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Effect of interval training and pranayama practices on VO₂ max untrained college male students

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Abstract

The purpose of the study was to find out the effect of interval training and pranayama practices on VO₂ Max among untrained college male students. To achieve the purpose of the study, forty five untrained men students were selected as subjects. The age, height and weight of the subjects ranged from 18 to 22 years, 162 to 175 centimeters and 56 to 70 kilograms respectively. The selected subjects were randomly assigned into four equal groups of 15 subjects each. Group I underwent interval training, group II underwent pranayama practice and group III acted as control. The collected data analysed by analysis of covariance (ANCOVA). Since three groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. The result of the study stated that significant differences exist among the experimental and control groups on VO₂ Max.

Keywords: interval training, pranayama, VO₂ max

Introduction

The interval training constitutes the intermittent variation of exertion and active recovery periods within a training unit. Characteristics of the interval method are medium or large exertion periods within the basic endurance range or within the strength endurance range with the duration of the recovery periods being half as long as those of the exertion periods. It is important to note that the recovery periods must not result in full recovery. In the extensive interval method, the athlete will perform approximately 20 to 30 repetitions for one set, with the duration of that set lasting 60 seconds with weights of 30 to 40 percent of max. Three to six sets are performed with each exercise, with the goal being to reach a target heart rate of between 150 to 180 beats per minute minus your age. The example they give is that a 20 year old athlete should reach heart rates of 130 to 160 beats per minute during the set (Hartmann and Tünnemann, 1995) [1]. Pranayama is a Sanskrit word alternatively translated as "extension of the prana (breath or life force)" or "breath control." The word is composed from two Sanskrit words: prana meaning life force (noted particularly as the breath), and either ayama (to restrain or control the prana, implying a set of breathing techniques where the breath is intentionally altered in order to produce specific results) or the negative form ayama, meaning to extend or draw out (as in extension of the life force). It is a yogic discipline with origins in ancient India.

Methodology

The purpose of the study was to find out the effect of extensive interval training and pranayama practices on VO₂ Max among untrained college male students. To achieve the purpose of the study, forty five untrained men students were selected as subjects. The age, height and weight of the subjects ranged from 18 to 22 years, 162 to 175 centimeters and 56 to 70 kilograms respectively. The selected subjects were medically examined by a qualified physician and certified that they were medically and physically fit enough to undergo the sprint training programme. VO₂ Max was measured through the one mile run test. The selected subjects were randomly assigned into four equal groups of 15 subjects each. Group I underwent interval training, group II underwent pranayama practice and group III acted as control. The collected data analysed by analysis of covariance (ANCOVA).

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Since three groups were involved, whenever the obtained ‘F’ ratio for adjusted post test means was found to be significant,

the Scheffe’s test was applied as post hoc test to determine the paired mean differences.

Table 1: Analysis of covariance on vo₂ max of experimental and control groups

	Interval Training	Pranayama Practice	Control Group	S O V	Sum of Squares	df	Mean squares	‘F’ ratio
Pre-test Mean SD	2.76	2.68	2.73	B	0.046	2	0.023	0.38
	0.25	0.26	0.21	W	2.53	42	0.060	
Post-test Mean SD	3.07	2.94	2.77	B	0.67	2	0.33	11.47*
	0.18	0.14	0.17	W	1.23	42	0.029	
Adjusted Post-test Mean	3.07	2.94	2.77	B	0.65	2	0.329	11.32*
				W	1.19	41	0.029	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 42 is 3.23 and degree of freedom 2 and 41 is 3.23)

*Significant at .05 level of confidence

The adjusted post-test means on VO₂ Max of interval training, pranayama practice groups and control groups are 3.07, 2.94 and 2.77 respectively. The obtained ‘F’ ratio value of 11.32 on VO₂ Max were greater than the required table value of 3.23 for the degrees of freedom 2 and 42 at 0.05 level of confidence. It is observed from this finding that significant differences exist among the adjusted post-test means of experimental and control groups on VO₂ Max.

Since, the adjusted post-test ‘F’ ratio value is found to be significant the Scheffe’s test is applied as post hoc test to determine the paired mean differences, and it is presented in table-2.

Table 2: Scheffe’s test for the difference between the adjusted post-test paired means of vo₂ max

Adjusted Post Test Means			DM	CI
Interval Training	Pranayama Practice	Control Group		
3.07	2.94		0.13*	0.10
3.07		2.77	0.30*	0.10
	2.94	2.77	0.17*	0.10

*significant

Table-2 shows the Scheffe’s test results that there are significant differences between the adjusted post tests means of interval training and pranayama practice groups; interval training and control groups; pranayama practice group and control group on VO₂ Max. Moreover interval training group had high impact to increase the VO₂ Max of the subjects.

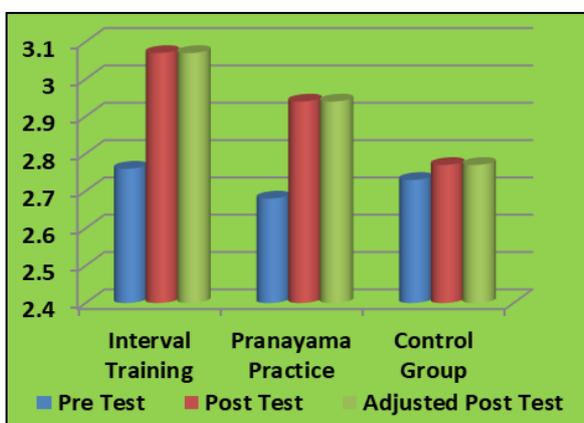


Fig I: Cylinder diagram showing the mean value on VO₂ max of experimental and control groups

Discussion on Findings

The result of the study stated that significant differences exist

among the experimental and control groups on VO₂ Max. Moreover interval training group had high impact to increase the VO₂ Max of the subjects. The following studies are supporting my finding of the study. Verena, *et al.*, (2015) [5] conducted the effect of 3-week high-intensity interval training on VO₂ max, total haemoglobin mass, plasma and blood volume in well-trained athletes. Result of the study showed that after the training VO₂ max improved from baseline of the subjects. Marta, *et al.*, (2013) [2] examined the effects of Two Weeks of High-intensity Interval Training (HIIT) on Monocyte TLR2 and TLR4 Expression in High BMI Sedentary Men. Result showed that two weeks of high-intensity intermittent exercise training increased VO₂ peak. Skutnik and others (2016) [4] examined the effect of low volume interval training on resting blood pressure in pre-hypertensive subjects: A Preliminary Study. They suggested that HIIT and ET similarly decreased resting blood pressure and increased VO₂ max. Muthuraj (2017) [3] the results of the study showed that there was a significant improvement on VO₂ Max of medium intensity aerobic training group when compared to the control group.

Conclusion

The conclusion of the study stated that significant differences exist among the experimental and control groups on VO₂ Max. Moreover interval training group had high impact to increase the VO₂ Max of the subjects.

Reference

- Hartmann, Tünnemann. Fitness and Strength Training for All Sports. Sport Books Publisher. Toronto, Canada 1995.
- Marta Oliveira Child., Melanie Leggate., And Michael Gleeson. Effects of Two Weeks of High-intensity Interval Training (HIIT) on Monocyte TLR2 and TLR4 Expression in High BMI Sedentary Men. International Journal of Exercise Science 2013;6(1):81-90.
- Muthuraj M. Exploration of Medium Intensity Aerobic Training on Vo₂ Max of Men. International Journal of Recent Research and Applied Studies 2017;3(13):63-65.
- Skutnik BC, Smith JR, Johnson AM, Kurti SP, Harms CA. The Effect of Low Volume Interval Training on Resting Blood Pressure in Pre-hypertensive Subjects: A Preliminary Study. Phys Sports med 2016;44(2):177-83.
- Verena Menz, Jochen Strobl, Martin Faulhaber, Hannes Gatterer, Martin Burtscher. Effect of 3-week high-intensity interval training on VO₂max, total haemoglobin mass, plasma and blood volume in well-trained athletes. European Journal of Applied Physiology 2015;115(11):2349-2353.