Effects on Selected Motor Fitness Components in Girls of Z.P.H.S Kothapeta on Yogasanas and Aerobic Physical Activities in Kadapa District of Andhra Pradesh: A Comparative Study

Dr. Avvaru Balasekhar

P.D. Z.P. High School, Kothapeta, Pullampet (Mandal), Annamayya District – 516107

Abstract:

Maintaining proper physical fitness and lifestyle is the key in determining optimum health and quality of life. With daily Yoga and Aerobic Physical Activities, lifestyle can be changed to improve health. Different forms of Yoga and physical exercise target different systems of the human body and enhance the function of the particular system. The purpose of the study was to compare the effects on selected motor fitness components in Z.P.H.S (Girls) of Kothapeta, Pullampet mandal of Annamayya District on Yogasanas and Aerobic Physical Activities in Kadapa district. The subjects (N=75) were randomly assigned into three groups of twenty girls in each group. The groups were named as control group, Yogasana group & aerobic physical activity group. Analysis of Co-variance (ANCOVA) was used to find out whether there was any significance difference between the adjusted post-test means. Scheffe's post-hoc test was too used to find out the better group. The level of confidence was set at 0.05 for significance.

Keywords: Yoga, Aerobic, Health related physical fitness Components, Motor fitness, Asanas etc.

Introduction:

Health is considered as an outcome to proper wellness management and appropriate follow up in that direction. Since, the degenerative diseases like obesity, diabetes mellitus, cardio-vascular morbidities, etc. are multi factorial in nature; it may be difficult but ideal to understand the various markers of these diseases. Physical wellness has been emphasized very much among all the dimensions of human wellness and health. This significance to this dimension may be due to its emphatic effect of influence on the other dimensions of human health.

With daily Yoga and Physical Exercises, lifestyle can be changed to improve health. Different forms of Yoga and physical exercise target different systems of the human body and enhance the function of the particular system. Generic form of physical fitness may not assure perfect health for an individual, as there have been several evidences in high level sporting scenario, where high level physical fitness is essential. Cardio-vascular fitness can be augmented through the Yoga and aerobic form of exercises and this will ensure for enhanced endocrinal rhythm leading to balance in secretions of epinephrine, non-epinephrine, glucagon and insulin. Hence, proper maintenance of cardio-vascular fitness through aerobic running would properly establishes amiable biodynamic environment in the

physiology of individual leading to prevention of diabetes, cardio-vascular diseases like hypertension, and atherosclerosis. It is highly consistent that the Yoga and physical exercise like Aerobic Physical Activities are beneficial in preventing and offsetting the degenerative effects and thereby establishing health.

Methodology:

The subjects (N=75) were randomly assigned into three groups of twenty girls in each group. The groups were named as Control group, Yogasana group & aerobic physical activity group. All the three groups were administered pre-tests prior to the experimental treatment. The control group was not engaged in any specific activity, whereas the Yogasana group underwent for Yogasana training & the aerobic Physical activity group underwent for various Aerobic Physical activity training for 5 days in a week for 12weeks. Both the experimental groups were engaged for 45 minutes with their respective trainings.

Selection of Variables:

Motor fitness plays a vital role in the fitness of an individual & a critical role in boosting the performance of an individual in games & sport. Keeping in mind the role of motor fitness & its importance, availability of equipment &the feasibility aspects of their measurement, the following variables were selected for the study.

Dependent Variables	**Independent Variables**
I.Muscular Endurance	I. Yogasanas
II. Agility	II. Aerobic Physical Activities
III. Muscular power	
IV. Speed	
V. circulatory- respiratory Endurance	
VI.Flexibility	

The test items were selected from AAHPERED youth fitness test & AAHPERED Health related Fitness test. Hence the tests are reliable & no specific method is required to establish the reliability.

The statistical analysis of the data collected from the Control, Yogasana and Aerobic physical activity groups on selected motor fitness components. The subjects were selected at random. Keeping in view the random selection of the subjects the analysis of covariance is applied to adjust the differences in initial mean values and the adjusted mean values are tested for significance. Scheffe's post hoc test to determine the significance between all pairs of mean values, where F-ratios are significant is next applied.

Tests Administrations:

1. Sit and Reach Test - To measure the hip- trunk flexibility
2. 9 Mts Run / Walk - To measure the circulatory –respiratory endurance.
3. 50 Mts Sprint - To measure the speed.
4. Standing Broading Jump- To measure the explosive power of leg extensor muscles.
5. Shuttle Run- To measure Agility (speed and change of (direction)
6. Bent Knee Sit Ups (one minute) - : To measure abdominal Muscular Endurance
7. Flexed Arm Hang- To measure arm/shoulder Muscular Endurance.

Test Significance:

This is the crucial portion of the thesis in arriving at the conclusion by examining the hypothesis. The procedure of testing the hypothesis in accordance with the results obtained in relation to the level of confidences which were fixed at 0.05 and 0.01 levels is considered sufficient for this study.

Results:

The tests are usually called the test of significance, since we test together the difference between the pre-test and post-test scores of the samples were significant or not. In the present study, if they obtained F-ratio is greater than the table F-ratio at 0.05 or 0.01 level, the hypothesis is accepted to the effect that there existed significant difference between the mean values of groups compared and if they obtained F-ratios were than the table F-ratio at 0.05 or 0.01 level, then the hypothesis is rejected to the effect that there existed no significant difference between the mean values of the groups under study.

Conclusions

From the results of this study the following conclusions were arrived.

1. The Yogasana group showed significant improvement due to 12 weeks of Yogasana training on Muscular Endurance, Power, Circulo-Respiratory Endurance, Flexibility and Agility at 0.01level of significance and speed at 0.05 level of confidence.

2. The Aerobic Physical Activity group showed significant improvement due to 12 weeks of aerobic physical activity training on Muscular Endurance, Power, Speed, Circulo-Respiratory Endurance, Flexibility and Agility at 0.01level of significance.

3. The Control group failed to produce significant improvement on Muscular Endurance, Power, Speed, Circulo-Respiratory Endurance, Flexibility and Agility.

4. On comparing of the training effect, there was no significant difference among the two training groups i.e. Yogasana and Aerobic Physical Activity on Speed, Circulo-Respiratory Endurance, Flexibility and Agility. But a trend was visible in favor of Yogasana group on Muscular Endurance (Bent- Knee Sit Ups), Flexibility and Agility, where as a trend in favor of the Aerobic Physical Activity Group with respect to Speed and Circulo-Respiratory Endurance is visible.

5. On comparing of the training effect there was a significant difference among Yogasana and Aerobic Physical Activity group on Muscular Endurance (Flexed Arm Hang) and Power. The Yogasana Group showed better improvement on Muscular Endurance (Flexed Arm Hang) than Aerobic Physical Activity group at 0.01 levels of significance, where as the Aerobic Physical Activity group showed better improvement on Power than Yogasana Group at 0.05 levels of significance.

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Table (A): SCHEFEE'S POST HOC TEST FOR FLEXED ARM HANG
(Score in Seconds)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval
				0.01 level
4.44	14.73	-	9.29 **	
5.44	-	11.24	5.8 **	2.95
-	14.73	11.24	3.49 **	

** Significant at 0.01 level.

Table (B): SCHEFFE'S POST HOC TEST FOR BENT KNEE SIT UPS
(Score in Numbers)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval
				0.01 level
16.23	28.37	-	12.14 **	
16.23	-	26.97	10.74 **	3.6738
-	28.37	26.97	1.4	

** Significant at 0.01 level.

Table (C): SCHEFEE'S POST HOC TEST FOR SHUTTLE RUN
(Score in Seconds)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval
				0.01 level
12.41	11.72	-	0.69 **	
12.41	-	11.84	0.57**	0.2826
-	11.72	11.84	0.12	

** Significant at 0.01 level.

Table (D): SCHEFFE'S POST HOC TEST FOR STANDING LONG JUMP
(Score in Seconds)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval	
				0.05 level	0.01 level
59.77	63.01	-	3.24 **		
12.41	-	11.84	0.57**	1.4	1.7584
-	11.72	11.84	0.12		

* Significant at 0.05 level. ** Significant at 0.01 level.

Table (E): SCHEFFE'S POST HOC TEST FOR 50 Mts SPRINT
(Score in Seconds)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval
				0.01 level
9.92	9.56	-	0.36**	
9.92	-	9.48	0.44**	0.2198
-	9.56	9.48	0.08	

** Significant at 0.01 level.

Table (F) : SCHEFFE'S POST HOC TEST FOR 9 Min RUN/WALK
(Score in Meters)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval
				0.01 level
1463.29	1546.39	-	83.1**	
1463.29	-	1594.13	130.84**	66.3796
-	1546.39	1594.13	47.74	

** Significant at 0.01 level.

Table (I) : ANALYSIS OF COVARIANCE OF SIT AND REACH
(Score in Centimeters)

Group \ Test	Mean			Sum of Square	Degree of Freedom	Mean Squares	F-Ratio
	Control	Yogasana	Aerobic Physical Activity				
Pre-Test	33.68	35.52	34.68	B : 42.43	2	21.215	1.1739
				W : 1301.12	72	18.071	
Post-Test	34.64	41.12	39.68	B : 578.88	2	289.44	15.7184**
				W : 1325.84	72	18.44	
Adjusted	35.5058	40.303	39.6312	B : 327.91	2	163.96	49.02**

Post-Test			W : 237.47	71	3.34	

** Significant at 0.01 level – Table value for 0.01 level is 4.92. B – Between the Groups. W – Within the Groups.

Table (J): SCHEFFE'S POST HOC TEST FOR SIT AND REACH
(Score in Centimeters)

Control Group	Yogasana Group	Aerobic physical activity group	Mean Difference	Confidence Interval 0.01 level
35.51	40.30	-	4.79**	
35.51	-	39.63	4.12**	1.6328
-	40.30	39.63	0.67	

** Significant at 0.01 level.