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S Manjappan

Ph.D., Scholar, Department of
Physical Education, Annamalai
University, Tamil Nadu, India

Dr. S Alagesan

Associate Professor, Department
of Physical Education,
Annamalai University, Tamil
Nadu, India

Impact of physical conditioning exercises and yogic practices on breath holding time among university men students

S Manjappan and Dr. S Alagesan

Abstract

The purpose of the study was to find out the impact of physical conditioning exercises and yogic practices on breath holding time among university men students. To achieve the purpose of this study, thirty university men students selected from various departments. The age, height and weight of the subjects ranged from 18 to 24 years, 155 to 165 centimetres and 55 to 65 kilograms respectively. They were divided into three groups; each group consisted of ten subjects. Group-I underwent physical conditioning exercises, group-II underwent yoga practice and Group – III acted as control. The data collected from the three groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). When the obtained 'F' ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases statistical significance was fixed at 0.05 levels. The result showed that there was a significant increased on breath holding time of the experimental group's men students compared to control group.

Keywords: Physical exercises, yoga and breath holding time

Introduction

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health or wellness. It is performed for various reasons. These include strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance and for enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity (Stampfer, *et al.*, 2000) [5]. It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which again is also linked with higher levels of self-esteem. Childhood obesity is a growing global concern and physical exercise may help decrease the effects of childhood obesity in developed countries. Physical exercise is important for maintaining physical fitness and can contribute positively to maintaining a healthy weight, building and maintaining healthy bone density, muscle strength, and joint mobility, promoting physiological well-being, reducing surgical risks, and strengthening the immune system.

Yoga is the physical, mental, and spiritual practices or disciplines that aim at transforming body and mind. The term denotes a variety of schools, practices and goals in Hinduism, Buddhism and Jainism the best known being Hatha yoga and Raja yoga. The term yoga is derived from the literal meaning of "yoking together" a span of horses or oxes, but came to be applied to the "yoking" of mind and body. The origins of Yoga may date back to pre-vedic Indian traditions. The earliest accounts of yoga-practices are to found in the Buddhist Nikayas. Parallel developments were recorded around 400 CE in the *Yoga Sutras of Patanjali*, which combines pre-philosophical speculations and diverse ascetic practices of the first millennium BCE with Samkhya-philosophy. Hatha yoga emerged from tantra by the turn of the first millennium (Burley, 2000) [1].

Methodology

The purpose of the study was to find out the impact of physical conditioning exercises and yogic practices on breath holding time among university men students.

Correspondence

S Manjappan

Ph.D., Scholar, Department of
Physical Education, Annamalai
University, Tamil Nadu, India

To achieve the purpose of this study, thirty university men students selected from various departments. The age, height and weight of the subjects ranged from 18 to 24 years, 155 to 165 centimetres and 55 to 65 kilograms respectively. They were divided into three groups; each group consisted of ten subjects. Group-I underwent physical conditioning exercises, group-II underwent yoga practice and Group – III acted as control. Breath holding time was assessed by holding the breath for maximum possible time. The data collected from the three groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). When the obtained ‘F’ ratio value was significant the Scheffe’s test was applied as post hoc test to determine the paired mean differences, if any. In all the cases statistical

significance was fixed at 0.05 levels.

Training

The experimental group- I subjects were participated in physical conditioning exercises on three days per week for twelve weeks, duration of the training programme on 40 minutes (including warm up and warm down) per day. Once in two weeks the training load was increased 5% of their HRR for physical activities, group- II subjects were participated in yoga practices on three days per week for twelve weeks, duration of the training programme on 40 minutes, once in two weeks one yoga added.

Results

Table 1: Analysis of Covariance on Breath Holding Time of Experimental and Control Groups

| | Physical Exercises | Yoga Practices | Control Group | S O V | Sum of Squares | df | Mean squares | ‘F’ ratio |
|-------------------------|--------------------|----------------|---------------|-------|----------------|----|--------------|-----------|
| Pre test Mean SD | 13.70 | 13.30 | 13.01 | B | 2.46 | 2 | 1.23 | 0.87 |
| | 0.94 | 1.15 | 1.41 | W | 38.20 | 27 | 1.41 | |
| Post test Mean SD | 20.20 | 17.50 | 13.20 | B | 249.26 | 2 | 124.63 | 58.32* |
| | 1.48 | 1.43 | 1.47 | W | 57.70 | 27 | 2.13 | |
| Adjusted Post test Mean | 20.03 | 17.51 | 13.34 | B | 214.91 | 2 | 107.45 | 55.82* |
| | | | | W | 50.04 | 26 | 1.92 | |

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 27 is 3.35 and degree of freedom 2 and 26 is 3.37) *Significant at .05 level of confidence

Table-1 shows that the pre-test mean and standard deviation on breath holding time of physical conditioning exercises, yoga practice groups and control group are 13.70 ± 0.94 , 13.30 ± 1.15 and 13.01 ± 1.41 respectively. The obtained ‘F’ ratio value of 0.87 for pre test means on breath holding time of physical conditioning exercises, yoga practice groups and control group were less than the required table value of 3.35 for the degrees of freedom 2 and 27 at 0.05 level of confidence. It reveals that there is statistically insignificant difference among the breath holding time of physical conditioning exercises, yoga practice groups and control group during pre test period.

The post test mean and standard deviation on breath holding time of physical conditioning exercises, yoga practice groups and control group are 20.20 ± 1.48 , 17.50 ± 1.43 and 13.20 ± 1.47 respectively. The obtained ‘F’ ratio value of 58.32 for post test means on breath holding time of physical

conditioning exercises, yoga practice groups and control group were higher than the required table value of 3.35 for the degrees of freedom 2 and 27 at 0.05 level of confidence.

The adjusted post test means on breath holding time of physical conditioning exercises, yoga practice groups and control groups are 20.03, 17.51 and 13.34 respectively. The obtained ‘F’ ratio value of 55.82 on breath holding time were greater than the required table value of 3.37 for the degrees of freedom 2 and 26 at 0.05 level of confidence. It is observed from this finding that significant differences exist among the adjusted post test means of experimental and control groups on breath holding time.

Since, the adjusted post test ‘F’ ratio value was found to be significant the Scheffe’s test is applied as post hoc test to determine the paired mean differences, and it is presented in table-2.

Table 2: Scheffe’s Test for the Difference between the Adjusted Post Test Paired Means of Breath Holding Time

| Adjusted Post Test Means | | | DM | CI |
|--------------------------|----------------|---------------|-------|------|
| Physical Exercises | Yoga Practices | Control Group | | |
| 20.03 | 17.51 | | 2.52* | 1.60 |
| 20.03 | | 13.34 | 6.69* | 1.60 |
| | 17.51 | 13.34 | 4.17* | 1.60 |

*significant

Table-2 showed the Scheffe’s test result that there was significant difference existed between the adjusted post tests means values 2.52, 6.69 and 4.17 of physical conditioning exercises, yoga practice; physical conditioning exercises and control groups, yoga practice and control groups respectively on breath holding time, which are higher than the confidence

interval value 1.60 at 0.05 level of significance. However both experimental groups had significantly increased on breath holding time when compared to control group. But, physical conditioning exercises group had more effect to increase on breath holding time of university men students.

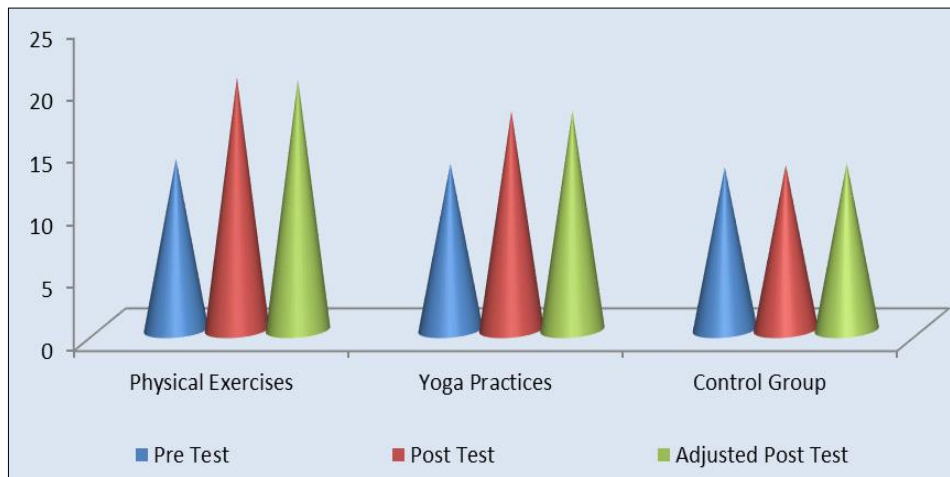


Fig 1: Cone Diagram on Breath Holding Time of Physical Conditioning Exercises, Yoga Practices and Control Groups

Discussion and Findings

The results of the study showed that both experimental groups had significantly increased on breath holding time when compared to control group. But, physical conditioning exercises group had more effect to increase on breath holding time of university men students. The following studies are supporting with my study results. Schobers berger, *et al.*, (2003) ^[4] investigated the changes in the cardiovascular system during 3-week sojourn at 1,700 m in the Austrian Alps. Result showed that breath holding time significantly lower after the altitude training. Nourshahi, *et al.*, (2011) ^[3] investigated the effects of mountaineering training on older age's cardiovascular and physical fitness factors and quality of life factors. The results showed that breath holding time were significantly lower in two trained groups in comparison to sedentary group. Muthuraj and Wise (2011) ^[2] determine the effect of concurrent strength and endurance training and detraining on vital capacity. The result stated that concurrent strength and endurance training improved vital capacity.

Conclusion

Conclusion of the study shows that both experimental groups had significantly increased on breath holding time when compared to control group.

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