



EFFECTS OF YOGIC PRACTICES AND AEROBIC EXERCISE ON VO₂ MAX AMONG COLLEGE BASKETBALL PLAYERS

Dr.S.Ezhilarasi^{1*}, Devimeena Sundaram, CSCS², Dr.S . Kamalakanan³, Mr.S.Balasundaram⁴

^{1*}Assistant Director of Physical Education, Madras Veterinary College, Vepery, Chennai – 600007,

²MS (Strength & Conditioning) Student, Edith Cowan University, Perth, Western Australia.

³Principal Annai Theresa Arts and Science, Chennai.

⁴Paediatric Physiotherapist, B.J. Paediatric Therapy centre, Chennai-600028

***Corresponding Author:** Dr.S.Ezhilarasi

*Assistant Director of Physical Education, Madras Veterinary College, Vepery, Chennai – 600007

ABSTRACT

To achieve the purpose of this study, the investigator selected Basketball players from affiliated colleges of Annai Theresa Arts and Science College, Chennai, Tamil Nadu. The subjects were chosen randomly, ranging from 20 to 23 years. They were assigned into three groups: one group as a yogic practice group, the second as an aerobic exercises group, and the third as a combined yogic practices and aerobic exercises group. The experimental groups participated in their training programmes for 12 weeks for their routine. The selected subjects measured their VO₂ Max by Cooper's 12-minute run and walk before and after the training period of six weeks. The differences between the initial and final scores of VO₂ Max were subjected to using Analysis of Covariance (ANCOVA). The results of this study proved that the experimental group's significantly increased VO₂ Max. The results further revealed that the combined group significantly increased VO₂ Max compared to other groups. The results thus prove that the combined group performed better than the Yogi practices and aerobic exercise groups separately.

Keywords: Yogic practices, Aerobic exercises, VO₂ Max.

Introductions

Yogic practices

Yoga has become an integral activity in today's lifestyle. It rejuvenates both the body and the mind. Certain conditions like insomnia, which is connected to stress and safety, and depression are to be treated with medications. But it can be tackled using yogi practices that bring in more emotional control and guide your prana (lifestyle), leading to an optimistic way of life.

Aerobic exercise

Aerobic exercise involves rhythmic, repetitive physical activity movements on the body's large muscles. It influences the heart rate and the oxygen consumption of the body. It reduces the risk of cardiac disease, diabetes, hypertension, and hyperlipidaemias. Specific examples of aerobic exercise include walking, cycling, and swimming.

VO₂ Max

VO₂ max or maximal O₂ consumption refers to the maximum threshold of O₂ that an individual

utilises during an intense physical exercise. This criterion is considered the best indicator of cardiac vascular fitness and aerobic endurance.

Objectives of the Study

1. To find out the isolated effect of yogic practice on VO₂ max among college Basketball players.
2. To find out the isolated effect of aerobic exercise on VO₂ max among college Basketball players.
3. To find out the combined effect of yogic practice and aerobic exercise on VO₂ max among College Basketball players.

Methodology

The study was formulated as a truly random group design, consisting of pre-test and post-test. The subjects (n=45) were randomly assigned into three equal groups of 15 basketball players. Among the three groups, the experimental groups underwent experimental treatments. The groups were designated as Experimental Groups I, II, and III. Pre-tests were conducted for all the selected subjects on VO₂ max by Cooper's 12-minute run and walk test. The experimental groups participated in their respective yogic practice, aerobic exercise, and combined (aerobic exercise and yogic practice) for 12 weeks. The training programme was scheduled from 6.00 a.m. to 7.00 a.m. on all weekdays except Sundays. The post-test was done on the selected dependent variable after 12 weeks.

Statistical Analysis

The differences between the initial and final test scores on VO₂ max were subjected to Analysis of Covariance (ANCOVA) to determine whether the mean differences were significant. The Scheffes post hoc test was used to determine the essential differences between the paired means.

Results on Vo₂ Max

The Physiological variable, VO₂ max, was measured through Cooper's 12-minute run/walk test. The results on the effect of the yogic practices combined (yogic practices and aerobic exercises) and aerobic exercises group were presented in Table -I.

TABLE - I

Computation of Analysis of Covariance on Vo₂ Max(Scores in ml/kg/mm)

Test	Aerobic exercises group	Combined (yogic and aerobic) group	Yogic practices group	Source of Variance	Sum of Squares	df	MS	F
pre-test	33.32	34.57	35.72	between	42.89	2	21.44	10.9
				within	82.31	42	1.95	
post-test	35.03	39.00	39.91	between	201.41	2	100.70	47.1
				within	89.80	42	2.14	
adjusted	35.95	38.97	39.02	between	68.06	2	34.03	32.4
				within	43.02	41	1.05	
mean gain	1.71	4.42933	4.192					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) was 3.15

* Significant

Table I shows the pre-test mean scores of skill performance of VO₂ max of the yogic practices group was 35.72, the aerobic exercises group was 33.32, and the combined (yogic practices and aerobic exercises) group was 34.57. The post-test means showed differences due to experimental training, and the mean values recorded were 39.02, 35.03, and 38.97, respectively.

As shown in Table I, the obtained F value on the pre-test scores means 10.9 was less than the required value of 3.15, which proved that the random assignment of the subjects was successful, their scores in VO₂ max improved, and there were significant differences.

The post-test scores analysis proved a significant difference between the groups, as the obtained F value of 47.1 was more significant than the required F value of 3.15. This result thus proves that differences between the post-test means of the subjects are statistically significant.

The pre and post-test scores among group adjusted means scores were calculated and subjected to statistical analysis. The obtained F value of 32.4 exceeded the required F value of 3.15. This showed significant differences among the adjusted means on the women basketball players.

As significant differences were observed, the sales were subjected to post-analysis using Scheffe’s Confidence Interval test. The results are presented in Table – II.

TABLE- II
Scheffe’s Confidence Interval Test Scores on Vo2 Max (Scores in ml/kg/mm)

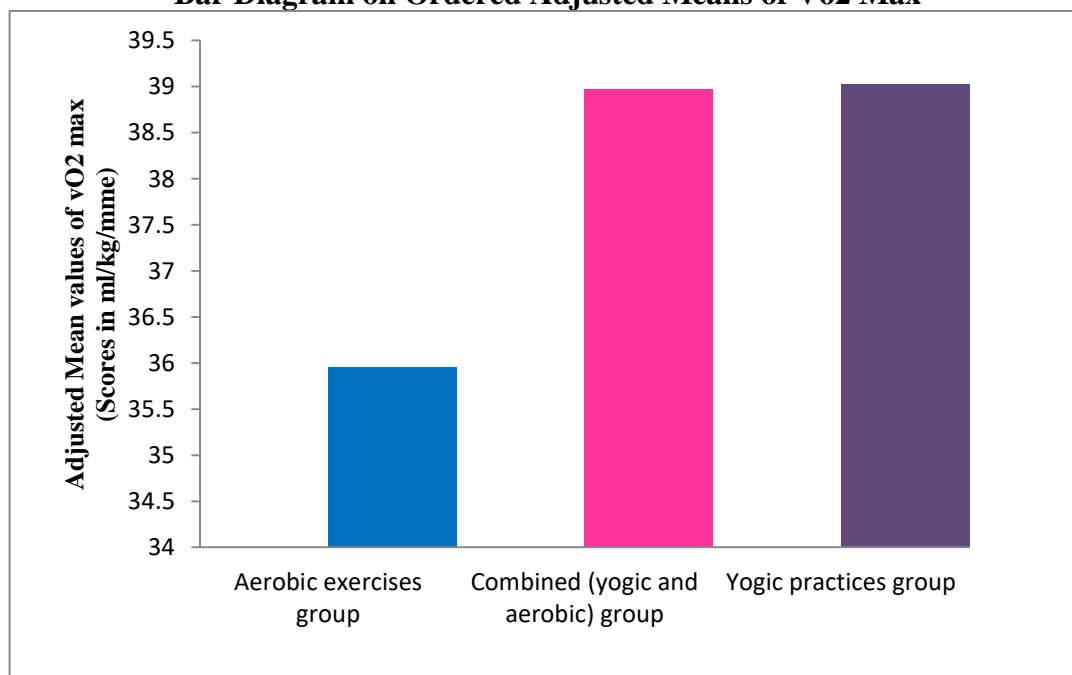
Aerobic exercises group	Combined (yogic and aerobic) group	Yogic practices group	Mean Difference	CD at 5% Level
35.95	38.97	-	3.03	0.95
35.95	-	39.02	3.07	
-	38.97	39.02	0.04	

* Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proved significant differences between the yogic practices group, the aerobic exercises group, and the combined (yogic practices and aerobic exercises) group. As the confidence interval required to be significant at 0.05 level was 0.95 and the obtained values were more significant than the required value, it was observed that significant differences were found to exist. It was further seen that there were no significant differences between the yogic practices group and the aerobic exercises group, the yogic practices group and combined (yogic practices and aerobic exercises) group, and the aerobic exercises group and combined (yogic practices and aerobic exercises) group.

The ordered adjusted means were presented through a bar diagram for a better understanding of the results of this study in Figure -1.

Figure – 1
Bar Diagram on Ordered Adjusted Means of Vo2 Max



Discussion on Findings of Vo₂ Max

The results presented in Table I showed the obtained adjusted means on VO₂ max among The yogic practices group was 39.02, the aerobic exercises group was 35.95, and the combined (yogic practices and aerobic exercises) group was 38.97. The differences among pre-test scores, post-test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA, and the obtained F values were 10.9, 47.1 and 32.4, respectively. It was found that the obtained F value on pre-test scores was insignificant, and the obtained F values on post-test and adjusted means were significant at 0.05 level of confidence, as these were greater than the required F value of 3.15. The post hoc analysis of obtained ordered adjusted means proved that there were significant differences between aerobic exercises group and combined (yogic practices and aerobic exercises) group, yogic practices and combined (yogic practices and aerobic exercises) group, aerobic exercises and yogic practices group the differences were significant at 0.05 level.

Further, the post hoc analyses showed that there was a significant difference among the experimental groups in comparison to the, which indicated that combined training(yogic practices and aerobic exercises) had significantly produced better performance, followed by the yogic practices group the aerobic exercises group in improving the VO₂ max performance of women basketball players. The findings of the study are in favour of the study undertaken by Ray et al. (2001), Lohan and Rajesh (2002), and Madanmohan et al. (2003).

Conclusions

1. It was also concluded that the yogic practices group is significantly better than the aerobic exercises group in improving the VO₂ max among college women basketball players.
2. It is concluded that the combined training(yogic practices and aerobic exercises) group was significantly better than the aerobic exercises group in improving the VO₂ max among college women basketball players.

Recommendations

- 1 It is recommended that the coaches, physical educationists and sportspersons include aerobic exercises and yogic practices in their training schedule to improve the fitness and physiological preparations for better performance.
2. It was recommended that people of age may practice yoga and aerobic exercise to enhance their fitness level and lead a healthy life.

Reference

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