio of Resting Heart Rate of selected group was found greater than the tabulated value at .05 level of significance and appearance of such result indicates that there was significance difference between the pre and post test comparison of selected variable i.e. Resting Heart Rate among the group.

Table-6
Comparison of Mean Values between Pre and Post Test of the Selected Group for Blood Pressure (Systolic)

Variable (Blood Pressure-Systolic)	Mean	S. D.	“t” Ratio
Pre	1.186	3.46	1.00
Post	1.187	3.32	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 6 that the t-ratio of Blood Pressure (Systolic) of selected group was found less than the Tab $t = 1.99$ at .05 level of significance. Appearance of such result indicates that there was no significance difference between the pre and post test comparison of selected variable i.e. Blood Pressure (Systolic) among the group.

Table-7
Comparison of Mean Values between Pre and Post Test of the Selected Group for Blood Pressure (Diastolic)

Variable (Blood Pressure-diastolic)	Mean	S. D.	“t” Ratio
Pre	79.32	2.26	1.89
Post	79.62	1.91	

*Significant at 0.05 level

Tab. $t_{0.05} (78) = 1.99$

It was evident from the table 7 that the t-ratio of Blood Pressure (Diastolic) of selected group was found 1.89 which was less than the Tab $t = 1.99$ at .05 level of significance. Appearance of such result indicates that there was no significance difference between the pre and post test comparison of selected variable i.e. Blood Pressure (Diastolic) among the group. The graphical representation of pre-test and post-test mean values of selected variables has been presented in figure 1.

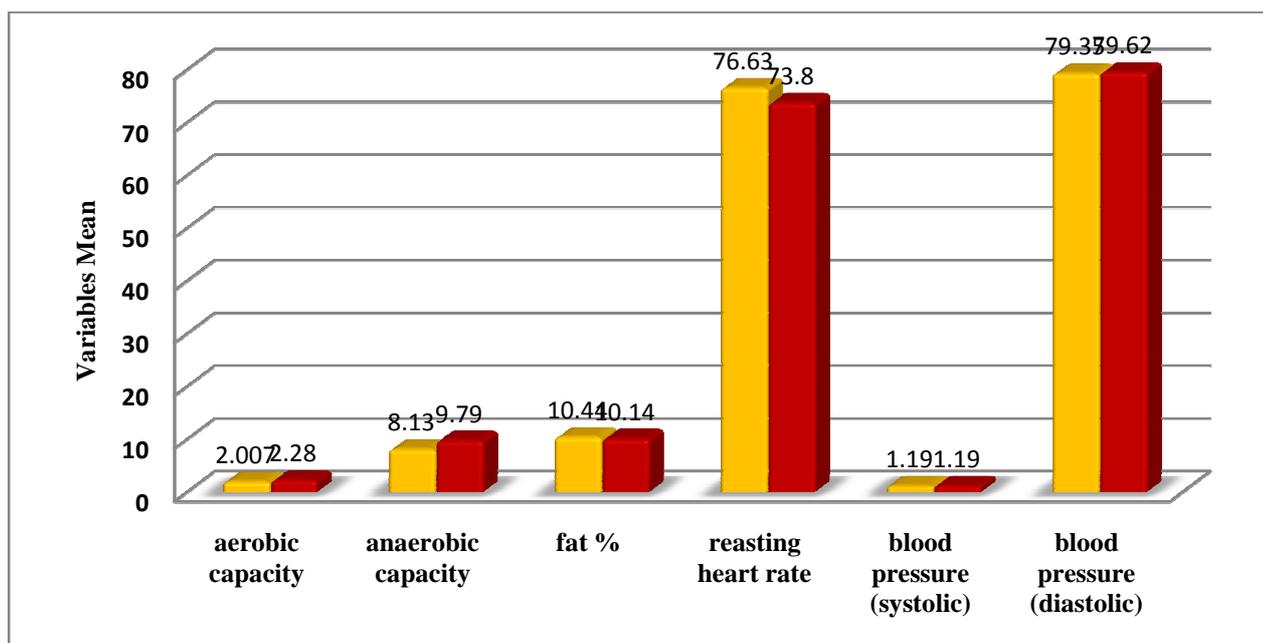


Fig. 1: Pre and Post Test Mean of Selected Variables of Group

Discussion of Finding

The study was conceptualized with a purpose to investigate the effect of fitness program on selected physiological variables of selected group. As in depth understanding of various physiological variables are crucially very important to know the effectiveness of training program. It is also very necessary to exclusively investigate the effect of training program on selected physiological variables. In light of all above mentioned background research scholar generally felt that in depth and quality research needed should be conducted to objectively find out the effect of training program on selected variables.

The statistical findings showed that there was significant difference of selected physiological variables i.e. Aerobic Capacity, Fat % and Resting Heart Rate on pre and post test comparison of group as 7.47, 7.39 and 11.44 which was greater than required value to be significant.

The statistical findings so obtained may be attributed to the fact that the selected group was given a well controlled training program under the expert guidance, lot of physiological changes take place at this age of boys, involvement in physical activity, and school curriculum could be one of the causative factors behind the higher post test mean score of Aerobic Capacity and lower post test mean score of Fat % and Resting Heart Rate. Present study supported the finding of the study conducted by Baquet et al (2004), Dwyer et al (1982), Tooshi (1970) and Cormier (1977).

The statistical findings also showed that there was no significant difference of selected physiological variables i.e. Anaerobic Capacity, Blood Pressure (Systolic) and Blood Pressure (Diastolic) on pre and post test comparison of group as 1.26, 1.00 and 1.89 which was lower than required value to be significant.

Appearing such type of result shows that their age was not good enough to get training effect on these physiological variables, anatomical and muscular maturity were not gained could be a factors behind lower mean score of Anaerobic Capacity and higher mean score of Blood Pressure (Systolic) and Blood Pressure (Diastolic). The result of the study was in agreement with the work of Grant et al (1992) and Burnett et al (1969)

On the basis of findings, text books depiction, scientific facts available and research scholar's own understanding of this investigation following discussion on hypothesis were made:-

1. The hypothesis stated earlier that there would be significant effect of training programme on selected physiological variables.
2. The hypothesis that there would be significant effect of training programme on selected physiological variables was partially accepted and partially rejected. The mean comparison revealed that the hypothesis that was significant effect of training programme on selected physiological variables i.e. Aerobic Capacity, Fat % and Resting Heart Rate was accepted and the hypothesis for selected physiological variables i.e. Anaerobic Capacity, Blood Pressure (Systolic) and Blood Pressure (Diastolic) was rejected.

CONCLUSION

Based on understanding after deliberate discussion with experts and supervisor and also light of above understanding following conclusion were finally drawn:-

1. Physiological variable are one of the most effective and comprehensive methods to objectively assess the effect of tainting program.
2. The statistical findings showed that there was significant difference of fitness program on Aerobic Capacity of school boys.
3. The statistical findings showed that there was no significant difference of fitness program on Anaerobic Capacity of school boys.
4. Similarly findings showed significant difference in relation to fitness program on Fat % of school boys.
5. The statistical findings showed that there was significant difference of fitness program on Resting Heart Rate of school boys.
6. Similarly findings showed no significant differences in relation to Blood Pressure (Systolic) of fitness program of school boys.
7. The statistical findings showed that there was no significant difference of fitness program on Blood Pressure (Diastolic) of school boys.

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