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Effect of interval training on selected performance related physical fitness variable among athletes

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Abstract

The purpose of the study was to find out the impact of interval training on selected performance related fitness variable among athletes. A total of thirty athletes players from Coimbatore district schools were selected randomly as subjects. The age of the students ranged from 14 to 16 years. The selected subjects were divided into two groups namely interval training group and control group, Group A underwent interval training for eight weeks of two days per weeks. Group B acted as control group, who were not engaged in any special activities other than their daily routine. The Selected performance related fitness variable namely speed and power were measured by 50 yards dash and vertical jump test. The data were collected from each subject before and after the training period and statistically analyzed by dependent 't' test which is used to find out the significant improvement on selected criterion variables and Analysis of Covariance (ANCOVA) was used to find out the significant difference between the experimental and control groups on each variables separately, All the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses. It was found that there was a significant improvement in interval training group on selected performance related physical fitness variable among athlete's players. It was found that there was a significant difference between the interval training and control groups on selected performance related physical fitness variable.

Keywords: Interval, speed, power and athletes players

Introduction

A variety of training regimens are commonly used to improve power and work output of the athlete. Whether in sprinting, jumping, or throwing, the ability of the athlete to accelerate one's own body, an opponent, or an implement is crucial to sport performance. Interval training is a type of training that involves a series of low- to high-intensity workouts interspersed with rest or relief periods. The high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods involve activity of lower intensity.

Methodology

Subjects and Variables

A total of thirty athletes players from Coimbatore district schools were selected randomly as subjects. The age of the students ranged from 14 to 16 years. The selected subjects were divided into two groups namely interval training group and control group, Group A underwent interval training for eight weeks of two days per weeks. Group B acted as control group, who were not engaged in any special activities other than their daily routine. The Selected as criterion variable namely speed and power were measured by 50 yards dash and vertical jump test.

Training Programme

The training program was scheduled for one session a day each session lasted between forty five minutes to one hour approximately. Training programme was administered to the athletes players for eight weeks with two training units per week. The interval training exercises are kettle bell swings, squat with overhead press, burpees, bent over row, jump rope, push ups, high jumps, mountain climbers high to low plank and lateral burpees.

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Statistical Technique

The data were collected from each subject before and after the training period and statistically analyzed by dependent ‘t’ test which is used to find out the significant improvement on selected criterion variables and Analysis of Covariance (ANCOVA) was used to find out the significant difference between the experimental and control groups on each variables separately. All the cases 0.05 level of confidence

was fixed as a level of confidence 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 1.

Table 1: 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).

The Table-1 show that the pre-test mean value of performance related *physical* fitness variable namely speed and power in interval training group and control group are 7.55 & 7.621 and 42.93 & 41.8 respectively and the post-test means are 7.45 & 7.622 and 49.13 & 41.6 respectively. The obtained dependent t-ratio values between the pre and post-test means of speed and Power in interval training group are 7.26 and 8.19. The obtained dependent t-ratio values between the pre and post-test means of speed and Power in control group are 0.07 and 0.31 respectively. The table value required for

significant difference with df 14 at 0.05 level is 2.145. Since, the obtained ‘t’ ratio value of experimental group is greater than the table value, it is understood that interval training group had significantly improved the speed and Power. However, the control group has not improved significantly because the obtained ‘t’ value is less than the table value, as they were not subjected to any specific training. The analysis of covariance on speed and Power of interval training and control groups have been analysed and presented in Table 2.

Table 2: 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)

The table 2 shows that the adjusted post-test means of speed and agility of interval training and control groups are 7.48 & 7.58 and 48.64 & 42.09 respectively. The obtained ‘F’ ratio value of speed and agility 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 0.05 level. Since the value of F- ratio is higher than the table value, it indicates that there is significant difference among the adjusted post-test means of interval

training and control groups on selected performance related physical fitness variable namely speed and power. The results of the study showed that there was a significance difference between the adjusted post-test mean of interval training group and control group on speed and power among athletes players. The pre, post and adjusted post-test mean value on Speed and power are graphically presented in figure- 1 & 2.

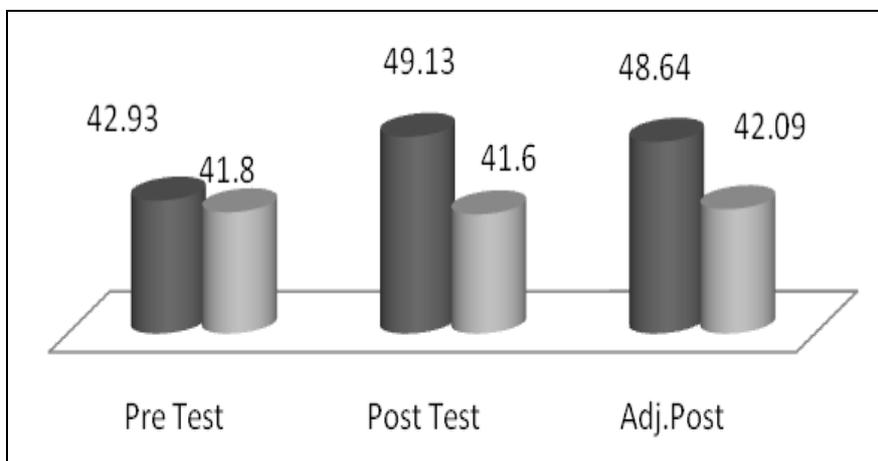


Fig 1: mean values of interval Training Group and Control Group On Speed

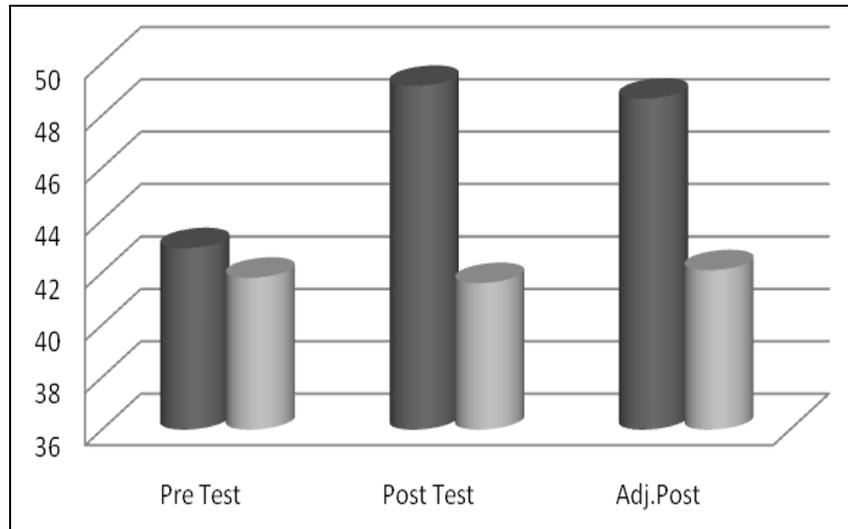


Fig 2: mean values of interval Jump Training Group and Control Group On Power

Discussion

A wide variety of training studies shows that interval can improve performance in vertical jumping, long jumping, sprinting and sprint cycling. It also appears that a relatively small amount of interval training is required to improve performance in these tasks. Just one or two types of interval exercise completed 1-3 times a week for 6-12 weeks can significantly improve motor performance (Blackey & Southard, 1987; Gehri *et al.*, 1998; Matavulj *et al.*, 2001) ^[1, 4, 7]. In addition, several studies on interval training have demonstrated that a significant increase in vertical jump height of ~10% was accompanied with similar increase in sport-specific jumping, (Bobbert, 1990; Little, Wilson & Ostrowski, 1996) ^[2, 6] sprinting (Chimera *et al.*, 2004; Kotzamanidis, 2006) ^[3] and distance-running performance. Also consistent with previous studies found that intervals exercises (BWT) with depth jumping and rebound jumping characteristics are best used in developing muscle strength of the lower extremities.

Conclusion

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

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