



Effects of asanas and core training on breath holding time, VO₂ max, resting pulse rate of middle aged working women

S. Dhivyalaxmi and K. Murugavel

*Department of Physical Education, Karpagam University, Tamilnadu, India.

**Department Of Physical Education, Bharathiar University, Tamilnadu, India.

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Abstract

The purpose of this study is to find out the effects of asanas and core training on breath holding time, vo₂ max and resting pulse rate level of middle aged working women. The sample consisted of sixty middle aged women age ranging between 35 and 50 years. They were divided into two groups, namely control group and experimental group. The control group was not given any treatment and the experimental group was given asanas and core training programme for six days per week for a period of 8 weeks. All the subjects were subjected for pre and post test. Physiological variables of breath holding time, VO₂ max and resting pulse rate level. The data collected from the subjects were statistically analyzed with 't' ratio to find out significant difference among experimental group and control group and physiological variables if any. The result indicates that eight weeks of asanas and core training programme produced significant improvement in breath holding time, vo₂ max and resting heart rate level.

Keywords: Asana, core training, breath holding time, VO₂ max and resting pulse rate

Introduction

Women in poorer countries routinely work 18 hours per day. In some parts of the world, according to the Food and Agriculture Organization of the United Nations, women do 90% of all the agricultural work. Frequently expected to perform a full day's paid work for the financial viability of the family, a woman then faces additional hours of daily housework and child care, often with limited access to basic necessities of fuel and water. In many parts of the world, women have no voice in the distribution of family funds to which they have contributed. Some studies have shown that when women have some decision making voice in income allocations, the health, nutrition and education needs of the children are more likely to be given priority.

In the affluent world, the long working day also affects women with heavy expectations for job

performance while maintaining family integrity. Balancing the societal expectations for maintaining an intact and healthy family while achieving a highly competitive work environment results in long days and limited rest and recreation. Literature on women's health identifies chronic fatigue syndrome as a growing phenomena among women in both poor and affluent countries.

Yogasanas are not only to develop muscles and the body but also mainly to regulate the proper activities of all the internal organs and glands to affect the nervous system which in turn controls the over well being of muscles to a greater degree than we actually suppose (Indira Devi, 1969).

Yoga is a positive way of maintaining physical 'up keep' mental alertness and spiritual attainment. It teaches us how to control one's senses results an integrated personality, freedom,

stress, conflict and the like. It stabilizes one behavioural pattern, developed will power and ultimately helps one to lead healthy, happy and balanced life (Swami Githananda and Meenakshi Bhavan, 1989).

The core muscles also make it possible to stand upright and move about two feet. These muscles help control movements, transfer energy, shift body weight and move in any direction. A strong core distributes the stresses of weight-bearing and protects the back. Core conditioning exercise programs need to target all these muscle groups to be effective.

Materials and Methods

The purpose of this study was to find out the effects of asanas and core training on some aspects of physiology variables of middle aged working women. The total sample consisted of sixty middle aged working women age ranging between 35 and 50 years. They were divided into two equals groups, consisting of 30 each and named as control and experimental group. The control group was not given any treatment and the experimental group was given asanas and core training programme for six days per week for a period of 8 weeks (Table -1). All the subjects were tested for all variables before and after eight weeks of training. The collected data were statistically analysed by ‘t’ ratio. The level of significance was fixed at 0.05.

Result and Discussion

The data collected on physiological variables due to the influence of asanas and core training were statistically analysed. The following table illustrates the ‘t’ ratio of the difference between pre and post test of the experimental group.

The table - 2 reveals the computation of ‘t’ ratio between experimental groups of physiological variables of middle aged working women. The obtained pre and post test ‘t’ ratio of the experimental groups were 10.81, 19.21 and 5.47 respectively. Since, the obtained ‘t’ ratio was

greater than the required table value of 2.045, it was found to be statistically significant at 0.05 levels of confidence.

The result clearly indicates that selected physiological variables of the experimental group had been improved by asanas and core training programme.

Table - 1. Standardized test and criterion measures

| Sl. No | Variables | Test items | Unit of measurement |
|--------|---------------------|--------------------------------------|---------------------|
| 1. | Breath holding time | Breath holding test | In seconds |
| 2. | VO ₂ Max | Bench step test and Astrand nomogram | Liters/ Kg/ min |
| 3. | Resting pulse rate | Bio monitor | Beats / min |

Table-2. Computation of ‘t’ ratio between experimental groups

| Variables | | Mean | S.D | Mean diff. | SEM | ‘t’ ratio |
|---------------------|------|-------|------|------------|------|-----------|
| Breath holding time | Pre | 27.97 | 1.99 | 4.2 | 2.14 | 10.81* |
| | Post | 32.20 | 2.44 | | | |
| VO ₂ max | Pre | 22.15 | 4.82 | 2.9 | 0.15 | 19.21* |
| | Post | 25.08 | 4.66 | | | |
| Resting pulse rate | Pre | 77.73 | 2.86 | 1.66 | 0.30 | 5.47* |
| | Post | 76.07 | 2.96 | | | |

*significant at 0.05; S.D : standard Deviation; M : Mean; SEM : Standard Error Mean)

The table - 3 reveals the computation of ‘t’ ratio between control group of physiological variables of middle aged working women. The obtained pre and post test ‘t’ ratio of the control group were 1.20, 1.14 and 1.20 respectively. Since, the obtained ‘t’ ratio was lesser than the required table value of 2.045, it was found to be statistically not significant at 0.05 level of confidence.

The result clearly indicates that a selected physiological variable of control group had not been improved by asanas and core training programme.

Table – 3. Computation of ‘t’ ratio between control groups

| Variables | | Mean | S.D | Mean diff. | SEM | ‘t’ value |
|---------------------|------|-------|------|------------|------|-----------|
| Breath holding time | Pre | 28.43 | 2.27 | 0.50 | 0.41 | 1.20 |
| | Post | 28.93 | 2.33 | | | |
| VO ₂ max | Pre | 21.63 | 5.02 | 0.52 | 0.46 | 1.14 |
| | Post | 21.11 | 4.88 | | | |
| Resting pulse rate | Pre | 77.73 | 2.27 | 0.30 | 0.25 | 1.20 |
| | Post | 77.43 | 2.50 | | | |

*significant at 0.05; S.D : standard Deviation; M : Mean; SEM : Standard Error Mean)

The result of this study indicated that the asanas and core training significantly improved the breath holding time, vo₂ max and resting heart rate level. The findings of the present study had similarity with the findings of Escamilla *et al.* (2010) for Core muscle activation during Swiss ball and traditional abdominal exercises. Shinkle *et al.* (2012) and Sharma *et al.* (2012) also obtained similar findings in volleyball players.

Core stability and strength are frequently described to be important factors for developing maximal power in the extremities. Krishan and Sharma (2009) investigated the effects of yogic practices and callisthenic exercises on resting pulse rate variable of secondary school boys. The result of the study indicated that resting pulse rate of the yogic practice group was better than the other two groups.

Jimenez *et al.* (2009) conducted a study on cardiovascular and metabolic effects of intensive Hatha yoga training in middle-aged and older women from Northern Mexico. Rajakumar *et al.* (2010) analysed the impact of yogic practices and physical exercises on selected physiological variables among the intercollegiate soccer players.

Conclusion

Based on the result of the study the following conclusion was derived :

1. It was concluded that eight weeks of asanas and core training practice significantly improved the breath holding time of middle aged working women.
2. Vo₂ max was significantly improved due to eight weeks of asanas and core training practice of middle aged working women.
3. Resting pulse rate was significantly improved due to influence of eight weeks of asanas and core training practice of middle aged working women.

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