

# Effect of Selected Hatha Yogasana Practices on Health Related Physical Fitness of College Students

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**Abstract –** The paper presents the results of a study on the Effect of selected Yogasana Practices on Health Related Physical Fitness of College Students. The study is experimental study. Simple Random Pre-Test – Treatment – Post Test design is adopted. The subjects in the age group of 17 – 19 years were selected at randomly of College of Engineering Kharghar, Navi Mumbai. 30 subjects were allotted to each of the experimental and control groups.

**Statement of the Problem:** The main purpose of the study was find out the effect of training in Hatha Yogasana practices on Health Related Physical Fitness of College Students.

**Hypothesis:** It was hypothesized that there would be a significant effect of training in Hatha Yogasana practices on the selected variables namely health related physical fitness.

**Methodology:** A detailed training schedule for 12 weeks was prepared. Yogasanas were alone given as treatment. For the Health Related Physical Fitness (HRPF), the variables such as Functional Strength (FS), Trunk Strength (TS), Body Mass Percentage (BMP), Sit - Up, Flexed Arm, Bent Knee Sit - Ups, Skin Fold and Harvard Step Tests were administered in an order. The reliability and validity were suitability established as required for the instruments and scales used.

**Descriptive and differential statistical techniques were used.** Since, „t“ test results did not show any significant difference (Two tailed test of significance at 0.01 level is considered) between the Mean scores of pre-tests of experimental and control groups in all the nine criterion variables, the groups are equivalent with reference to these variables. Hence, ANOVA was applied. The obtained „t“ test results reveals that there is a significant difference (one tailed test of significance at 0.05 level is considered) between the Post and Pre Post Test Scores in all the five of the Health Related Physical Fitness of college students. The other statistical techniques such as Post - test, Gain score and Effect size analyses were used to established the significance of difference already obtained through “t” tests.

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## 1.1 INTRODUCTION

Psycho – Physical Health is the greatest concern of modern man. Participation in yoga activities that promote physical fitness also had been shown to reduce depression and anxiety and to increase a person's self-image and ability to deal with stress in a positive manner. Yoga eliminates psycho-physical tensions. It is a known fact that a regular practice of yogasanas relaxes the mind and considerably brings down the mental stress and physical strain. The psycho- physical methodology of yoga is becoming more and more popular in the present times and also increasingly subjected to scientific research and hence this present study.

## 1.2 STATEMENT OF THE PROBLEM

The main purpose of the study was find out the effect of training in Hatha Yogasana practices on Health Related Physical Fitness of College Students.

## 1.3 HYPOTHESIS

It was hypothesized that there would be a significant effect of training in Hatha Yogasana practices on the selected variables namely health related physical fitness.

## 1.4 EXPERIMENTAL DESIGN AND TREATMENT

The study is a quasi-experimental study. Simple random two groups pre-test treatment & post –test design is adopted in this study.

The selected Hatha Yogasana practices such as Utthita Trikonasana, Uttanasana, Salabhasana, Dhanurasana, Bhujangasana, Paripurna Navasana, Parvatasana, Paschimottanasana, Salamba Sarvangasana and to Halasana are included in the experimental treatment - for the yoga group. The control group was kept free and away from the experimental group.

**Table 1.1 Showing the distribution of Treatment to Experimental and Control Groups:**

Group	Name	Pre-Test	Treatment	Post Test
1	Hatha	Yes	E 1 (R) 10 Asanas	Yes
2	Control	Yes	C (R) Nil	Yes

## 1.5 THE SUBJECTS

Sixty Students were selected at randomly from the College for this study. The average age of the subjects was ranging from seventeen to Nineteen years. The selected subjects were further divided at random into two groups namely Hatha Yogasanas Practices and control groups. All the subjects were normal and healthy college students. The sample was considered as representing the population. The number in each group was thirty.

## 1.6 ORGANIZATION OF THE PROJECT

At the commencement of the project all the students were oriented, in an assembly, on the objectives of the study, testing procedures for measuring criterion variables, and treatment procedures. The test techniques were demonstrated. The subjects were given a week's time to practice the test, under the guidance of the experts to eliminate learning effects at the time of initial testing. The subjects were motivated to give their best performance by explaining, the importance of their scores in the various tests and encouraging them during the performance by friendly attention and verbal encouragement.

**Table 1.2 Showing the Health Related Physical Fitness and their respective Tests**

Health Related Physical Fitness Variables	
1. Flexibility	Sit and Reach Test
2. Functional Strength	Flexed Arm Hang Test
3. Trunk Strength	Bent knee Sit-ups Test
4. Body Composition (Body Mass Index)	Skin Folds Test
5. Cardio Respiratory Fitness	Harvard Step Test

## 1.7 FINDINGS:

### 17.1. Descriptive Analysis:

**I. Pre-test Results** Since, „t“ test results did not show any significant difference between the Mean scores of pre-tests of experimental and control groups in all the nine criterion variables, the groups are equivalent with reference to these variables. (Two- tailed test of significance at 0.01 is considered)

**Table 1.3: Showing the ‘ t ’ Test Results for the Difference between Means of Pre Test Scores in all the Criterion Variables for Experimental and Control Group**

S. No	Criterion Variables	Experimental Group (N = 30)		Control Group (N = 30)		t <sup>o</sup> Value	Significance
		M	S. D	M	S. D		
<b>Health Related Physical Fitness Variables</b>							
1	Flexibility (FL)	8.30	4.41	8.57	4.71	0.229	0.8187 N.S
	Trunk Strength (TS)	14.33	4.99	12.97	4.84	1.071	0.2863 N.S
3	Functional Strength (FS)	15.87	10.04	14.37	10.93	0.553	0.5803 N.S
4	Body Fat Percentage (BFP)	14.31	0.66	14.20	0.67	0.640	0.5225 N.S
5	Cardio- Respiratory Endurance (CRE)	56.33	4.78	56.02	3.98	0.273	0.7849 N.S

(Two-tailed test of significance at 0.01 level is considered)

### II. ‘t’ tests for Post-Pre-test Scores

The „t“ test results for the differences between the means of post and pre- tests scores of all the criterion variables of the experimental and control groups are presented in table 1.4. (One tailed test of significance at 0.01 and 0.5 level)

**Table 1.4: Showing the ‘ t ’ Test Results for the Difference between Means of Post and Pre Test Scores of all the Criterion Variables of the Experimental and Control Groups.**

(One tailed test of significance at 0.05 and 0.01 levels are considered)

S. No	Criterion Variables	Experimental Group Hatha Yogasanas (N = 30)			Control Group N = 30		
		M	S. D	t <sup>o</sup> value	M	S. D	t <sup>o</sup> value
1	Flexibility (FL)	12.63	5.26	3.454	9.03	4.00	0.411 N.S
	Post Test	8.30	4.41	[P > 0.01]	8.57	4.71	
	Pre Test						
2	Trunk Strength (TS)	19.53	5.69	3.763	17.53	4.50	0.137 N.S
	Post Test	14.33	4.99	[P > 0.01]	12.97	4.84	
	Pre Test						
3	Functional Strength (FS)	21.67	11.22	2.001	20.60	9.94	0.173 N.S
	Post Test	15.87	10.04	[P > 0.05]	14.37	10.93	
	Pre Test						
4	Body Fat Percentage (BFP)	11.37	0.51	-19.306	11.44	0.92	0.154 N.S
	Post Test	14.31	0.66	[P > 0.01]	14.20	0.67	
	Pre Test						
5	Cardio-respiratory Endurance (CRE)	71.35	5.55	11.232	68.71	3.74	0.030 N.S
	Post Test	56.33	4.78	[P > 0.01]	56.02	3.98	
	Pre Test						

### 1.7.2 Differential Analysis

The effects of the treatments were studied in four ways.

1. Difference between Post-test and Pre-test scores of the experimental and Control Group.
2. Difference in Post test scores between Experimental and Control groups.
3. Gain score analysis for the Experimental group only.
4. The Effect sizes for the mean differences in post test scores for the Experimental and control group.

#### (1) 't' test for Post and Pre Tests Scores

The „t“ test results for the differences between the means of post and pretests scores for all the criterion variables reveal the following: -

1. The Hatha Yogasanas Group (1), shows significant differences between means of pre and post test scores, at 0.01 level of confidence, since the obtained „t“ values for the four criterion variables of Health Related Physical Fitness, i.e. Flexibility (FL) -3.45, Trunk Strength (TS) 3.76, Body Fat percentage (BFP) -19.31 and in Cardio Respiratory Endurance (CRE) -11.23 are higher than the Table value and in one of the variables Functional Strength (FS), the obtained `t` value is (2.001), significant at level.
2. The control group did not show any significant difference between the pre and post- test means in all the nine variables as the `t` values for all these variables are less than the table value for [0.05] level of significance.

#### (2) Post Test Mean differences

1. The mean differences in post-tests scores between experimental and control groups, in all the five criterion variables are significant. The obtained „t“ value for Flexibility is (3.51), for Trunk Strength, (4.22), for Body Fat Percentage (-3.10) and for Cardio respiratory Endurance (14.94), for Functional Strength (2.32).

The treatment has resulted in significant gain for the Hatha Yoga Asana Groups in all the nine criterion variables, since the obtained "t" values are higher than the table value at 0.01 level.

### (3) Gain Scores Analysis

The („t“) test was applied and the difference in Mean gains significantly differs in all the following variables.

#### I. Health Related Physical Fitness Variables:

- (a) Flexibility (FL) - Asana Group (4.33) and Control Group (0.47)
- (b) Trunk Strength (TS) - Asana Group (5.20) and Control Group (0.17)
- (c) Functional Strength (FS) - Asana Group (5.80) and Control Group (0.47)
- (d) Body Fat Percentage (BFP) – Asana Group (-2.93) and Control Group (-0.39)
- (e) Cardio Respiratory Endurance (CRE) – Asana Group (15.01) and Control Group (0.03)

#### (4) The Effect Size and their respective Percentiles

The effect sizes of treatment of the various variables in the experimental group as against the control group, it can be deduced that the mean of the variables in the experimental group are at the percentiles of the control group in the respective variables measures as given below:

**Table 1.5 Showing the Experimental group mean and Percentile In Control Group Distribution and Effect Size**

S. No.	Criterion Variables	Experimental Group (I) Hatha Yoga (Asanas)	Control Group (4)	Experimental Group (I)
<b>I Health Related Physical Fitness Variables</b>				
1	Flexibility (FL)	12.63	82.00	0.90
2	Trunk Strength (TS)	19.53	88.80	1.22
3	Functional Strength (FS)	21.67	68.40	0.48
4	Body Fat Percentage (BFP)	11.37	99.99	-3.53
5	Cardio-respiratory Endurance (CRE)	71.35	99.99	4.18

### 1.8 RECOMMENDATIONS

1. It is recommended that Yoga may be an integral part of College curriculum. Suitable norms of fitness test may also be established for college students.
2. Yogasana practices may be popularized in Colleges along with Physical Education Programme for at least 30 minutes duration for Students.
3. The Yogasana practices may be introduced in coaching camps for various games.

## 1.9 SUGGESTION FOR FURTHER STUDIES

1. The study may also be conducted on College Women and School Girls by including a few physiological and other psychological variables.
2. A similar study may be conducted on various age groups of College men belonging to various categories of institutions.
3. A similar research programme may be conducted among the Men and Women Staff working in Colleges, to identify their level of fitness and its impact on psychological variables.
4. A similar study may also be conducted among the College sports teams in various sports disciplines to identify and trace the fitness requirements and the psychological make-up for various games.

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