International Journal of Applied and Advanced Scientific Research (IJAASR)
Impact Factor: 5.655, ISSN (Online): 2456 - 3080
(www.dvpublication.com) Volume 2, Issue 2, 2017

EFFECT OF SLOW CONTINUOUS RUN SPEED CONTINUOUS RUN AND EXTENSIVE INTERVAL RUN TRAINING ON CARDIO RESPIRATORY ENDURANCE OF 16-18 YEARS BOYS

Dr. D. Sakthignanavel
Professor, Department of Physical Education and Sports, Pondicherry University, Puducherry

Cite This Article: Dr. D. Sakthignanavel, "Effect of Slow Continuous Run Speed Continuous Run and Extensive Interval Run Training on Cardio Respiratory Endurance of 16-18 Years Boys", International Journal of Applied and Advanced Scientific Research, Volume 2, Issue 2, Page Number 350-353, 2017.

Abstract:

The purpose of the study was to find out the effect of slow continuous run, speed continuous run and extensive interval run training on cardio respiratory endurance of 16-18 years boys. For this study 80(Eighty) healthy untrained subjects were selected randomly and divided into four groups. Group 'A' underwent slow continuous run training (SLCRG) Group 'B' for the renovation speed of continuous run training (SPCRG), Group 'C' underwent extensive interval of the run training (EIRTG). Group 'D' acted the control group (CG), CG did not undergoes any special training program in addition to their regular program. Training was provided for three days a week morning session and evening session only. The treatment was for a period of 12 weeks. The Cardio Respiratory Endurance was measured by Co-oppers 12 minutes run and walk test. Prior to and after the end of practice period all the subjects were tested on Cardio Respiratory Endurance. The data for training periods (pre-test) were obtained before and after the training period of 12 weeks (post-test). The obtained 'F' value of 2.98 for post test scores on Cardio Respiratory Endurance , which was greater than the table value of 2.72 for significance with df 3 and 76 at 0.05 level of confidence. The result of the study reveals that there was significant improvement on Cardio Respiratory Endurance has been significantly improved in extensive interval run training group compared with other groups.

Key Words: Slow Continuous Run, Speed Continuous Run, Extensive Interval Run & Speed

Introduction:

Cardio-respiratory endurance extends to a period of time the process of one's closeness to the capacity of the aerobic capacity. It is based on the time to complete the step to increase the endurance of the virtual work load and improve the ability to work**.** Endurance associated with cardio respiratory system is characterized by a physiological fitness and is related to the phenomenon of wind. In this instance exercise is carried on for sufficient duration and intensity to stress the incubatory and respiratory systems [(1)]. Such endurance enables the individual to sustain moderate contraction of skeletal muscles over and circulatory system can be made over efficient through training [(2)]. The best test to measure this fact of motor performance is distance running and treadmill run**.** Cardio respiratory endurance, time for a relatively long period of time is a cardio illustrate the way of the contraction in the respiratory system, Veneration of the maximum adjustment of physical variables, namely the oxygen uptake of muscles in large groups for large groups of muscles and relevantly may be necessary as training the following, pulse rate, vital capacity, blood pressure, and breath holding time, muscle strength, effects the endurance [(3)].

Interval training is a type of training that involves a series of low- to high-intensity workouts interspersed with rest or relief periods.[4] The high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods involve activity of lower intensity.[5] Varying the intensity of effort exercises the heart muscle, providing a cardiovascular workout, improving aerobic capacity and permitting the person to exercise for longer and/or at more intense levels.[6]Interval training can refer to the organization of any cardiovascular workout. In overweight and obese individuals, high intensity interval training employing 4 sets of 4-minute intervals has been shown to improve VO2max to a greater extent than is caloric moderate continuous training, as well as to a greater extent than with a protocol using shorter, 1-minute intervals .[7] Some exercisers find interval training less monotonous than continuous-intensity exercise.[8] A number of studies confirm that in young and healthy individuals, sprint interval training appears to be as effective as continuous endurance training of moderate intensity, and has the benefit of requiring a reduced time commitment.[7] There is some evidence that interval training is also beneficial for older individuals and for those with coronary artery disease, but further study is required.[9][10]Interval training can improve many aspects of human physiology. In athletes, it can enhance lactate threshold and increase VO2max. Lactate threshold has been shown to be a significant factor in determining performance for long distance running events. An increase in an athlete's VO2max allows them to intake more oxygen while exercising, enhancing the capability to sustain larger spans of aerobic effort.[11][12] Studies have also shown interval training can induce endurance-like adoptions, corresponding to increased capacity for whole body and skeletal muscle lipid oxidation and enhanced peripheral vascular structure and function. A combination of interval training and continuous exercise increases cardiovascular fitness and raises HDL-cholesterol, which reduces the risk of cardiovascular disease. This type of

training also decreases waist circumference, waist-to-hip ratio (WRH), and the sum of skin folds on the body. This method of training may be more effective at inducing fat loss than simply training at a moderate intensity for the same duration.

De-Limitations:

- ✓ The study was delimited to eighty state level middle and long distance runners' school boys from Pondicherry.
- ✓ The age of the subjects ranged between 16 to 18 years.
- ✓ Cardio Respiratory Endurance measured by Cooppers 12 minutes run/ walk test
- ✓ Training period was fixed for twelve weeks.

Limitations:

The following were limitations of the study:

- ✓ The subject's health habits, rest period, life-style, day-to-day activities were not considered.
- ✓ The uncontrollable factors such as climatic conditions atmospheric temperature and humidity were not taken into consideration during the testing period.
- ✓ The heredity and family factors could not be controlled.
- ✓ The food habits and the general mood of the subjects were not considered.
- ✓ The internal and external factors which may discourage or motivate the subject while performing the physical fitness test could not be controlled.

Hypothesis:

It was hypothesized that there would be significant difference among the slow continuous run, speed continuous run and extensive interval run training on Cardio Respiratory Endurance of 16-18 years boys

Methodology:

The purpose of the study was to find out the effect of slow continuous run, speed continuous run and extensive interval run training on cardio respiratory endurance of 16-18 years boys. For this study 80(Eighty) healthy untrained subjects were selected randomly and divided into four groups. Group 'A' underwent slow continuous run training (SLCRG) Group 'B' for the renovation speed of continuous run training (SPCRG), Group 'C' underwent extensive interval of the run training (EIRTG). Group 'D' acted the control group (CG),CG did not undergoes any special training program in addition to their regular program. Training was provided for three days a week morning session and evening session only. The treatment was for a period of 12 weeks. The Cardio Respiratory Endurance was measured by Coopers' 12 minutes run and walk test. Prior to and after the end of practice period all the subjects were tested on Cardio Respiratory Endurance. The data for training periods (pre-test) were obtained before and after the training period of 12 weeks (post-test).

Analysis of Data and Interpretation:

Analysis of co-variance was used to determine the differences, if any, among the adjusted post test means on each selected criterion variables separately. Whenever the 'F' ratio for adjusted post-test was found to be significant, the Scheff's test was applied ass post-hoc test to determine the paired mean differences. The level of significance was fixed at 0.05 level of confidence to test the 'F' ratio obtained by analysis of covariance

Table 1: Analysis of Covariance for Pre Test and Post Test Data on Cardio Respiratory Endurance of Slow Continuous running group, Fast Continuous Running group, Extensive Interval run training group and control group

	SLCRG	SPCRG	EIRTG	CG	SV	Sum of Square	DF	Mean Square	'F' Ratio
Pre Test Mean	2873	2860	2868	2817	B	39437.5	3	13145.83	0.41
SD	89	87	289	165	W	2392312.5	76	31477.79	
Post- Test Mean	2960	2988	3150	2827	B	1052460	3	350820	12.90*
SD	239	143	141	102	W	2065968	76	27183	
Adjusted Post-Test Mean	2954	2987	3146	2839	B	953965	3	317988	12.92*
					W	1845648	75	24608	

Significant at 0.05 level of confidence

The table I Shows that the pre test mean values on cardio respiratory endurance for slow continuous running group (SLCRG), speed continuous running group (SPCRG), extensive interval run training group (EIRTG) and control groups (CG) were 2847, 2860, 2868 and 2817 respectively. The obtained 'F' value of 0.41 for pre test scores on cardio respiratory endurance, which was lesser than the table value of 2.72 for significance with df 3 and 76 at 0.05 level of confidence. The post test mean values on Cardio respiratory endurance for slow continuous running group (SLCRG), speed continuous running group (SPCRG), extensive interval run training group (EIRTG) and control groups (CG) were 2960, 2988, 3150 and 2827 respectively. The obtained 'F' value of 12.90 for post test scores on cardio respiratory endurance, which was greater than the table value of 2.72 for significance with df 3 and 76 at 0.05 level of confidence. The adjusted post test mean values on cardio respiratory endurance for slow continuous running group (SLCRG), speed continuous running group (SPCRG), extensive interval run training group (EIRTG) and control groups (CG) were 2954, 2987, 3146 and 28397respectively. The obtained 'F' value of 12.92for adjusted post test scores on cardiovascular endurance,

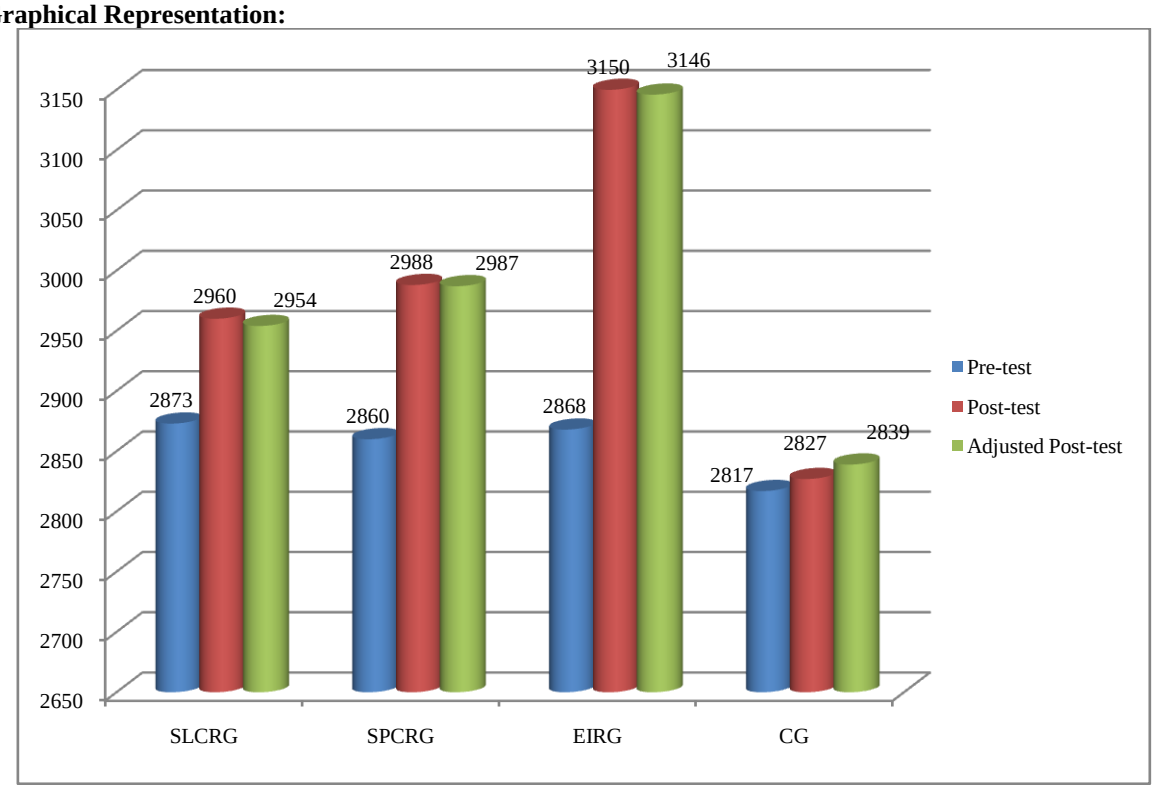
which was higher than the table value of 2.72 for significance with df 3 and 75 at 0.05 level of confidence. The result of the study showed that there was a significant difference among slow continuous running group (SLCRG), speed continuous running group (SPCRG), extensive interval run training group (EIRTG) and control group (CG) on cardio respiratory endurance.

Table 2: Scheffe's post hoc test for Cardio Respiratory Endurance

SLCRG	SPCRG	EIRTG	CG	MD	CI
2954	2987			33	163.38
2954		3146		192*	
2954			2839	115	
	2987	3146		159	
	2987		2839	148	
		3146	2839	307*	

The table 2 Shows that the adjusted post test mean differences of slow continuous running group (SLCRG) and extensive interval run training group (EIRTG) and extensive interval run training group (EIRTG) and control group (CG) were 192 and 307 respectively. They were greater than the confidence interval value 163.38 at 0.05 levels, which indicate that there was a significant difference among the group of slow continuous running (SLCRG) and extensive interval run training group (EIRTG) and extensive interval run training group (EIRTG) and control group (CG). The adjusted mean difference of slow continuous running (SLCRG) and speed continuous running group (FCRG), slow continuous running (SLCRG) and control group (CG), speed continuous running group (SPCRG) and extensive interval run training group (EIRTG) and speed continuous running group (SPCRG) and control group (CG) were 33, 115,159 and 148 respectively. They were lesser than the confidence interval value 163.38 at 0.05 level, which indicate that there is no significant differences exist among the group of slow continuous running (SCRG) and speed continuous running group (SPCRG), slow continuous running (SLCRG) and Control group (CG), speed continuous running group (SPCRG) and extensive interval run training group (EIRTG) and speed continuous running group (SPCRG) and control group (CG).

Graphical Representation:



Result and Conclusion:

The study revealed that there were no significant differences among the control group and slow continuous running group and the speed continuous running group. There was also no significant between extensive interval run training group and the speed continuous running group. Compared with the extensive interval run training group and control group, extensive interval run training group and slow continuous running group shows significantly improvement on cardiovascular endurance. The result of the study reveals that extensive interval run training group only shows the significant improvement on cardio respiratory endurance. Hence the research hypotheses are partially accepted.

References:

1. Harold M Barrow and Rosemary (1976) A practical Approach to Measurement in Physical Education, Philadelphia: Febiger and Fbiger Ltd, p113.

2. Harrison H. Clark and David H. Clark (1985) Application of measurement to health in physical Education, (Englewood Cliffs: Prentice hall Inc.
3. Vere Skubic and Hodgkins (1963) “Cardio-vascular efficiency test for girls and women”, Research quarterly, 33:191.
4. Baekkerud, Fredrik H.; Solberg, Frederic; Leinan, Ingeborg M.; Wisloff, Ulrik; Karlsen, Trine; Rognmo, Oivind (March 2016). "Comparison of Three Popular Exercise Modalities on V˙O2max in Overweight and Obese." Med Sci Sports Exerc. 48 (3): 491-498.
5. "Run up your workout with interval training". Mayo Clinic. Retrieved 4 June2014.
6. Gist, Nicholas H. Fedewa, Michael V. Dishman, Rod K. Cureton, Kirk J. (16 October 2013). "Sprint Interval Training Effects on Aerobic Capacity: A Systematic Review and Meta-Analysis". Sports Medicine. 44 (2): 269-279.
7. Cornish, Aimee K.; Broadbent, Suzanne; Cheema, Birinder S. (23 October 2010). "Interval training for patients with coronary artery disease: a systematic review". European Journal of Applied Phy. 111 (4): 579–589.
8. Giala MJ, Gillen JB, Percival ME (2014). "Physiological and Health-related Adaptions to Low-Volume Interval training: Influences of Nutrition and sex". Sports Medicine. 44 (2): 127-137. .
9. Osawa Y, Azuma K, Tavata S, et al. (2014). "Effects of 16-week high intensity interval training using upper and lower body ergometers on aerobic fitness and morphological changes in healthy men: preliminary study". Open Access journal of Sports Medicine. 5: 257-265.
10. Mazurek K, Karwczyk K, Zemijeeski P, Norkoski H, Czajkowska (2014). "Effects of aerobic interval training versus continuous moderate exercise programme on aerobic and anaerobic capacity, somatic features and blood lipid profile in collegiate females". Ann Agric Environ Med. 21 (4): 844-849.
11. AE, Lee SJ, Rognmo Ø, et al. (2008). "Aerobic interval training vs. continuous moderate exercise as a treatment for the metabolic syndrome- "A Pilot Study"". Circulation. 118 (4): 346-354.
12. Roxburgh BH, Nolan PB, Weatherwax RM, Dalleck LC (2014). "Is Moderate Intensity Exercise Training Combined with High Intensity Interval Training More Effective at Improving Cardiorespiratory Fitness than Moderate Intensity Exercise Training Alone". Journal of Sports Science & Medicine. 13 (3): 702-737.