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## Effects of an integrated yogic practices on the selected physiological variables among the senior citizens

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### Abstract

The present study is to analyze the effects of an integrated yogic practice on the selected physiological variables among the senior citizens. The subjects were selected from the male senior citizens of Coimbatore District. The subject's age ranged from 60 to 70 years and the subjects were divided into two groups namely Surya Namaskar, Asana, Meditation, Training Group (SAMTG) and Control Group (CG) each group consisting of 20 subjects. The selected subjects were initially tested on the criterion variables used in this study and this was considered as the pre –test. After assessing of the pre –test, the subjects belonging to Surya Namaskar, Asana, Meditation, Training Group (SAMTG) were treated with yogic practices. As far as the subjects in Control Group (CG) was considered, they were not given any specific training. It was concluded that the 12 weeks of training practices showed the significant improvements in the Breath holding time and resting the Heart Rate.

**Keywords:** Breath holding, resting heart rate

### 1. Introduction

Yoga is a psycho- somatic-spiritual discipline to achieve the union and harmony among our mind, body and soul and the ultimate union of our individual consciousness with the universal consciousness. Now- a-days people are looking towards the natural ways of approach in health and happiness. This search has brought yoga in our daily life. Yoga helps to keep our inner body and mind clean to have a life of benevolence. The practice of yoga exercise or asana can improve the health, resistance and develop various mental awareness of the individual. Yoga has excellent solutions for the various ailments. Yoga is an ancient Indian Art and Science. It deals with the body and mind. It is being practiced since the beginning of the civilization. Yoga can be learnt and practiced by all irrespective of Country, Age, Gender or Class (Rinyi and loyrt, 2008).

Surya Namaskar is known in English as a sun salutation and is a common sequence of asana. Its origins lie in India where they worship Surya, the Hindu solar deity. This sequence of movements and asana can be practiced on varying levels of awareness, ranging from the physical exercise in various styles and it leads to a complete sadhana which incorporates asana, pranayama, mantra and chakra meditation. It is often the beginning of vinyasa from a longer yoga series. Surya Namaskara may also refer to the other styles of “salutations to the sun”

Meditation is a practice where an individual trains the mind or induces a mode of consciousness, either to realize some benefit or for the mind to simply acknowledge its contest without becoming identified with that contest or as an end in itself. The term meditation refers to a broad variety of practices that includes the techniques designed to promote the relaxation, build internal energy or life force and develop the compassion, love, patience, generosity and forgiveness. A particularly ambitious form of meditation aims effortlessly in sustained single-pointed concentration meant to enable its practitioner to enjoy an indestructible sense of well-being while engaging in any life activity.

### 1.1 Statement of the Problems

The present study was to analyze the effects of integrated yogic practices on selected physiological variables among senior citizens.

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**1.2 Hypothesis**

The Suriya Namaskar, Asana, Meditation Training Yogic practices have significant positive effect on Physiological Variables among senior citizens.

**2. Methods and Procedures**

**2.1 Selection of the Subjects**

Forty middle aged men were selected as the subjects by adopting the purposive random sampling technique and they were selected from Coimbatore city. The age of the subjects ranged from 60 to 70 years.

**2.2 Experimental design**

The male senior citizens subjects were selected from Coimbatore. The subject’s age ranged from 60 to 70 years. The subjects were divided into two groups namely Surya Namaskar Asana Meditation Training group (SAMTG), and Control group (CG). The yogic group (SAMTG) participated in Surya Namaskar and Asana with the meditation training for three days a week and for a duration of 12 weeks and the control group did not participated in any other special practices. The data were collected before and after the training period and the results were adjusted to posttest by Analysis of Covariance (ANCOVA).The level of significance for the study was chosen as 0.05.

**2.3 Selection of Variables and Tests**

Measurements were made during the earlier weeks and immediately the 12 weeks training programme was followed. All procedures were demonstrated prior to the testing. A stopwatch or timer can be used to measure the time of breath holding. The subjects were trained to take a small, silent breath in and a small silent breath out, then Holding the nose

with the fingers to prevent the air from entering the lungs, Counting made by using the stopwatch to know how many seconds were needed to feel the first signs of air hunger.

Bio Monitor is an implantable cardiac monitor - a small, pacemaker-shaped device that continuously collects the information about the heart rhythm and automatically makes an electrocardiogram (ECG) recording when an arrhythmia occurs. This valuable information, which cannot be collected by the standard short-term Holter equipment, provides the physician with all the relevant information needed to optimize the treatment

The Bio monitor combines five most useful instruments in the general surgery and medical practice as a single convenient integrated system. It monitors 5 vital medical parameters non-invasively.

The Pulse rhythm is indicated by LED flashes/beats while the rate is displayed on a digital meter. Fast and simple to use, the Bio monitor is housed in a compact briefcase that can be carried anywhere with ease

**2.4 Criterion Measures**

Physiological/Variables			
1	Breath holding time	Nose clip	In econds
2	Resting Heart Rate(beats per minute)	Bio monitor	BPM

**2.5 Training Programme**

Surya Namaskar, Asana, Meditation practices were given for five days per week from 6.00 am to 7.00am for 12 weeks. The researcher is a certified yoga instructor; he himself led all the yogic practices. Each yoga session consisted of 1 hour of Surya Namaskar, Asana, Meditation yogic practices.

Training Components	Number of asanas	Number of repetition	Duration for one asana	Holding the posture	Total duration
Prayer and Basic Movements, Preparatory Practices					10mts
Tadasana Ardha Trikonasana Uttana Padasana Salabhasana Pirayasana Ardha Kati Asana Arthachakrasana Virabhadrasana Balasana Dandasana Garudasana Ardhasalabasana Makarasana Yoga Mudra Savasana	15	2	1min	15seconds	35mts
Nadisudhi (1:1:2) Bhastrika Pranayama Chandrapedana (1:1:2)					4mts
Mindfulness Meditation					10mts
Closing Prayer Shanti Mantra					1mts
Total					60mts

Although individual yoga techniques are universally standard, various sequences and duration of each movement are dependent on individual instructors. The subjects were encouraged to do all the exercise as accurately as possible.

**3. Results**

The collected data were statistically analyzed with a pared (sample) ‘t’-test to find out the significant improvement between the pre and posttest of all groups.

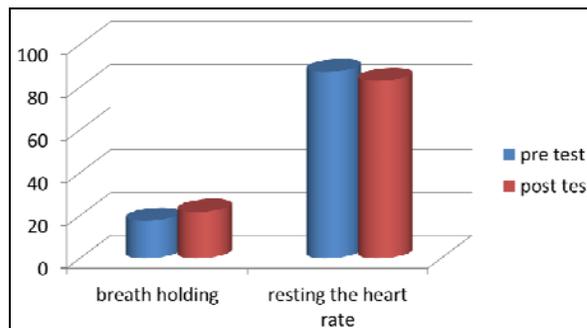
**Table I:** Significance of Mean In Gain /Losses Between The Pre And Post –Test Of Yogic Practices In The Physiological Variables

Variables	Pre Test Mean ± SD	Post Test Mean ± SD	MD	SEM	't'-Ratio
Breath Holding (in seconds)	17.61±1.25	21.71±6.14	4.10	0.67	6.12*
Resting Heart Rate (beats per minute)	87.20±9.64	82.95±8.12	4.25	0.76	5.56*

\*Significance at 0.05 level

Table I reveals that the computation of 't' ratio between mean of pretest and posttest on Breath holding and Resting heart rate of Senior Citizens. The mean values for pre and posttest of experimental group were 6.12 and 5.56 respectively. Since the obtained 't' ratio higher than the required table value 2.09, it was founded to be statistically significant for the degrees of freedom 1 and 19 at 0.05 level of confidence. The result clearly indicated that the Breath holding and Resting heart rate of experimental group had been improved.

In the yogic practice physiological variables changes from pre to post test. And it were 4.10 (Breath Holding), 4.25 (Resting the Heart Rate), as the changes in physiological variables were found statistically significant from the result of 't' ratios.



**Fig I:** Bar Diagram Shows the Significance of Mean in Gain /Losses between the Pre and Post –Test Of Yogic Practices in The Physiological Variables

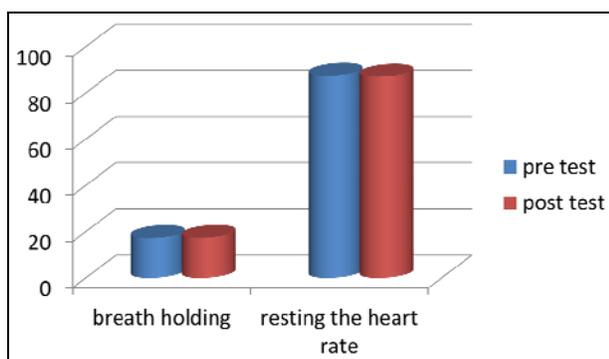
**Table II:** Significance of Mean in Gains/Losses between the Pre And Post –Test Of The Control Group In The Physiological Variables

Variables	Pre Test Mean± SD	Post Test Mean± SD	MD	SEM	't'-ratio	P- Value
Breath Holding (in seconds)	17.32±3.76	17.39±3.71	0.07	0.06	1.29	0.211
Resting Heart Rate (beats per minute)	87.55±7.86	87.10±7.52	0.45	0.29	1.53	0.143

\*Significance at 0.05 level

Table II reveals that the computation of 't' ratio between mean of pretest and posttest on Breath holding and resting heart rate of Senior Citizens. The mean values for pre and posttest of control group were 1.29 and 1.53 respectively. Since the obtained 't' ratio 1.61 was less than the required table value 2.09, it was founded to be statistically not significant for the degrees of freedom 1 and 19 at 0.05 level of confidence. The result clearly indicated that the Breath holding and resting heart rate of control group had not been improved.

In the yogic practice on physiological variables, changes were made from the pre to post were 0.07 (Breath Holding), 0.45 (Resting the Heart Rate). The changes in yogic practice on physiological variables were found statistically not significant from the pre to post test.



**Fig II:** Bar Diagram Shows The Significance Of Mean In Gains/Losses Between The Pre And Post –Test Of The Control Group In The Physiological Variables

#### 4. Discussion on the Findings

The study shows that the twelve weeks of the yogic practice (SAMTG) improved the breath holding time and resting the heart rate. Limitation of this study includes a small sample group that consists of a self –selected group of senior citizens. Breath holding time and resting heart rate showed significant improvements. Furthermore, the positive results of this study

indicate that the SAMTG yogic practices for a period of 12 weeks would meet the objectives of developing the physiological variables in increasing the breath holding time and decreasing the heart rate which will be useful for the senior citizens to prevent the heart disorders and lungs disorders etc.

#### 5. Conclusions

Based on the findings the following conclusions were derived. Hence it was concluded that the yogic practices of Surya Namaskar, Asana and Mediation had significantly increased the breath holding capacity and reduced the heart rate among the senior citizen. Finally it was concluded that the control group (no yoga practices) did not show any improvement in the breath holding capacity and in the resting heart rate. It is recommended for the senior citizens, when they practice yoga regularly they can prevent the heart disorders, lung disorders by the breath holding time and resting the heart rate.

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