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PHYSICAL EDUCATION

EFFECTS OF ASANA AND PRANAYAMA ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES

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ABSTRACT

The purpose of the study was to find out the effects of asana and pranayama on selected physical and physiological variables. To achieve this purpose of the study forty-five men students were selected studying Bachelor's degree in the Department of Physical Education, Meenaakshi Ramasamy College, Thathanur, Ariyalur, Tamil Nadu, India at randomly. They were divided into three equal groups of each fifteen players as asnas training group (Group I), pranayama training group (Group II) and act as control group (Group III). Group I and II were underwent their respective training programme for three days per week for twelve weeks who did not underwent any special training programme apart from their regular physical education curriculum. The following physical and physiological variables such as Flexibility and Breath Holding Time were selected as criterion variables. The Flexibility was assessed by Sit and Reach Test and Breath Holding Time was assessed by using Holding the breath for time. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selected. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. There was a significant difference among asnas training group, pranayama training group and control group on physical and physiological variables among Flexibility and Breath Holding Time.

KEYWORDS: Pranayama, Asana.

INTRODUCTION

The great science of yoga is India's unequalled gift to mankind. If mankind is to evolve further and if it is to save itself from its own aggressive tendencies, the only path open is through the science of yoga. Though the ultimate goal of this yoga ands sports is the relationship of the absolute health in day-to-day life it is useful and necessary to maintain mental and bodily health. Bodily exercise (asana) breath control (pranayama) and mind control (dharana) are all helpful to conquer bodily and mental ills. The great influence of the mind over the body, its health and functioning was well understood by our ancient people, throughout our glorious history, control of the mind was given prime importance for achieving health of the body, happiness of the mind harmony with society and the universe.

Asanas are classified in to meditative and cultural, Relaxative poses could be considered as a contour part of cultural asanas. The purpose of meditative asanas is to enable the student to sit comfortably and for long hours in meditation.

The characteristics of asana have been concisely expressed by Patanja;I in yoga sutra "Sthiram Sugam Asanam". The word 'Sthira' and 'Sugha' represent two important characteristics.

Asana should be stable and comfortable. The term asana can be defined on the basis of the two criteria of stability and 'Comfort'. These two characteristics practicall answer all questions related to asanas.

Generally, asanas is looked upon as physical exercise, but it is not correct. The word "Sthira" normally denotes physical.

Stability and the word "Sukha" represent mental state. The former is objective. While the later is subjective in nature. Use of both words together suggests psycho-physiological characteristics of asana.

Though the body practices the asana it brings effects of the mind. If the asana is physical exercise, and then we cannot attribute tranquilizing effect to it.

Health is the motto of yoga. Many people still think that yoga is a religion; others believe it to be a kind of magic. In reality yoga is a system of physical, mental and spiritual development.

Yoga does not mean just twisting and bending of the body. It is a comprehensive mode of culturing the body. It also secures a powerful tool in manifesting the hidden personality of man. Yoga may be the cheapest and most scientific method of ensuring soundness of the body and mind.

METHODOLOGY

The purpose of the study was to find out the effects of asana and pranayama on selected physical and physiological variables. To achieve this purpose of the study forty-five men students were selected studying Bachelor's degree in the Department of Physical Education, Meenaakshi Ramasamy College, Thathanur, Ariyalur, Tamil Nadu, India at randomly. They were divided into three equal groups of each fifteen players as asnas training group (Group I), pranayama training group (Group II) and act as control group (Group III). Group I and II were underwent their respective training programme for three days per week for twelve weeks who did not underwent any special training programme apart from their regular physical education curriculum. The following physical and physiological variables such as Flexibility and Breath Holding Time were selected as criterion variables. The Flexibility was assessed by Sit and Reach Test and Breath Holding Time was assessed by using Holding the breath for time. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selected. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

TRAINING PROGRAMME

During the training period, the experimental groups underwent the asanas and pranayama respectively, the training was given twelve weeks for three days per week. Every day the work out lasted for 45 to 60 minutes approximately. The subjects underwent their respective training programs as per schedules under the supervision of the investigator. Each training session was conducted only in the morning time during experimental period control group did not participate in any of the special training.

STATISTICAL ANALYSIS

The random group design was used as experimental design for this study. The collected data from the asnas , pranayama and control groups during pre and post test on selected criterion variables such as flexibility, strength endurance and breath holding time used for statistical treatment to find out significant difference between the adjusted post means by computing analysis of covariance (ANCOVA) per each criterion variable separately.

Since, three groups were compared, whenever the obtained 'F' ratio for the adjusted post test was found to be significant, the Scheffe's test applied as post hoc test to find out paired mean differences, it any. In all the cases, .05 level of confidence was fixed to test the significance.

ANALYSIS OF THE DATA

The influence of asanas and pranayma on each criterion variables were analysed separately and presented below.

FLEXIBILITY

The analysis of covariance on flexibility of the pre and post test scores of asanas group, pranayama group and control group have been analyzed and presented in Table I.

TABLE I

ANALYSIS OF COVARIANCE OF THE DATA ON FLEXIBILITY OF PRE AND POST TESTS SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas group	Pranayanm agroup	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	19.12	19.10	19.30	Between	0.85	2	0.425	0.47
S.D.	0.05	0.05	0.06	Within	38.13	42	0.91	
Post Test								
Mean	25.20	22.32	19.31	Between	282.84	2	141.42	147.31*****
S.D.	0.07	0.08	0.07	Within	40.27	42	0.96	
Adjusted Post Test								
Mean	25.11	22.45	19.21	Between	274.62	2	137.31	143.03*****
				Within	39.31	41	0.96	

* 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 3.222 and 3.226 respectively).

The table I shows that the pre-test mean values on flexibility of asanas group, pranayama group and control group are 19.12, 19.10 and 19.30 respectively. The obtained "F" ratio of 0.47 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on flexibility. The

post-test mean values on flexibility of asanas group, pranayama group and control group are 25.20, 22.32 and 19.31 respectively. The obtained "F" ratio of 147.31 for post test scores is more than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on flexibility.

The adjusted post-test means of asanas group, pranayama group and control group on flexibility are 25.11, 22.45 and 19.21 respectively. The obtained "F" ratio of 143.03 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 group and control group 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	Pranayanmagroup	Control Group	Mean Differences	Confidence Interval Value
25.11	22.45	-	2.66*	2.10
25.11	-	19.21`	5.90*	2.10
-	22.45	19.21	3.24*	2.10

* Significant at .05 level of confidence.

The table II shows that the mean difference values between asanas group and pranamayma group, asanas group and control group and pranayama group and control group 2.66, 5.90 and 3.24 respectively on flexibility which were greater than the required confidence interval value 2.10 for significance at .05 level of confidence.

The results of this study showed that there was a significant difference exist between asanas group and pranamayma group, asanas group and control group and pranayama group and control group on flexibility.

BREATH HOLDING TIME

The analysis of covariance on breath holding time of the pre and post test scores of asanas group, pranayama group and control group have been analyzed and presented in Table III.

TABLE III

ANALYSIS OF COVARIANCE OF THE DATA ON BREATH HOLDING TIME OF PRE AND POST TESTS SCORES OF ASANAS, PRANAYAMA AND CONTROL GROUPS

Test	Asanas group	Pranayanmagroup	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	48.21	49.11	48.25	Between	0.018	2	0.0009	1.80
S.D.	1.12	1.01	1.14	Within	0.21	42	0.005	
Post Test								
Mean	50.11	55.46	48.34	Between	0.013	2	0.0065	32.50*****
S.D.	0.91	1.00	1.12	Within	0.007	42	0.0002	
Adjusted	**Post Test**							
Mean	50.45	56.01	48.32	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 3.222 and 3.226 respectively).

The table III shows that the pre-test mean values on breath holding time of asanas group, pranayama group and control group are 48.21, 49.11 and 48.25 respectively. The obtained "F" ratio of 1.80 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on breath holding time. The post-test mean values on breath holding time of asanas group, pranayama group and control group are 50.11, 55.46 and 48.34 respectively. The obtained "F" ratio of 32.50 for post test scores is more than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on breath holding time.

The adjusted post-test means of asanas group, pranayama group and control group on breath holding time are 50.45, 56.01 and 48.32 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 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 group and control group 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 IV.

TABLE IV
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
50.45	56.01	-	5.56*	1.41
50.45	-	48.32	2.13*	1.41
-	56.01	48.32	7.69*	1.41

* Significant at .05 level of confidence.

The table IV shows that the mean difference values between asanas group and pranamayma group, asanas group and control group and pranayama group and control group 5.56, 2.13 and 7.69 respectively on breath holding time which were greater than the required confidence interval value 1.41 for significance at .05 level of confidence.

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

CONCLUSIONS

1. There was a significant difference among asanas group, pranayama group and control group on flexibility.
2. There was a significant difference among asanas group, pranayama group and control group on breath holding time.
3. There was a significant improvement on selected criterion variables due to asanas and pranayama. However, the improvement on flexibility were in favour of asanas group and breath holding time was in favour of pranayama group.

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