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Effect of Circuit Training and Interval Training on Resting Heart Rate Among Women Cricket Players

KEYWORDS: Circuit Training, Interval Training and Resting Heart Rate

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ABSTRACT *The purpose of the study was to find out the influence of circuit training and interval training on resting heart rate among women cricket players. Forty five women cricket players were randomly selected subject from studying in Annamalai University, India and their age ranged between 20 and 24 years. The selected subjects were divided into three groups with fifteen subjects in each group. Group I underwent circuit training, Group II underwent interval training and Group III served as control. During the training period the two experimental groups' underwent their respective training program for 12 weeks and the training programs were carried out for about from 45 to 60 minutes per day. A physiological analysis was resting heart rate to find out the significant effect of the training programs on women cricket players. The data collected from the three groups before and after the experimental training period and statistically examined using the analysis of covariance. The level of significance confidence was fixed at 0.05. The results of the study shows that 12-weeks of training program have significantly decreased on resting heart rate level due to circuit training and interval training. However, interval training was found to be better than circuit training in reduced on resting heart rate level.*

INTRODUCTION

In general, a person's resting heart rate indicates their basic fitness level. The stronger the heart, the more blood it can pump during each contraction, and the less frequently it needs to beat to get adequate blood flow and oxygen to the body tissues. A well trained athlete can have a very low resting heart rate and pump more blood than an untrained and sedentary individual.

Physical exercise boosts the immune system, and helps prevent such as heart disease, cardiovascular disease, Type 2 diabetes and obesity (Stampfer M. J et al, 2000). It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self-esteem (Manson J. E et al, 2001). The high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods may involve either complete rest or activity of lower intensity. (Heyward, Vivian H, 2006)

METHODOLOGY

Selection of Subjects

To achieve the purpose of this study, Forty five women cricket players were randomly selected as subjects from studying in Annamalai University, India, and their age ranged between 20 and 24 years.

Experimental Design

The purpose of the present study was to find out the effects of circuit training and interval training on resting pulse rate among women cricket players. The selected subjects were divided into three groups with fifteen subjects in each group. Group I underwent circuit training, Group II underwent interval training, and Group III served as control. During the training period the two experimental groups underwent their respective training program for 12 weeks (4 days/ week) and the training programs were carried out for about from 45 to 60 minutes per day.

Training Program

During the experimental period each training session consisted of 45 to 60 minutes session was divided into five stages: warm-up (5 to 10 minutes); specific training (30 to 40 minutes); warm- down (5 to 10 minutes) and stretching (5 minutes). Circuit Training program consisted of the six stations. It is a technique that involves moving from one station to another, and performing exercise working on a different muscle group until each muscle has been worked. Interval training involved alternate high intensity exercise with recovery periods.

Statistical Analysis

Resting pulse rate were assessed before and after 12 weeks for both the experimental training programs. The data collected from the three groups before and after the experimental training period were statistically examined to find out the significant improvement using the analysis of covariance (ANCOVA). The significant the level of confidence was fixed at 0.05.

RESULTS

Table I shows the mean and 'F' ratio on resting pulse rate of Circuit training, Interval training and control groups.

Table I
ANCOVA OF RESTING PULSE RATE BETWEEN CIRCUIT TRAINING, INTERVAL TRAINING AND CONTROL GROUPS

Test	Circuit training group	Interval training group	Control group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	71.23	70.9	71.44	Between	2.22	2	1.11	0.78
S.D.	1.05	1.26	1.26	Within	59.74	42	1.42	

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Post Test								
Mean	69.6	69.17	71.05	Be-tween	28.97	2	14.48	7.03*
S.D.	2.11	0.98	0.89	Within	86.51	42	2.06	
Adjusted Post Test								
Mean	69.58	69.299	70.94	Be-tween	22.48	2	11.24	6.12*
				Within	75.37	41	1.84	

***Significant at 0.05 level of confidence.**

Table I shows that the adjusted post-test mean values of resting pulse rate for Circuit training, Interval training and control group were 69.58, 69.299 and 70.94 bpm respectively. The obtained 'F' ratio value of 6.12 for adjusted post-test means on resting pulse rate was greater than the table value of 3.33 for significance with df 2 and 41 at .05 level of confidence. The adjusted post test mean values for Circuit training, Interval training and control groups on resting pulse rate were graphically presented in figure I.

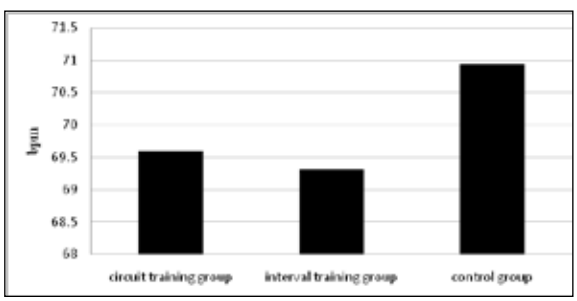

Figure I

DISCUSSION

John Zhang (2007) was investigate that study the total power reflecting the total autonomic activity was significantly decreased immediately after exercise and after the 20-minute rest period at the end of the exercise session in both the control and experimental groups. The present study of exercise and orthotics showed a significant decrease in BP and increase in HRV over the five month study period.

CONCLUSION

The results of the study revealed that the 12-weeks training program have significantly decreased of positively the systolic blood pressure, diastolic blood pressure and resting pulse rate level among women cricket players. There was a significant decrease on systolic blood pressure, diastolic blood pressure and resting pulse rate level due to circuit training and interval training. The results of the current study suggest that both training programs were found to be better than control group. However, it was concluded that interval training was improved better than circuit training on systolic blood pressure, diastolic blood pressure and resting pulse rate level among women cricket players.

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