



COMPARATIVE EFFECT OF AEROBIC EXERCISES AND YOGIC PRACTICE ON SELECTED PHYSIOLOGICAL VARIABLES AMONG UG LEVEL STUDENTS OF TUMKUR UNIVERSITY

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Abstract

The purpose of the study was to find out the comparative effect of aerobic exercises and yogic practice on selected physiological variables among UG level students of Tumkur University. To achieve the purpose of the present study, eighty UG level students of Tumkur University, Karnataka State, India were selected as subjects at random and their ages ranged from 18 to 21 years. The subjects were divided into four equal groups of twenty subjects each. Group I acted as Experimental Group I (Aerobic Exercises), Group II acted as Experimental Group II (Yogic Practices), Group III acted as Experimental Group III (Combined Aerobic and yogic practices) and Group IV acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The duration of experimental period was 12 weeks. After the experimental treatment, all the eighty subjects were tested on their selected physiological variables. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses. The combined training group showed better improvement in resting heart rate and peak expiratory flow rate than the other groups.

Keywords: Aerobic Exercises, Yogic Practices, Students.

INTRODUCTION

Aerobics is a vigorous physical activity that can provide an inexpensive and practical workout for most people. Aerobic fitness helps to promote the cardio-respiratory system from disease and it promotes physical, mental, emotional and spiritual development. Aerobic program can be started at any age and the intensity of the program can also be suited to meet the larger needs of the individual (Cooper, 1985). Aerobic exercise is a moderate intensity workout that extends over a certain period of time and uses oxygen in this process. Aerobics has become the most happening workout trend among the youth.

Yoga is an ancient form of relaxation and exercise that has many health benefits, including lowering cholesterol. Pranayama also helps to connect the body to its battery, the solar plexus, where tremendous potential energy is stored. When tapped through specific techniques this vital energy, or prana, is released for physical, mental and spiritual rejuvenation. As we live in the age of modern science and technology, our lifestyle has become very fast. It is also becoming very hard and difficult to live a natural and normal life because of the changing scenario of the world. The very air is becoming unfit for human consumption. Our cities are growing noisier, dirtier and congested. All these do create tension. The mind is always under strain due to

various social evils. When we are under stress, our digestion is not proper and we may suffer from some fairly serious ailments like Asthma and Spondylitis etc., and yoga comes to our rescue at this juncture (Eugene, 1997).

METHODOLOGY

The purpose of the study was to find out the comparative effect of aerobic exercises and yogic practice on selected physiological variables among UG level students of Tumkur University. To achieve the purpose of the present study, eighty UG level students of Tumkur University, Karnataka State, India were selected as subjects at random and their ages ranged from 18 to 21 years. The subjects were divided into four equal groups of twenty subjects each. Group I acted as Experimental Group I (Aerobic Exercises), Group II acted as Experimental Group II (Yogic Practices), Group III acted as Experimental Group III (Combined Aerobic and yogic practices) and Group IV acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The duration of experimental period was 12 weeks. After the experimental treatment, all the eighty subjects were tested on their selected physiological

variables. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for

adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

RESULTS

TABLE – I
COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF AEROBIC EXERCISES,
YOGIC PRACTICES, COMBINED TRAINING AND CONTROL GROUPS
ON RESTING HEART RATE (AEG, YPG, CAEYPG & CG)

	AEG	YPG	CAEYPG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	70.75	70.90	70.65	70.95	BG	1.137	3	0.379	0.29
					WG	97.050	76	1.277	
Post-Test Means	68.60	68.45	66.45	70.75	BG	185.237	3	61.746	40.29*
					WG	116.450	76	1.532	
Adjusted Post-Test Means	68.59	68.46	66.42	70.77	BG	187.551	3	62.517	41.10*
					WG	114.069	75	1.521	

Table – I reveals that the indicated that the obtained 'F'-ratio for the pre-test means among the groups on resting heart rate were 70.75 for experimental group – I, 70.90 for experimental group – II, 70.65 for experimental group – III and 70.95 for control group. The obtained 'F'-ratio 0.290 was lesser than the table 'F'-ratio 2.72. Hence the pre-test mean 'F'-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 76. The post-test means were 68.60 for experimental group – I, 68.45 for experimental group – II, 66.45 for experimental group – III and 70.75 for control group. The obtained 'F'-ratio 40.29 was higher than the table 'F'-ratio 2.72. Hence the post-test mean

'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 76. The adjusted post-test means were 68.59 for experimental group – I, 68.46 for experimental group – II, 66.42 for experimental group – III and 70.77 for control group. The obtained 'F'-ratio 41.10 was higher than the table 'F'-ratio 2.72. Hence the adjusted post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 75. It was concluded that there was a significant mean difference among aerobic exercises group, yogic practices group, combined training group and control group in developing resting heart rate of the UG level students.

FIGURE – I
ADJUSTED POST-TEST DIFFERENCES OF THE AEROBIC EXERCISES, YOGIC PRACTICES, COMBINED TRAINING AND CONTROL GROUPS ON RESTING HEART RATE (AEG, YPG, CAEYPG & CG)

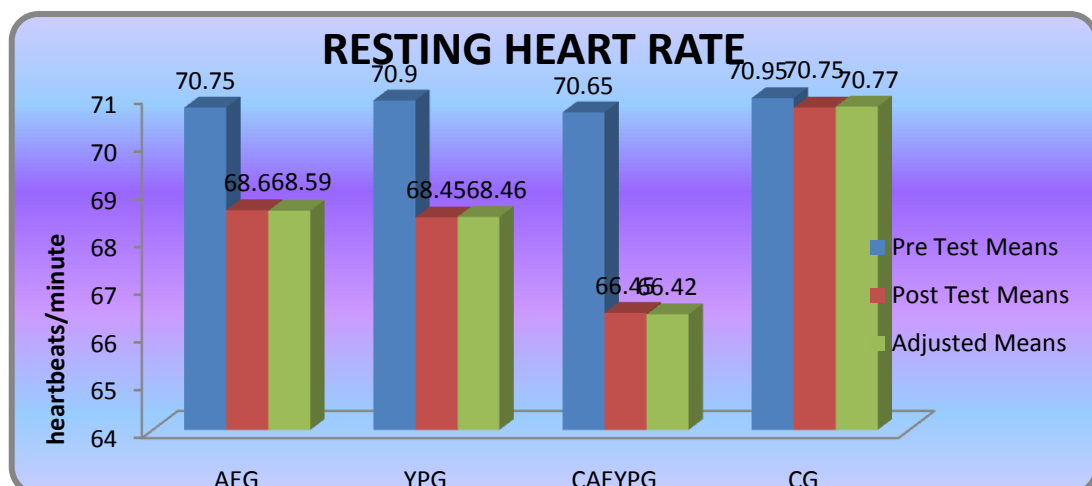


TABLE –II
THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST-TEST MEANS ON
RESTING HEART RATE

Adjusted Post-Test Means				Mean Difference	Confidence Interval
AEG	YPG	CAEYPG	CG		
68.59	68.46	---	---	0.13	0.90
68.59	---	66.42	---	2.17*	
68.59	---	---	70.77	2.18*	
---	68.46	66.42	---	2.04*	
---	68.46	---	70.77	2.31*	
---	---	66.42	70.77	4.35*	

* Significant at 0.05 level of confidence

The multiple comparisons showed in table II that there existed significant differences between the adjusted means of aerobic exercises and combined aerobic exercises & yogic practices group (2.17), aerobic exercises and control group (2.18), yogic practices and combined aerobic exercises & yogic practices (2.04),

yogic practices and control group (2.31), combined aerobic exercises & yogic practices and control group (4.35). There was no significant difference between aerobic exercises and yogic practices group (0.13) at 0.05 level of confidence with the confidence interval value of 0.90.

TABLE – III
COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF AEROBIC EXERCISES, YOGIC
PRACTICES, COMBINED TRAINING AND CONTROL GROUPS ON PEAK EXPIRATORY FLOW RATE
(AEG, YPG, CAEYPG & CG)

	AEG	YPG	CAEYPG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	461.63	457.35	460.13	462.34	BG	292.672	3	97.557	1.29
					WG	5732.286	76	75.425	
Post-Test Means	489.78	490.84	509.76	463.64	BG	21541.955	3	7180.652	126.38*
					WG	4318.008	76	56.816	
Adjusted Post-Test Means	489.78	490.83	509.76	463.64	BG	21305.440	3	7101.813	123.35*
					WG	4318.007	75	57.573	

Table – III reveals that the indicated that the obtained ‘F’-ratio for the pre-test means among the groups on peak expiratory flow rate were 461.13 for experimental group – I, 457.35 for experimental group – II, 460.13 for experimental group – III and 462.34 for control group. The obtained ‘F’-ratio 1.29 was lesser than the table ‘F’-ratio 2.72. Hence the pre-test mean ‘F’-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 76. The post-test means were 489.78 for experimental group – I, 490.84 for experimental group – II, 509.76 for experimental group – III and 463.64 for control group. The obtained ‘F’-ratio 126.38 was higher than the table ‘F’-ratio 2.72. Hence

the post-test mean ‘F’-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 76. The adjusted post-test means were 489.78 for experimental group – I, 490.83 for experimental group – II, 509.76 for experimental group – III and 463.64 for control group. The obtained ‘F’-ratio 123.35 was higher than the table ‘F’-ratio 2.72. Hence the adjusted post-test mean ‘F’-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 75. It was concluded that there was a significant mean difference among aerobic exercises group, yogic practices group, combined training group and control group in developing peak expiratory flow rate of the UG level students.

FIGURE – II
ADJUSTED POST-TEST DIFFERENCES OF THE AEROBIC EXERCISES, YOGIC PRACTICES,
COMBINED TRAINING AND CONTROL GROUPS ON PEAK EXPIRATORY
FLOW RATE (AEG, YPG, CAEYPG & CG)

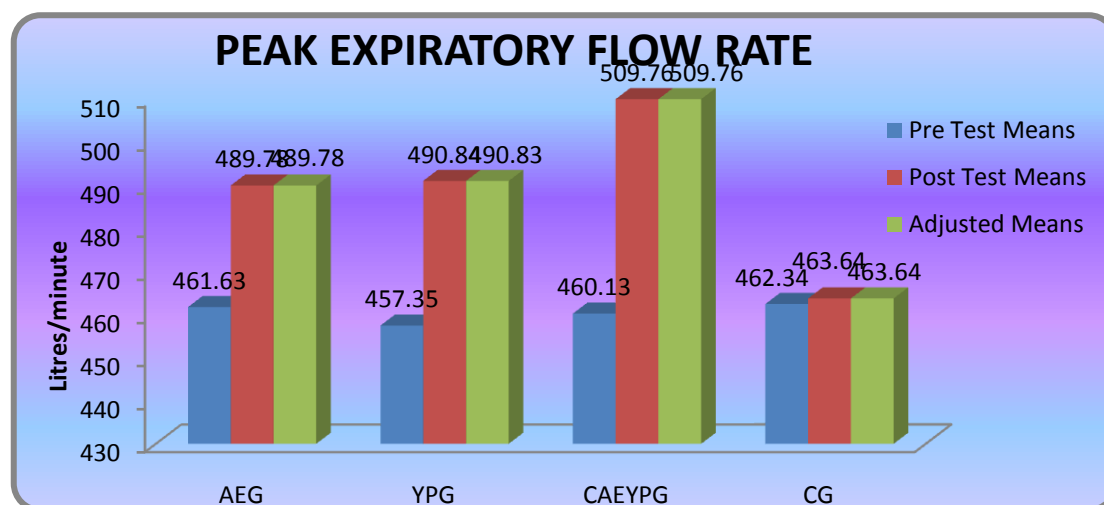


TABLE – IV
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST-TEST MEANS ON
PEAK EXPIRATORY FLOW RATE

Adjusted Post-Test Means				Mean Difference	Confidence Interval
AEG	YPG	CAEYPG	CG		
489.78	490.83	---	---	1.05	5.59
489.78	---	509.76	---	19.98*	
489.78	---	---	463.64	26.14*	
---	490.83	509.76	---	18.90*	
---	490.83	---	463.64	27.19*	
---	---	509.76	463.64	46.12*	

* Significant at 0.05 level of confidence

The multiple comparisons showed in table IV that there existed significant differences between the adjusted means of aerobic exercises and combined aerobic exercises & yogic practices group (19.98), aerobic exercises and control group (26.14), yogic practices and combined aerobic exercises & yogic practices (18.90), yogic practices and control group (27.19), combined aerobic exercises & yogic practices and control group (46.12). There was no significant difference between aerobic exercises and yogic practices group (1.05) at 0.05 level of confidence with the confidence interval value of 5.59.

RESULTS

1. The significant mean difference does not exist among all the four groups in the pre test on variables namely resting heart rate and peak expiratory flow rate.
2. In testing post test mean difference among the four groups statistically significant on variables of resting heart rate and peak expiratory flow rate. In testing the post adjusted mean among the four groups also predicts the above result.

3. The combined training group showed better improvement in resting heart rate and peak expiratory flow rate than the other groups.

REFERENCES

1. Andre Van Lysebeth, (1987). *Yoga Self – Taught*, Delhi: Tarage Paper Back.
2. Aranga, P. & Kulothungan, P. (2011). Effect of Different Intensity Aerobic Exercise on Body Composition Variables among Middle Aged Men, *Recent Trends in Yoga and Physical Education*, Vol. I, p. 276.
3. Chandrakumar, N. & Ramesh, C. (2016). Effect of Yogic Practices, Aerobic Exercise and Interval Training on Selected Lipid profiles among School Boys. *International Journal of Recent Research and Applied Studies*, 3, 1(20), 107 - 113.
4. Chidambara Raja.S. (2014). Effect of Yogic Practices and Aerobic Exercises on Strength Endurance Self-Concept and Blood Pressure.

- International Journal of Recent Research and Applied Studies*, 1, 6(7), 33 - 36.
5. Cooper, K.H. (1985). *Aerobics Program For Total Well-Being: Exercise, Diet , And Emotional Balance*. New York: Bantam Books.
 6. Eugene S.Rawles, (1997). *Yoga for Beauty and Health*. New York: Parker Publishing Company Inc.
 7. Harsh Patel, Hassan Alkhawam, Raef Madanieh, Niel Shah, Constantine E Kosmas & Timothy J Vittorio (2017). Aerobic vs anaerobic exercise training effects on the cardiovascular system. *World J Cardiol.* 26; 9(2): 134–138.
 8. Jayachandran. R. (2015). Impact of Yogasana Exercises and Step Aerobic Training on Selected Physiological Parameters among School Boys. *International Journal of Recent Research and Applied Studies*, 2, 3 (15), 62 - 66.