OPEN ACCESS

Volume: 12

Special Issue: 2

Month: February

Year: 2024

E-ISSN: 2582-6190

Impact Factor: 4.118

Received: 19.12.2023

Accepted: 18.01.2024

Published: 14.02.2024

Citation:
Suthamathi, T. "Effect of Interval Training on Selected Fitness Variable among Athletes." *ComFin Research*, vol. 12, no. S2, 2024, pp. 190–92.

DOI:
https://doi.org/10.34293/commerce.v12iS2-Feb.7580

Effect of Interval Training on Selected Fitness Variable among Athletes

T. Suthamathi
Directress of Physical Education /Associate Professor
Seethalakshmi Ramaswami College, Tiruchirapalli, Tamil Nadu, India

Abstract

The objective of the research was to determine how interval training affected some performance-related fitness variables in athletes. Thirty athletes from schools in the Tiruchirappalli region were chosen at random to serve as subjects. The pupils were between the ages of 14 and 16. The chosen participants were split into two groups: the interval training group and the control group. Group A received interval training twice a week for eight weeks. Group B served as the control group; they went about their regular business as usual and did not participate in any unique activities. The 50-yard sprint and vertical leap tests were used to evaluate the performance-related fitness variables that were chosen, namely power and speed. Each subject's data were gathered both before and after the training period and statistically analysed using the Analysis of Covariance (ANCOVA) to determine the significant difference between the experimental and control groups on each variable separately, and the dependent "t" test to determine the significant improvement on chosen criterion variables. All the cases To test the hypotheses, a fixed level of confidence of 0.05 was used. It was discovered that the athletes' performance-related fitness variable significantly improved in the interval training group. On a few performance-related fitness variables, it was discovered that there was a substantial difference between the interval training and control groups.

Keywords: Interval Training, Speed, Power and Athletes

Introduction

Several methods of training are frequently employed to increase an athlete's power and work production. The capacity of an athlete to accelerate their own body, an opponent, or an object is required for optimal performance in sports, whether they are sprinting, jumping, or throwing. An exercise regimen that alternates from low- to high-intensity sessions and rest or recovery intervals is known as interval training. While lower-intensity activity occurs during the recovery intervals, the high-intensity phases are usually at or near anaerobic exercise.

Methodology

Subjects and Variables

Thirty athletes from schools in Tiruchirappalli were chosen at random to serve as subjects. The pupils were between the ages of 14 and 16. The chosen participants were split into two groups: The interval training group and the control group. Group A received interval training twice a week for eight weeks. Group B served as the control group; they went

about their regular business as usual and did not participate in any unique activities. A 50-yard sprint and the vertical jump test were used to quantify the speed and power that were chosen as the criteria variables.

Training Programme

The exercise program is designed to be completed in one session per day, each lasting approximately 45 minutes to an hour. As part of the training program, participants completed two training sessions per week for eight weeks. Kettlebell swings, air squats, burpees, incline rows, push-ups, high jumps, up-and- down plank raises, and side burpees are all interval exercises. Statistical method data elements were collected from each participant before and after the training period. For statistical analysis, a dependent t-test was used to determine whether there was a significant improvement in a number of criterion variables. Analysis of covariance (ANCOVA) was then used to independently determine for each variable whether there was a significant difference between the experimental group and the control group. To test the hypotheses, a confidence level of 0.05 was used in all cases. DATA ANALYSIS Analysis of the t-test data obtained for the mean speed and force before and after the interval training test and for the control group is presented in Table I

Statistical Method

Before and after the training period, data were gathered from each subject. The dependent "t" test was used for statistical analysis to determine whether there had been a significant improvement on a set of criterion variables. Analysis of Covariance (ANCOVA) was then used to determine whether there had been a significant difference between the experimental and control groups on each variable independently. The 0.05 level of confidence was set as the standard for all cases in order to test the hypotheses.

Analysis of the Data

The analysis of dependent 't' test on the data obtained for speed and power of the pre- test and post-test means of interval training and control groups have been analysed and presented in table I.

Table I The Summary of Mean and Dependent't' Test for the Pre and Post Tests on Speed and Power of Interval Training and Control Groups

S.N	Variable	Test	Interval Training group	Control group
1	Speed	Pre test mean	7.55	7.621
		Post test mean	7.45	7.622
		't' test	7.26*	0.07
2	Power	Pre test mean	42.93	41.8
		Post test mean	49.13	41.6
		't' test	8.19*	0.31

*Significant at 0.05 level. (The table value required for .05 level of significance with df 14 is 2.145).

Table I shows that the mean pre-test value of the performance-related fitness variables, namely speed and strength, in the interval training group and the control group are 7.55 and 7.621 and 42.93 and 41. 8, respectively, and that the average contribution-test value is 7.45 and 7.622 and 49.13 and 41.6 respectively. The obtained dependent values of the coefficient t between the average speed and power before and after the test in the interval training group are 7.26 and 8.19. The dependent t-coefficient values obtained between the average speed and power before and after

the test in the control group are 0.07 and 0.31, respectively. The analysis of covariance of speed and power of the interval training groups and the control groups is presented in Table II.

Table II Ancova of Interval Training and Control Groups on Speed and Power

S.No	Variable	Adjusted post test mean		Source	SS	df	MS	F
		DJT	CON					
1.	Speed	7.48	7.58	SSB	0.08	1	0.08	35.35*
				SSW	0.06	27	0.0022	
2.	Power	48.64	42.09	SSB	319.85	1	319.85	49.34*
				SSW	175.04	27	6.48	

*Significant at .05 level of confidence (The table values required for significance at .05 level of confidence with df 1 and 27 is 4.21)

Table II shows that the post-test adjusted mean speed and agility values for the interval training and control groups are 7.48 and 7.58 and 48.64 and 42.09, respectively. The speed and agility F-factor values obtained are 35.35 and 25.08, which are higher than the table value of 4.21, with df 1 and 27 required for significance at the 0.05 level. Since the F value is greater than the table value, this indicates that there is a significant difference in the selected performance related fitness variable, i.e. speed and strength, between the adjusted

post-test means of the interval training groups and the control groups. The results of the study showed that there was a significant difference between the post-test adjusted mean of the interval training group and the control group in athletes' speed and strength. The mean corrected speed and power values before and after the test are shown graphically in Figures I and II.

Conclusion

There was a significant improvement on speed and power due to the effects of the interval training among athletes. There was a significance difference between interval training group and control group on speed and power among athletes.

References

1. Blackey JB, Southard D. (1987) The combined effects of weight training and interval on dynamic leg strength and power. J Appl Sport Sci Res. 1:14-16.
2. Bobbert M F. (1990). Interval training as a training method for jumping ability. Sports Med, 97–22.22.
3. Chimera N J, Swanik K A, Swanik C B. et al., (2004). Effects of interval training on muscle activation strategies and performance in female athletes. J Athl Train., 2004. 3924–31.31.
4. Gehri DJ, Richard MD, Kleiner DM and Kirkendall DT. (1998). A comparison of interval training techniques for improving vertical jump ability and energy production. J strength Cond Res. 12:85-89.
5. Kotzamanidis C. (2006). Effect of interval training on running performance and vertical jumping in prepubertal boys. J Strength Cond Res., 20441–445.445.
6. Little A D, Wilson G J, Ostrowski K J. (1996). Enhancing performance: maximal power versus combined weights and interval training. J Strength Cond Res., 10173–179.179.
7. Matavuji D, et al., (2001).Effects of interval training on jumping performance in junior athletes Sports Medicine Physical Fitness. 41(2), 159-64.