

## **12. Health Related Parameters Among University Women Students**

**Dr. P. Senthil**

Assistant Professors,  
Department of Physical Education and Sports Sciences,  
Annamalai University, Chidambaram, Tamil Nadu, India.

**Abstract:**

*The purpose of the study was to find out the effect of 12 weeks of pranayama and yogic exercise program on selected health related parameters among university women students under the age group 18-23 years. To achieve this purpose 40 women students were selected under the age group 18-23 from the department of physical education and sports sciences, Annamalai University, Chidambaram. They were divided into two groups namely pranayama and yogic exercise group and control group consisting of 20 subjects in each group.*

*The experimental group alone received the pranayama and yogic exercises for 12 weeks, whereas the control group maintained their daily routine activities and no special training was given. All the subjects were tested in the selected variables such as Back strength and Cardio-respiratory endurance before and after 12 weeks of pranayama and yogic exercise program.*

*The data collected from the subjects would be statistically analyzed by using analysis of covariance (ANCOVA) to find out the significant difference, if any between the groups. The .05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The results of the study showed that there were significant differences exist between pranayama and yogic exercise group and control group. And also, pranayama and yogic exercise group showed significant improvement on Back strength and Cardio-respiratory endurance compared to control group.*

**Keywords:**

*Pranayama and yogic exercise, back strength, and Cardio-respiratory endurance, Analysis of covariance (ANCOVA).*

**12.1 Introduction:**

The word yoga automatically calls to mind Sage “Patanjali” the founder and father of Yoga. He lived around three centuries before Christ, and was a great philosopher and grammarian, he was also a physician and a medical work is attributed to him. Yoga is best known as a set of physical practices that include gentle stretches, breathing practices, and progressive deep relaxation.

These physical practices are intended to ready the body and mind for meditation as well as for a meditative perspective on life. These meditative practices also follow a sequence. First of all, it develops the capacity to withdraw the senses from focus on the outer world, then the capacity to concentrate on a meditative subject—a candle flame, a sacred or uplifting word or image or the movement of the breath. The word yoga is derived from the Sanskrit root yuj meaning to bind, join, attach and yoke, to direct and concentrate one’s attention on, to use and apply. It also means union or communion. According to Swami Satyanand Saraswathi “Yoga is not an ancient myth buried in oblivion. It is the most valuable inheritance of the present. It is the essential need of today and the culture of tomorrow”. Finally, and for most of us only occasionally, the concentration leads into a wordless experience of inner peace. The yoga describes various subtleties among these states of inner peace, but most of us, at best, achievements of this experience from time to time. Michael Lerner, “Choices in Healing”. Pranayama means voluntary regulation of breathing and the pranayama is an exercise of consciously-controlled rhythmic breathing involving timed breath- holding in each cycle of breathing, while the subject holds utmost attention and experiences the touch of inhaled air in the nasal passage.

### **12.1.1 Statement of The Problem:**

The purpose of this study was to investigate the effect of 12 weeks pranayama and yogic exercise program on selected health related parameters of university women students of 18 to 23 years of age.

### **12.2 Methodology:**

The subjects for this study were randomly selected from department of physical education and sports sciences, Annamalai University, Chidambaram. In total 40 college students were selected at random and they were divided into two equal groups that is experimental and control group in each group consist of 20 subjects their age ranged from eighteen to twenty-three.

The experimental group has undergone Pranayama (breathing techniques) such as Anulomevilom, Nadisuddhi, Ujjayi, Bhramari and Yoga asanas (Postures) such as Halasana(plough pose), Sarvangasana(inverted pose), Paschimothanasana (posterior stretching pose), Mayurasana(peacock pose), Vajrasana(pelvic pose), Gomukhasana(cow face pose), Bhujangasana(cobra pose), etc. five days in a week for the period of 12 weeks and the control group was not undergoing pranayama and yogic exercise program.

To find out the Back strength and Cardio-respiratory endurance, the investigator conducted the back lift dynamometer test readings and cooper's 12 minutes' walk/run test. Testers' competency, subject reliability and reliability of tests were established by using test and retest method and the reliability coefficient were found to be satisfactory high.

The data were analyzed using one way analysis of covariance (ANCOVA) for determine the effect of 12 weeks pranayama and yogic exercise programme on selected health related parameters of university women students.

### 12.2.1 Hypothesis:

- It was hypothesized that there would be significance difference due to influence of selected pranayama and yogic exercises on back strength while comparing with control group.
- It was hypothesized that there would be significance difference after 12 weeks of selected pranayama and yogic exercises cardio-respiratory endurance while comparing with control group.

### 12.2.2 Selection of Subjects:

For the purpose of these 40 university women students have been selected at random at department of physical education and sports sciences, Annamalai University, Chidambaram, on the age group between eighteen to twenty-three.

### 12.2.3 Selection of Variables and Tests:

The research scholar reviewed the available scientific literature pertaining to available the present study; the following health related variables were selected.

**Table 12.1: Selection of Variables and Tests:**

Sr. No.	Variables	Test Items
	Health related parameters	
1.	Back Strength	Back lift dynamometer
2.	Cardio-Respiratory Endurance	Cooper's 12 minutes' walk/run test

### 12.2.4 Statistical Techniques:

The data collected from the experimental group and control group, the selected health related parameters such as Back strength and Cardio-respiratory endurance was statistically examined by using the “F” ratio used to find out the significance

difference between experimental group and control group, the level of significance was fixed at 0.05 level of confidence. The data collected from the subjects would be statistically analyzed by using one way analysis of covariance (ANCOVA).

### 12.3 Results and Discussion:

**Table 12.2: Analysis of covariance on Back strength of pre and post test scores for pranayama and yogic exercise group and control group**

Test	PYE Group	Con Group		Sum of Squares	Df	Ms	F
Pre-Mean	83.3	82.45	B	0.4	1	0.4	0.085634
SD	1.261	1.504	W	177.5	38	4.671053	
Post Mean	84.65	82.65	B	18.225	1	18.225	11.4
SD	1.268	2.661	W	60.75	38	1.598684	
Adjusted Post Mean	82.875	83.15	B	17.94652	1	17.94652	10.99322
			W	60.40283	37	1.632509	

Table value of (1, 37) at 0.05 level is 4.06.

The calculated value of F ratio (10.99322) is greater than the table value of 4.06 at 0.05 level. Hence it is significant.

Therefore, there is statistical significance difference between Control and Experimental scores of Back strengths.

**Table 12.3: Analysis of covariance on Cardio-respiratory endurance of pre and post test scores for pranayama and yogic exercise group and control group**

Test	PYE Group	Con Group		Sum of Squares	Df	Ms	F
Pre-Mean	49.73968	50.8023	B	22.72556	1	22.72556	3.430194
SD	1.911974	2.535099	W	251.7559	38	6.625154	
Post Mean	54.27558	49.2948	B	205.7439	1	205.7439	48.79264
SD	2.185807	2.612199	W	160.2346	38	4.216699	
Adjusted Post Mean	50.27099	51.78519	B	220.9383	1	220.9383	56.41697
			W	144.8982	37	3.916168	

Table value of (1, 37) at 0.05 level is 4.06.

The calculated value of F ratio (56.41697) is greater than the table value of 4.06 at 0.05 level. Hence it is significant. Therefore, there is statistical significance difference between Control and Experimental scores of Cardio-respiratory endurance.

### 12.3.1 Discussion:

The following studies were coinciding with the results of this study, so the conclusion is formatted with help of these studies. Vinayak.P. Dojjad et. al., (2011)<sup>1</sup> conducted study to find effect of short-term Yoga practice on cardio-respiratory fitness.

This study results that Resting pulse rate, Respiratory rate and blood pressure was found to be decreased and 40mmHg endurance time found to be increased in both male and female subjects.

They found out that yoga practice can be advocated to improve cardio-respiratory efficiency for patients as well as healthy adults. Dr. S. Manikandan, (2014)<sup>2</sup> conducted study on influence of yogic practices on selected physiological variables among Handball players.

The results of the study showed that there was a significant difference in cardio respiratory endurance and vital capacity between yogic practice group and control group and also there was a significant improvement on cardio respiratory endurance and vital capacity due to eight weeks of yogic practices.

Mr. Pradeep Kumar U, Mr. Nandi Channabasappa, (2014)<sup>3</sup> found that Abdominal Plus Psoas muscles (A+), Abdominal Minus Psoas muscles (A-)Psoas and Lower abdomen (P)Upper Back (UB)Lower Back (LB)Back and Hamstring (BH) improved due to six weeks yoga training and they concluded that there was a positive and significant effect of yogic exercises in the improvement of muscular strength of athletes.

Verma Anita et. al., (2014)<sup>4</sup> aimed to find the effect of Yoga Practices on Micronutrient Absorption and Physical Fitness in Rural Residential School Children: A Randomized Controlled Trial.

They found that the yoga practices show significant increase in flexibility, grip strength, abdominal strength after 12 weeks of yoga training in adolescent rural residential school children.

#### **12.4 Conclusion:**

The finding of this study indicated that the 12 weeks of pranayama and yogic exercise program significantly increase the cardio-respiratory endurance when compared with pretest as well as control group. It was concluded that the back strength shows significant improvement due to regular practice of pranayama and yogasanas.

### **12.5 References:**

1. Vinayak.P. Doijad, Anil.D. Surdi. Effect of short-term yoga practices on cardio- respiratory fitness parameters. *International Journal of Basic Medical Science*- November-2011, Vol: 2, Issue: 5, p286-290
2. Dr. S. Manikandan. Influences of yogic practices on selected physiological variables among handball players. *PARIPEX - INDIAN JOURNAL OF RESEARCH*, Volume: 3 | Issue: 12 | Dec 2014| p172-173
3. Mr. Pradeep Kumar U, Mr. Nandi Channabasappa. Effect of Yogic Exercises Intervention on the Strength Development of Athletes. *International Journal of Health, Physical Education and Computer Science in Sports*, Volume No.15, No.1.pp36-38.
4. Verma Anita et al, Effect of Yoga Practices on Micronutrient Absorption and Physical Fitness in Rural Residential School Children: A Randomized Controlled Trial, *Int. J. Res. Ayurveda Pharm.*5(2), Mar-Apr 2014.