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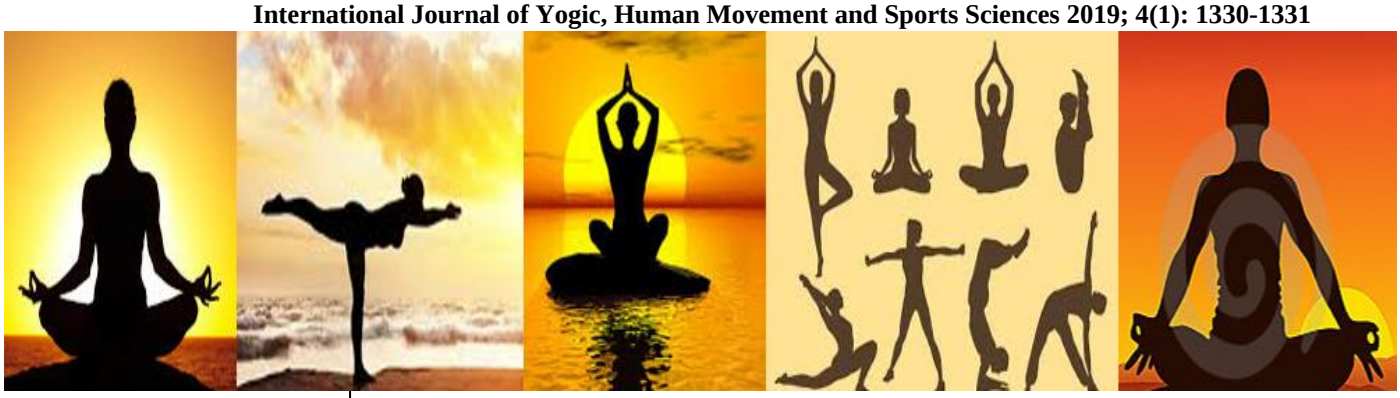

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Effect of circuit training on heart rate among school students

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Abstract
The purpose of the present study was to investigate the effect of circuit training on heart rate among school students. To achieve the purpose of the study thirty school students were selected from Bangalore, Karnataka, India during the year 2019. The subject's age ranges from 14 to 17 years. The selected students were divided into two equal groups consists of 15 men students each namely experimental group and control group. The experimental group underwent an circuit training programme for six weeks. The control group was not taking part in any training during the course of the study. Heart rate was taken as criterion variable in this study. The selected subjects were tested on Heart rate was measured through heart rate monitor. Pre-test was taken before the training period and post- test was measured immediately after the six week training period. Statistical technique't' ratio was used to analyse the means of the pre-test and post test data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variable. The difference is found due to circuit training given to the experimental group on Heart rate when compared to control group.

Keywords: Yogic practice, heart rate and 't' ratio.

Introduction
Today, sports have become a part and parcel of our culture. It is being influenced and does influence all our social institutions including education, economics, arts, politics, law, mass communication and even international diplomacy. In fact its scope is awesome.
Circuit training was first proposed by Morgan and Adamson (1959) [2] of Leeds University as a method for developing general fitness. Their initial circuit training routine consisted of several stations arranged in a circle (hence the name circuit training) so as to work muscle groups alternately from station to station. As circuit training grew in popularity, other authors began to provide additional information. Perhaps the best book on the market is Circuit Training for All Sports (Scholich, 1992).

Methodology
Selection of subjects
The purpose of the study was to find out the effect of circuit training on heart rate among school students. To achieve this purpose of the study, thirty school students were selected as subjects at random. The age of the subjects were ranged from 14 to 17 years.

Selection of variable
Independent variable
- Circuit training

Independent variable
- Heart rate

Experimental design
The selected subjects were divided into two equal groups of fifteen subjects each, such as a circuit training group (Experimental Group) and control group. The experimental group underwent circuit training for three days per week for six weeks. Control group, which they did not undergo any special training programme apart from their regular physical activities

as per their curriculum. The following physiological variable namely heart rate was selected as criterion variable. All the subjects of two groups were tested on selected criterion variable Heart rate was measured through heart rate monitor at prior to and immediately after the training programme.

Statistical technique

The 't' test was used to analysis the significant differences, if any, difference between the groups respectively.

Level of significance

The 0.01 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of the data

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent 't' test was used with 0.01 levels as confidence.

Table I: Analysis of t-ratio for the Pre and Post Tests of Experimental and Control Group on Heart rate (Scores counts in number)

Variables	Group	Mean		SD		Sd Error		df	't' ratio
		Pre	Post	Pre	Post	Pre	Post		
Heart rate	Control	66.13	66.33	1.19	0.90	0.31	0.23	14	0.56
	Experimental	66.40	64.53	1.30	1.25	0.33	0.32		20.55*

*Significance at .01 level of confidence.

The Table-I shows that the mean values of pre-test and post-test of the control group on Heart rate were 66.13 and 66.33 respectively. The obtained 't' ratio was 0.56, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.01 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on Heart rate were 66.40 and 64.53 respectively. The obtained 't' ratio was 20.55* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.01 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in heart rate. It may be concluded from the result of the study that experimental group improved in heart rate due to six weeks of circuit training.

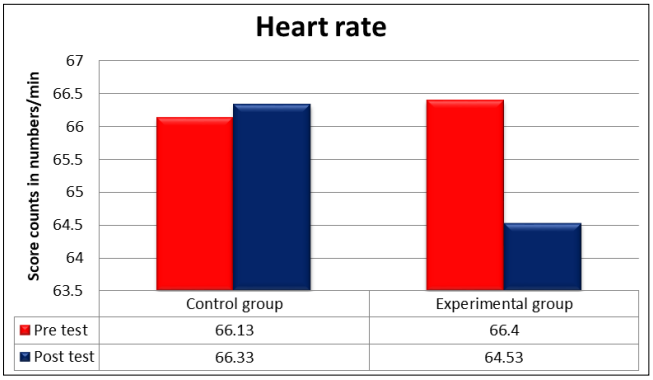

Fig 1: Bar Diagram Showing the Pre and Post Mean Values of Experimental and Control Group on heart rate

Discussions on Findings

The result of the study indicates that the experimental group, namely circuit training group had significantly improved the selected dependent variable, namely heart rate, when compared to the control group. It is also found that the improvement caused by circuit training when compared to the control group. The result of this study on Heart rate has in line with the study conducted by V P O. Shahpur, (2017).

Conclusion

On the basis of the results obtained the following conclusions are drawn,

1. There was a significant difference between experimental and control group on Heart rate after the training period.
2. There was a significant improvement in heart rate. However the improvement was in favor of experimental group due to six weeks of circuit training.

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