



EFFECTS OF SPEED TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES OF SCHOOL BOYS

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ABSTRACT

The objective of the study was to find out the effects of speed training on selected physiological variables of school boys. For the purpose of the study 30 school boys of West Bengal were selected. The age ranged of the subjects was 15 to 18 years. Resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and physical fitness index were selected for physiological variables. The present study was employed two groups such as speed training group and control group. Each group contains 15 subjects. For the study pre-test post-test randomized group design comprising of two groups were adopted. To assess the resting heart rate, resting blood pressure (systolic & diastolic) stop watch, sphygmomanometer and stethoscope were used. To measure physical fitness index Harvard step test was employed. To compare the effects of speed training on selected physiological variables of school boys, paired t-test was used. The level of significance was set at 0.05. The result shows that there were significant difference exists between pre-test and post-test of speed training on selected physiological variables of school boys and hence it was concluded that speed training is effective in improving the performance of selected physiological variables of school boys.

KEYWORDS : Speed Training, Selected physiological variables, School Boys

INTRODUCTION

Fitness is the ability to compete with balanced and complete life (Kassim, M. 2016). But it also involves the whole of the social, psychological fitness and physiology. Fitness is determined by environment, heredity, genes and lifestyle.

Speed is one of the physical fitness elements. It's involves the muscles of the lower body of the human body. Speed is defined as the capacity and capability of moving a body part or the entire body with the supreme utmost likely speed or velocity (Ahmad, H. 2004). Speed over various distances is an important quality in many sports.

Physical fitness can be thought of as an integrated measure of most, if not all, the body functions involved in the performance of daily physical activity and/or physical exercise. Nowadays physical fitness considered one of the most important health markers, as well as predictor of morbidity and mortality for cardio vascular diseases and for all causes. Childhood and adolescence are crucial periods of life, since dramatic physiological and psychological changes take place at these ages. Likewise, lifestyle and healthy / unhealthy behaviours are established during these years, which may influence adult behaviour and health status (Ortega, FB. 2008).

Resting heart rate indicates the effort required for the heart to pump blood throughout the body. Resting heart rate for the average adults varies from 70 to 100 beats per minute. Exercising training is beneficial to the cardiovascular (www.healthyliving.azcentral.com).

High blood pressure is one of the 9 leading risk factors influencing the global burden of cardiovascular disease (Harris KA, 1987). Therefore, adequate control of blood pressure is important for public health. Lowering of blood pressure and prevention of hypertension is in first instance preferable by lifestyle changes (Veronique AC, 2011).

OBJECTIVE OF THE STUDY

The objective of the study was to find out the effect of speed training programme on resting heart rate, blood pressure (systolic & diastolic) and physical fitness index of school boys.

METHODOLOGY

Thirty school going boys were selected from three different districts of West Bengal, India. The age range of the subjects was between 15-18 years. Two groups namely speed training and control group were selected for this study. Each group contained 15 subjects. The resting heart rate, systolic blood pressure, diastolic blood pressure and physical fitness index were selected as the physiological variables. To assess these selected variables, stop watch, sphygmomanometer, stethoscope and Harvard step test were used. The pre-test and post-test randomized group design was used in the study. The treatment was administered on the speed training group for three days a week (45

min/day) for the period of twelve weeks while the control group underwent their own life style. Before the administration of training schedule, pre-test data on selected physiological variables were collected from speed training group and control group. Similarly after the completion of twelve weeks post training data of were collected. To find out the effects of speed training programme on selected physiological variables of school boys, paired t-test was used. The level of significance was set at 0.05.

Result & Discussion:

The personal data of the subjects were presented in Table 1 to ascertain the homogeneity of the groups.

Age (year)	Height (cm)		Weight (kg)		
	Mean	SD	Mean	SD	
17.18	2.21	160.70	3.42	56.42	3.24

Table 1 showed that the mean age of the subjects were 17.18±2.21 years. The mean height and weight was 160.70±3.42 cm and 56.42±3.24 kg respectively.

The findings pertaining to mean, standard deviation (SD) and t-ratio of pre-test and post-test for speed training groups and control group of the subjects had been presented in Table 2.

Group	Variables	Mean	SD	t-ratio	
Speed Training Group	Resting Heart Rate (bpm)	Pre-Test	75.13	2.70	4.887*
		Post-Test	71.93	3.01	
	Resting Systolic Blood Pressure (mmHg)	Pre-Test	122.13	2.10	6.925*
		Post-Test	119.53	1.73	
	Resting Diastolic Blood Pressure (mmHg)	Pre-Test	81.87	2.07	3.886*
		Post-Test	80.27	1.16	
Physical Fitness Index (%)	Pre-Test	74.84	8.79	19.943*	
	Post-Test	88.82	11.21		
Control Group	Resting Heart Rate (bpm)	Pre-Test	76.27	2.40	0.544
		Post-Test	76.07	3.13	
	Resting Systolic Blood Pressure (mmHg)	Pre-Test	121.87	2.00	0.280
		Post-Test	121.73	1.53	
	Resting Diastolic Blood Pressure (mmHg)	Pre-Test	82.00	1.07	0.654
		Post-Test	82.27	1.44	
Physical Fitness Index (%)	Pre-Test	66.14	12.41	0.739	
	Post-Test	64.54	11.98		
t.05 (14) = 2.145		*. Significant at 0.05 level			

Table 2 indicated that the mean value of resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and physical fitness index in pre-test & post-test for speed training were 75.13±2.70 beat per minute, 71.93±3.01 beat per minute, 122.13±2.10 mmHg, 119.53±1.73 mmHg, 81.87±2.07 mmHg, 80.27±1.16 mmHg, 74.84±8.79% and 88.82±11.21% respectively.

Also the mean value of resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and physical fitness index in pre-test & post-test for control group were 76.27±2.40 beat per minute, 76.07±3.13 beat per minute, 121.87±2.00 mmHg, 121.73±1.53 mmHg, 82.00±1.07 mmHg, 82.27±1.44 mmHg, 66.14±12.41% and 64.54±11.98% respectively.

Table 2 also indicated that the t-ratio pre-test and post-test of resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and physical fitness index for speed training were 4.887, 6.925, 3.886 and 19.943 respectively. All these t-ratio were significant at 5% level of confidence. Whereas, no significant difference between pre-test and post-test of selected physiological variables of control group.

CONCLUSIONS

Within the limitations of the study, it may reasonably be concluded that speed training is effective in improving the performance of selected physiological variables (resting heart rate, resting systolic & diastolic blood pressure and physical fitness index) of school boys than that of the control group.

REFERENCES

1. Das, S.K. and Mahapatra, S. — Determination of physical fitness index (PFI) with modified Harvard Step Test (HST) in young men and women. *Ind. J. Physiol and Allied Sci.*, Vol 47(2): 73-75, 1993
2. Francis KT. Fitness assessment using step tests. *ComprTher* 13:36-41.1987.
3. Shashiala, L. and Geetanjali, H. 2014. Efficiency of Recovery pulse rate as an index of physical fitness. *Indian Journal of fundamental and applied life science.* vol 4(2), april-june, pp 216-219
4. Wuest, D.A. and Bucher, C.A. Historical foundations of physical education and sport. 13th Ed. Boston, Mass: WCB/McGraw Hill; 1999:146-193.
5. Chakraborty, Jishu Need for integrated approach. Abstract, International conference on health, sports and physical fitness, 1995. 4.
6. Culos-Reed SN, Carlson LE, Daroux LM, Hatley-Aldous S. (2005). A pilot study of yoga for breast cancer survivors: physical and physiological benefits. *Psycho-Oncology*. Epublshed ahead of print on December, 23.
7. Fondran Kristine M. (2008). The effect of Surya Namaskara yoga practice on resting heart rate and blood pressure, flexibility, upper body muscle endurance and perceived well-being in healthy adults. Unpublished Master's Thesis. Cleveland state university.
8. Lega Sushil. (2010). Effects of yoga training on cardio-respiratory functions of school children. *Journal of Physical Education and Yoga.* 01(01):22-32.
9. Lohan, Rajesh. (2002). Effect of asanas and Pranayamas on physical and physiological components of boys between age group 12-16 years. *Journal of Adopted Physical Education and Yoga.* 7(2):47-55.
10. Suresh N.B. and Prakash S.M. (2011). Comparison of physical fitness variables of 18-25 years old Volley ball players belonging to different districts of University of Mysore. *Journal of Arts and Culture.* 2(2), 34-36.
11. Vishaw Gaurav, Amandeep Singh and Sukhdev Singh. (2011). Comparison of physical fitness variables between individual games and team games athletes, *Indian Journal of Science and Technolog.* 4(5), 547-549.
12. Clarke H. Harison. (2002). Application of measurement to Physical Education, 370 (1987)
13. Dutt S., A Study of Health Related Physical and Motor Fitness in Boys aged 8-18 years, 170, 23-30.
14. Published by Child Development Publications of the Society For Research In Child Development, INC. 95, /Vol. 2% No. 4. (1964)
15. Thomas Kirk Cureton. (1964). Improving the Physical Fitness of Youth, A Report of Research in the Sports-Fitness School of the University of Illinois. Lafayette, Ind.: Child Development, Publications of the Society for Research in Child Development
16. Uppal A.K. (2004). Physical Fitness and Wellness, Friends Publications (India), 134.
17. Doncash Seaton et al. (1976). Basic Book of Sports. Englewood Cliffs, N.J.: Prentice Hall, Inc. Bartow and McGee.