INFLUENCE OF ASANAS AND PRANAYAMA ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE WOMEN

Dr.S. Saroja, Assistant Professor, AUCPE, Alagappa University, Karaikudi.

ABSTRACT

The purpose of this study was to find out the effects of asanas and pranayama on selected physical and physiological variables namely such as flexibility, vital capacity, breath holding time and resulting pulse rate. To achieve this purpose, for 45 women players studying in the Alagappa University Department Women Students, Karaikudi, Sivagangai District, Tamil Nadu were selected as subjects at random and they were divided into three equal groups of fifteen subjects each with age ranging from 18 to 24 years. The three groups namely asanas group(1), pranayama group(2) and control group(3). The asanas group and pranayama group underwent their respective training for three days per week for twelve weeks in which the control group did not participate any special training program me apart from their regular activities as per their curriculum. All the subject of two groups where tested on selected criterion variable such flexibility, vital capacity, breath holding time and resulting pulse rate at prior to and immediately after the training programme by using Sit and Reach Test ,wetspyrometer, Holding Breach for Time and Taking radial pulse rate respectively. The analysis of covariance (ANCOVA) was used to analysis the significant difference, if any in –between the groups; the level of significant test the 'F' ratio obtained by the analyses of covariance was tested at .05 level of confidence.

Key word: flexibility, vital capacity, holding time and resulting pulse rate.

INTRODUCTION

Yoga is an ancient art based on a harmonizing of development for the body mind and spirit. It is practical aid, not a religion. The word yoga means 'unity' or 'oneness' and is derived from the Sanskrit word 'yuj' which means 'to join. Yoga asanas (postures) and breathing deal with the physical body, but due to their effect on the brain, they also affect the mind. Yoga is a science of right living and it works when integrated in our daily life. It works on all aspects of the persons: the physical, mental, emotional, psychic and spiritual. All the wonders of modern science will not bring happiness, peace of mind, health or a long life. Although wonders have been achieved in our external environment-space travel, computers, etc. our internal environment has been negated. Thousands of years ago the ancient yogis turned their minds inwards and discovered their true nature. This allowed them to work out a system of body and breathing exercises which in vitality, rejuvenation and peace of mind. Yoga originated around 4000 years ago in the Far East as a spiritual practice designed to realize the divine nature of the self, Today in the west, yoga usually includes three elements of the traditional yoga techniques: **postures** (or asanas in Sanskrit), **breath control** (or pranayama) and **meditation.** Asana is the third step in the astanga yoga. In the yoga sutras, patanjali,concisely defined yogasana as "Sthiram sukhham asanam". Which means,

METHODOLOGY

The purpose of this study was to find out the effects of asanas and pranayama on selected physical and physiological variables namely such as flexibility, vital capacity, breath holding time and resulting pulse rate. To achieve this purpose, for 45 women players studying in the Alagappa University Department Women Students, Karaikudi, Sivagangai District, Tamil Nadu were selected as subjects at random and they were divided into three equal groups of fifteen subjects each with age ranging from 18 to 24 years namely asanas group, pranayama group and control group. The asanas group and pranayama group underwent their respective training for three days per week for twelve weeks in which the control group did not participate any special training program me apart from their regular activities as per their curriculum. All the subject of two groups where tested on selected criterion variable such flexibility, vital capacity, breath holding time and resulting pulse rate at prior to and

immediately after the training programme by using Sit and Reach Test ,wet spyrometer, Holding Breach for Time and Taking radial pulse rate respectively.

ANALYSIS OF THE DATA

TABLE I

ANALYSIS OF CONVARIANCE OF DATA ON FLEXIBILITY OF PRE AND POST TEST SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas Group	Pranayama Group	Control Group	Source of variance	Sum of Squares	df	Mean Squares	Obtained 'F' ratio
Pre Test								
Mean	18.2	18.1	17.9	Between	0.01	2	0.005	0.10
S.D	0.21	0.22	0.24	Within	2.27	42	0.05	
Post Test								
Mean	25.7	20.2	18.2	Between	191.4	2	95.70	187.65*
S.D	0.13	0.19	0.22	Within	21.43	42	0.51	
Adjusted Post Test								
Mean	24.9	20.1	18.1	Between	169.17	2	84.59	56.39*
				Within	61.42	41	1.50	

*****Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.26 respectively).

The adjusted post-test means of flexibility of asanas group, pranayama groups and control groups are 24.9, 20.1 and 18.1 respectively. The obtained "F" ratio of 56.39 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on flexibility. The results of the study indicated that there was a significant difference between the adjusted post-test means of asanas group, pranayama groups and control groups on flexibility.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in table II.

TABLE II

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON FLEXIBILITY

Asanas Group	Pranayama Group	Control Group	Mean Differences	Confidence interval value
24.9	20.1	-	4.80*	1.44
24.9	-	18.1	6.80*	1.44
-	20.1	18.1	2.00*	1.44

*significant at 0.05 level of confidence

The table II shows that the mean difference values between asanas group and pranayama group, asanas group and control group and pranayama group and control group on flexibility 4.80, 6.80 and 2.00 respectively which were greater than the required confidence interval value 1.44 for significant at .05 level of confidence.

The results of these study showed that there was a significant difference exit between asanas group and pranayama group and control group on flexibility

Vital Capacity

TABLE III

ANALYSIS OF CONVARIANCE OF DATA ON VITAL CAPACITY OF PRE AND POST TEST SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas Group	Pranayama Group	Control Group	Source of variance	Sum of Squares	df	Mean Squares	Obtained 'F' ratio
Pre Test								
Mean	272.11	272.13	271.8	Between	0.05	2	0.25	0.42
S.D	1.03	1.02	0.979	Within	2.47	42	0.06	
Post Test								
Mean	274.2	276.2	271.73	Between	448.82	2	224.41	224.41*
S.D	1.11	1.05	1.0612	Within	42.02	42	1.00	
Adjusted Post Test								
Mean	273.8	276.6	271.9	Between	452.29	2	226.15	282.69*
				Within	32.85	41	0.80	

*****Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.26 respectively).

The adjusted post-test means of vital capacity of asanas group, pranayama groups and control groups are 273.8, 276.6 and 271.9 respectively. The obtained "F" ratio of 282.69 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on vital capacity.

The results of the study indicated that there was a significant difference between the adjusted post-test means of asanas group, pranayama groups and control groups on vital capacity.Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in table IV.

TABLE IV

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON VITAL CAPACITY

Asanas Group	Pranayama Group	Control Group	Mean Differences	Confidence interval value
273.8	276.6	-	2.80*	1.11
273.8	-	271.9	1.90*	1.11
-	276.6	271.9	4.70*	1.11

*significant at 0.05 level of confidence

The table IV shows that the mean difference values between asanas group and pranayama group, asanas group and control group and pranayama group and control group on vital capacity 4.80, 6.80 and 2.00 respectively which were greater than the required confidence interval value 1.44 for significant at .05 level of confidence.

The results of these study showed that there was a significant difference exit between asanas group and pranayama group and control group on vital capacity

Breath Holding Time

TABLE V
ANALYSIS OF CONVARIANCE OF DATA ON BREATH HOLDING TIME OF PRE AND POST TEST SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas Group	Pranayama Group	Control Group	Source of variance	Sum of Squares	df	Mean Squares	Obtained 'F' ratio
Pre Test								
Mean	51.80	52.30	52.20	Between	0.006	2	0.003	0.058
S.D	1.10	0.97	1.09	Within	0.66	42	0.0157	
Post Test								
Mean	54.20	56.87	52.33	Between	0.989	2	0.445	11.125*
S.D	0.56	0.89	1.06	Within	1.69	42	0.04	
Adjusted Post Test								
Mean	54.88	56.86	52.23	Between	0.762	2	0.381	9.645*
				Within	1.62	41	0.0395	

*****Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.26 respectively).

The adjusted post-test means of breath holding time of Asana group, pranayama groups and control groups are 54.88, 56.86 and 52.27 respectively. The obtained "F" ratio of 9.645 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on breath holding time.

The results of the study indicated that there was a significant difference between the adjusted post-test means of Asanas group, pranayama groups and control groups on breath holding time.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in table VI.

TABLE VI
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON BREATH HOLDING TIME

Asanas Group	Pranayama Group	Control Group	Mean Differences	Confidence interval value
54.88	56.86	-	1.98*	1.42
54.88	-	52.	2.61*	1.42
-	56.86	52.7	4.59*	1.42

*significant at 0.05 level of confidence

The table VI shows that the mean difference values between asanas group and pranayama group, asanas group and control group and pranayama group and control group on breath holding time 1.98, 2.61 and 4.59 respectively which were greater than the required confidence interval value 1.42 for significant at .05 level of confidence.

The results of this study showed that there was a significant difference exit between asanas group and pranayama group and control group on breath holding time

Resting Pulse Rate

TABLE VII
ANALYSIS OF CONVARIANCE OF DATA ON RESTING PULSE RATE OF PRE AND POST TEST SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas Group	Pranayama Group	Control Group	Source of variance	Sum of Squares	df	Mean Squares	Obtained 'F' ratio
Pre Test								
Mean	67.11	67.47	67.2	Between	0.018	2	0.0009	1.80
S.D	0.98	0.718	0.653	Within	0.21	42	0.005	
Post Test								
Mean	64.22	66.47	67.13	Between	0.013	2	0.0065	32.50*
S.D	1.11	0.718	0.618	Within	0.007	42	0.0002	
Adjusted Post Test								
Mean	64.12	66.35	67.26	Between	4.51	2	2.25	17.31*
				Within	5.49	41	0.13	

***Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.26 respectively).

The adjusted post-test means of resting pulse rate of asanas group, pranayama groups and control groups are 64.12, 66.35 and 67.26 respectively. The obtained "F" ratio of 17.31 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on resting pulse rate.

The results of the study indicated that there was a significant difference between the adjusted post-test means of asanas group, pranayama groups and control groups on resting pulse rate.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in table VIII.

TABLE VIII
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON RESTING PULSE RATE

Asanas Group	Pranayama Group	Control Group	Mean Differences	Confidence interval value
64.12	66.35	-	2.23*	0.89
64.12	-	67.26	3.14*	0.89
-	66.35	67.26	0.91*	0.89

*significant at 0.05 level of confidence

The table VIII shows that the mean difference values between asanas group and pranayama group, asanas group and control group and pranayama group and control group on resting pulse rate2.23, 3.14 and 0.91 respectively which were greater than the required confidence interval value 0.89 for significant at .05 level of confidence.

The results of this study showed that there was a significant difference exit between asanas group and pranayama group and control group on resting pulse rate.

CONCLUSIONS

1. There was a significant difference among asanas group, pranayama groups and control groups on flexibility.
2. There was a significant difference among asanas group, pranayama groups and control groups on vital capacity.

3. There was a significant difference among asanas group, pranayama groups and control groups on breath holding time.
4. There was a significant difference among asanas group than pranayama groups and control groups on resting pulse rate.
5. There was a significant improvement on selected criterion variables however the improvement on flexibility is favored to asana group than pranayama group and control group.
6. Regarding the improvement on Vital Capacity, Breath Holding Time, Resting Pulse Rate Ware Favored On Pranayama Group, Asana Group And Control Group

REFERENCES

Ajmer singh et al Essential of physical Education (new delhi: kalyani publishers ,2003).

Ardy friend berg , the fact of file dictionary fitness, (USA: the time minar publication, 1994)

Barry, L.johanson and K.Jack Nelson,p practical measurements for evaluation in physical education,(3rd Edn.) (Delhi : surjeet publilcation,1988).

Atanable K.,Nakadomo,f.,Maeda K,"Relationship between body composition and cardio Respiratory fitness in japanese junior High school Boys and Girls",European journal of clinical nutrition, 1994 july.

Barlleft, H.L. and E.R. Bus kirk," Body composition and the Expiratory Reservse Volume in lean and obese Men and women", International jouranal of obesity 7(1983).