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## Effect of yoga on physiological parameters of working women

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### Abstract

This study investigated effect of yoga on physiological parameters of working women. To achieve the purpose of the study 30 working women were selected from Bharathiar University, Coimbatore their age ranged from 35 to 40 years. The subjects were randomly assigned to two equal groups (n=15). Group- I underwent Yoga training group (YTG) and Group - II was acted as control group (CG). The yoga training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The physiological parameters of resting pulse rate and vital capacity were assessed before and after training period of 12 weeks the data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the resting pulse rate and vital capacity speculated significant improvement due to influence of yoga training with the limitations of (diet, climate, life style) status and previous training. The result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Influence of yoga training significantly improved resting pulse rate and vital capacity of working women.

**Keywords:** Yoga training, resting pulse rate and vital capacity,

### Introduction

Yoga is a very ancient discipline. It is recognized as one of the most important and valuable gifts of our heritage. Today the world is looking to yoga for solving the various problems men are facing. At no time in the past yoga had attracted so much attention from people in so many places in the world as is so today. The term yoga is used in literature both as end and as well as means. As an end yoga signifies the integration of personality at the highest level. Health, physical fitness and emotional stability are the objectives which bring yoga and physical education on a common platform for the benefit of human individual. Health is a more general and comprehensive term conveying the 'feeling of well-being', while physical fitness is a more specific term. Through constant practice of yoga, one can overcome all difficulties and eradicate all weakness pain can be transmited in to bliss, sorrow in to joys, and failure into success and sickness in to perfect health. Determination, patience and persistence lead one to goal Julie *et al.*, (2004) <sup>[46]</sup>.

Yoga practice has been transmitted from teachers (*gurus*) to students.

Over the millennia, yoga has been influenced by different traditions and philosophies evolving into a variety of practices. Different schools often emphasize different components of the 8 limbs described above. Health benefits were recognized as a by-product to physical and mental discipline of yoga practice. In the twentieth century, the introduction of yoga to the West has emphasized the potential for yoga as means of health maintenance, prevention, and treatment for chronic disease. The majority of yoga practices in the West contain aspects of postures, breath control and meditation. Styles of vary in the emphasis of each component by technique, sequence, and intention.

As a mind body practice, the biological mechanism of yoga probably has multiple components. As a physical activity, part of the effect is similar to other types of exercise. Generally, yoga is considered a low- to moderate-intensity exercise. Exercise is known to improve health through improving cardiovascular fitness, muscle strength, and respiratory adaptations, modifying metabolism and immune function. Yoga's emphasis on relaxation in static and dynamic exercises distinguishes it from conventional exercise.

By systematically contracting and relaxing muscles in coordinate sequences, changing breathing patterns, and cultivating mental attentiveness and awareness during practice, yoga attempts to synchronize the body and mind. The practice of yoga requires active participation of the subjects. Hence, the effects of factors such as the motivation to receive yoga training as well as the subject's age and gender may be expected to influence the outcome. This is interesting to study as yoga training is increasingly being included as part of routine programmes Ananda., (2016) [48].

## Methods

### Experimental Approach to the Problem

In study 30 working women were selected from Bharathiar University, Coimbatore their age ranged from 35 to 40 years. The subjects were randomly assigned to two equal groups (n=15). Group- I underwent yoga training group (YTG) and group - II was acted as control group (CG). Yoga training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work.

## Design

Pre and post random group design was employed. The evaluated physiological parameters were resting pulse rate was assessed by Radial Pulse and the unit of measurement was in In Counts and vital capacity was assessed by Wet Spirometer the unit of measurement was in MI/lt. The parameters were measured at baseline and after 12 weeks of yoga training were examined.

## Training programme

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. The equivalent in yoga training is the length of the time each action in total 3 day per weeks (Monday, Wednesday and Friday).

## Statistical Analysis

The collected data before and after training period of 12 weeks on the selected variables due to the effect of yoga training was statistically analyzed with 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ( $P < 0.05$ )

**Table 1:** Computation of 't' ratio on selected physiological parameters of working women on experimental group and control group (Scores in numbers)

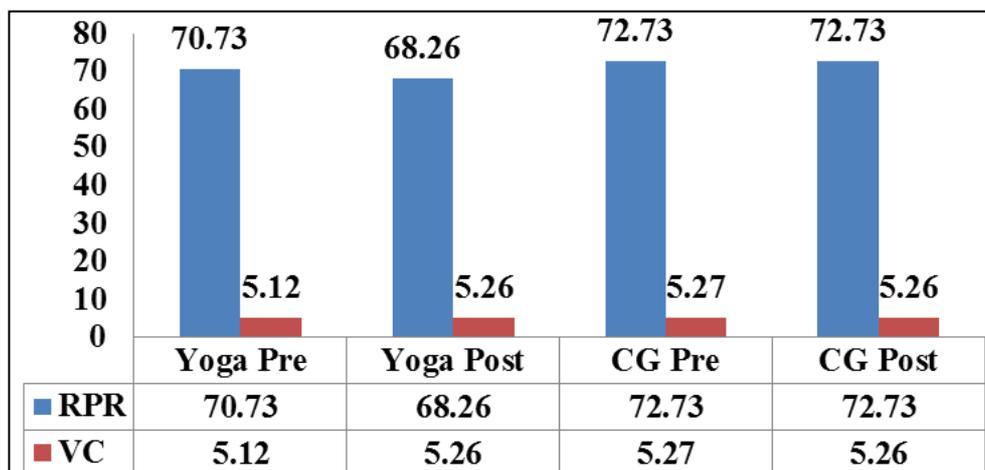
| Group              | Variables | Mean      | N     | Std. Deviation | Std. Error Mean | 't' ratio |       |
|--------------------|-----------|-----------|-------|----------------|-----------------|-----------|-------|
| Experimental Group | RPR       | Pre test  | 70.73 | 15             | 2.12            | 0.91      | 8.48* |
|                    |           | Post test | 68.26 | 15             | 1.43            |           |       |
|                    | VC        | Pre test  | 5.12  | 15             | 0.31            | 0.15      | 6.56* |
|                    |           | Post test | 5.62  | 15             | 0.29            |           |       |
| Control group      | RPR       | Pre test  | 72.73 | 15             | 2.12            | 0.97      | 0.71  |
|                    |           | Post test | 72.73 | 15             | 2.44            |           |       |
|                    | VC        | Pre test  | 5.27  | 15             | 0.29            | 0.17      | 0.82  |
|                    |           | Post test | 5.26  | 15             | 0.42            |           |       |

\*significant level 0.05 level degree of freedom (2.14,1 and 14)

### RPR – Resting pulse rate, VC – Vital capacity

Table I reveals the computation of mean, standard deviation and 't' ratio on selected physiological parameters namely resting pulse rate and vital capacity of experimental group. The obtained 't' ratio on resting pulse rate and vital capacity were 8.48 and 6.56 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the table the computation of mean, standard deviation and 't' ratio on selected physiological parameters namely resting pulse rate and vital capacity of control group. The obtained 't' ratio on resting pulse rate and vital capacity were 0.71 and 0.82 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtainer's' values were lesser than the table value it was found to be statistically not significant.



**Fig 1:** Bar diagram showing the mean value on selected physiological parameters of working women on experimental group and control group (scores in numbers)

## Discussion and Findings

The present study experimented the impact of twelve weeks yoga training on the selected physiological variables of working women. The results of this study indicated that yoga training is more efficient to bring out desirable changes over the resting pulse rate and vital capacity of working women.

Baljinder *et al.*, (2010) <sup>[22]</sup> the 8-week pranayama training programme had significant effect on vital capacity and maximal ventilatory volume. Sunil *et al.*, (2015) <sup>[23]</sup> Twelve weeks Yoga training significantly improved pulse rate, vital capacity & peak flow rate of physical education students. Shankarappa *et al.*, (2012) <sup>[13, 14]</sup> Pranayama training causes an increase in the voluntary breath holding time. Pradnya *et al.*, (2013) <sup>[15]</sup> It also improves cardiac efficiency as indicated by significant decrease in pulse rate & highly significant increase in 40 mmHg endurance time. Keerthi *et al.*, (2013) <sup>[11]</sup> the Pranayama procedures the only respiratory parameter that will reduce is the rate of respiration and all the other parameters including volumes and capacities will increase depending on the regularity of practice. Pushparajan *et al.*, (2015) <sup>[15]</sup> investigation indicates that twelve weeks of power yoga practice and significantly reduce the resting pulse rate and significantly can increase the vital capacity among middle aged men. Rahul *et al.*, (2015) <sup>[17]</sup> conclude that pranayama exercises have positive effect on the selected physiological variables resting pulse rate, maximum breath holding.

From of result of the present study, it is speculated that the improvement in the Resting Heart rate and vital capacity of the subjects may be due to the yogic practices. Further, the planned programme yoga practices might have influenced the Resting Heart rate and vital capacity of the subjects involved in this study.

## Conclusions

It was concluded that twelve weeks Yogic practices showed significantly improved the resting pulse rate and vital capacity of the working women.

A yogic practice was one among the most appropriate means to bring about the desirable changes over selected physiological parameters of working women. Hence, suggested that trainers and the experts deal with working women to incorporate yogic practices as a component in their training programme.

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