

**EFFECT OF ASANAS AND CORE STRENGTH EXERCISES WITH MEDITATION
ON BREATH HOLDING TIME AMONG IT EMPLOYEES WITH LUMBOGO
SYNDROME**

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Abstract

The regular practice of yoga leads one's to control his mind and body. It unites our physique and mind which leads to perform the activities in an effective manner. It enhances overall well-being and quality of life. Core strength training is a term that focuses its attention on building the strength of the muscles of the body so that the whole body is supported and balanced. The study attempts to estimate the impact of asanas and core strength exercises with meditation on breath holding time among IT employees with lumbago syndrome. To attain the purpose, 45 IT employees with lumbago syndrome from various IT companies of Chennai, Tamil Nadu were selected as subjects for this study and they were in 25 to 30 years of age. Equal division of three groups were made in which two experimental and one control groups and each group had fifteen subjects. Pre-test was taken on breath holding time from the subjects before start of the training. Asanas practice with meditation was allotted to Experimental Group I; core strength training with meditation was allotted to Experimental Group II and another group called Control Group was allotted no training except their daily routine. Training period for the experimental groups was restricted to eight weeks. Post-test was taken immediately after eight weeks of training period. ANCOVA and Scheffe's post hoc test were employed to analyze the obtained data. The study affirmed that the asanas practice with meditation had greater influence on breath holding time in comparison with all the other groups.

Keywords: Asanas, Core Strength Exercises, Meditation, Breath Holding Time.

I. INTRODUCTION

Physical exercise is all bodily activities that enhances or maintains physical fitness and overall health and wellness. It is done for various reasons. 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. Trained person has better state of physical fitness than the person who live an inactive life. He can easily attain an improved state of physical fitness than untrained person.

The core is the foundation for our movements, enabling mobility in the upper and lower body, directing power efficiently to our limbs and stabilizing our spine, ribcage, and pelvis against the stress of those movements, or of external forces exerted upon them.

The core plays a key role in everyday biological functions. It creates internal pressure within the abdominal cavity, holding the internal organs in place, and helping with the expulsion of air from the lungs and of bodily waste. The core muscles, in particular the transverse abdominis and pelvic floor are also active during childbirth

Modern lifestyles are highly sedentary, meaning certain core muscles may become inactive. If we do not exercise our core muscles regularly, we will lose the ability to engage them instinctively while performing everyday movements such as bending and lifting. When this happens, other muscles may take over from them, which can lead to muscular imbalances, where one muscle is stronger than its opposing muscle and possibly injury in the longer run. Poor posture can cause imbalance in our hip and buttock muscles, resulting in lower back pain. Core

training helps improve strength, stability and mobility, reducing the likelihood of such imbalances developing.

The muscles of the trunk and torso act to stabilize the spine, pelvis and shoulder girdle. From this solid, balanced base the limbs can be moved powerfully and under control. In fact before rapid movements of the extremities can take place, the central nervous system stabilizes the spine in anticipation. The rate at which the core muscles stabilize the spine may have a direct effect on the power of limb movement (Hodges & Richardson, 1997).

Weak or poorly controlled core muscles have been associated with low back pain (Hodges & Richardson, 1999). The back muscles are responsible for movements such as extension and flexion of the spine and rotation of the trunk. Excessive or uneven shock on the spine may lead to back problems. This may be exaggerated because weak core muscles lead to improper positioning or a forward tilt. In many exercises that use the back muscles, the abdominal muscles contract isometrically stabilizing the body. The stronger and more correctly balanced the core muscles are, the less the uneven strain on the spine.

One of the causes of poor posture is a poorly developed trunk. It leads to lesser amount of proficient movements. A solid core is acute because power is shifted utmost proficiently through the body in a straight line. If the trunk region is developed poorly, the outcome is bad posture, which can prime to less proficient movements. The sportspersons will not be capable of exploiting their counter rotating force, repeatedly dissolving energy through rough awkward movement (Heydar Sadeghi, H. N., 2013).

The core is a crucial group of muscles, not only for sports, but for typical daily activities as well. It is essential that our core is strong because it comes into play just about every time we

move. The core acts to produce force, it stabilizes the body to permit other musculature to produce force and it is also called upon to transfer energy. Everyone can benefit from core training, from new exercisers working on their fitness to exercise enthusiasts looking for increased performance. It can help the elderly who wish to remain fit and flexible, and women after pregnancy to get their abdominal and pelvic floor muscles back into shape.

Core training will also tone the torso and abdominal muscles and improve the posture – if the core is strong, the lower abdominal muscle will be drawn in toward the spine and help to sit up straight. Balance and coordination will be improved, and most important of all, core stability will help to keep the spine healthy and flexible throughout life (SaraRose, 2006).

A well-developed core region acts as a solid block on which the chest cavity sits, preventing it from moving during strenuous lifting exercises. Core training tones our torso and abdominal muscles and improve our posture. While our core is strong, our lower abdominal muscles will be drawn in toward the spine and help us sit up straight. Our balance and coordination will be improved and most important of all, core stability will help keep our spine healthy and flexible throughout life.

Core training is a system that re-educates our body so that we can use it effectively. It is an intelligent workout that strengthens our body from the inside out and is a safe and effective way to exercise.

The regular practice of yoga leads one's to control his mind and body. It provides the feeling of satisfaction to our soul. It unites our physique and mind which leads to perform the activities in an effective manner. It also helps us to overcome our stress and tension. It improves

our flexibility, coordination and muscle tone. It enhances the respiration, energy and vitality of our body. It enhances overall well-being and quality of life.

Yoga is the science of human development. It helps a man for his overall development in the aspect of physique and mind and also controls his negative emotions. The regular practice of yoga leads the practitioner to actualize his own potential through self-realization and self-culture. It expounds certain techniques and methods that would enable man to have union with the self.

Through systematic and regular yogic practices, our body may be made healthier and its resistance power to fight against the diseases could be enhanced, mind will get sharpened and the concentration and memory power may be developed. Thus, mind's could be channelised for thinking the right good thoughts. Then the good and healthy thoughts will develop in the right direction. Yoga will pave the way for an individual to do any action peacefully and perfectly. The main objectives of the yogic practices are to make a man free from diseases, ignorance, egoism, miseries the affiliations of old age, and fear of death etc. (Chandrasekaran K, 1999).

Yoga is the most effective means in accomplishing the daily practice of mental skills. Incorporating one or two asanas into regular warm-up or cool-down routine provides several mental benefits in addition to the usual physical effects. The practice of attention, concentration, relaxation along with regular stretching and warming-up or down the body, increases flexibility, body awareness and also mentally tune one self.

The term asana means sitting in a particular posture, which is comfortable and which could be maintained steadily for long time. Asana gives stability and comfort, both at physical and mental level. Generally, the asanas are practiced in the sequence of standing, sitting, prone-lying and supine-lying position.

Meditation is a relaxation practice which induces relaxation in body and mind. In meditation, concentration is focused for a long time on a single object like, breath, tip of the nose, etc. Meditation is a relaxing practice; it develops a sense of well-being in the person.

Breath holding time is time that elapses between completion of one inhalation and the starting of the particular exhalation (Astrand, Perolof, 1977). It contributes a lot and prolonged breath holding time helps us to execute our work for a long period in a better manner.

II. Methodology

The purpose of the study was to evaluate the effect of asanas and core strength exercises with meditation on breath holding time among IT employees with lumbago syndrome. To achieve the purpose of the study, 45 IT employees with lumbago syndrome from various IT companies of Chennai, Tamil Nadu were selected as subjects for this study and they were in 25 to 30 years of age. They were assigned into three groups of which one group participated in asanas with meditation practice, second group participated in core strength exercises with meditation practice and the third group served as control group.

The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=45) were randomly assigned into three equal groups of fifteen subjects each. Experimental group I assigned as asanas with meditation practice group, group II assigned as core strength exercises with meditation practice group and control group as group III respectively. The investigator administered holding the breath test to measure breath holding time. Pre-test was conducted for all the subjects on breath holding time. The experimental groups participated in their respective asanas with meditation and core strength exercises with meditation practices for a period of eight weeks. The post-test was conducted on breath holding

time after eightweeks of asanas with meditation practice and core strength exercises with meditationpractice.

Statistical Techniques

The following statistical techniques were used to find out effect of asanas and core strength exercises with meditation on breath holding time among IT employees with lumbago syndrome.

Analysis of covariance (ANCOVA) statistical technique was used to test the adjusted post test mean differences among the experimental groups. If the adjusted post test result was significant, the Scheffe's post-hoc test was used to determine the significance of the paired mean differences (Thirumalaisamy R., 1997).

III. Results onBreath Holding Time

TABLE I

Computation of Analysis of Covariance of Breath Holding Time

(Scores in Seconds)

	Asanas with Meditation Practice Group	Core Strength Exercises with MeditationPrac tice Group	Control Group	Sources of Variance	Sum of Squares	df	Mean squares	Obtained F-ratio
Pre-test Mean	51.27	50.53	51.13	B W	4.58 1286.40	2 42	2.29 30.63	0.08
Post-test Mean	59.20	54.93	52.33	B W	360.58 992.67	2 42	180.29 23.64	7.63*
Adjusted post-test Mean	58.95	55.32	52.20	B W	342.56 43.37	2 41	171.28 1.06	161.91*

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) = 3.22, 2 and 41 df = 3.23

*: Significant

Table I shows the analyzed data on breath holding time. The pre-test means of breath holding time were 51.27 for asanas with meditation practice group, 50.53 for core strength exercises with meditation practice group and 51.13 for control group. The obtained F-ratio 0.08 was lesser than the table F-ratio 3.22. Hence the pre-test was insignificant at 0.05 level of confidence for the degrees of freedom 2 and 42.

The post-test means were 59.20 for asanas with meditation practice group, 54.93 for core strength exercises with meditation practice group and 52.33 for control group. The obtained F-ratio 7.63 was greater than the table F-ratio 3.22. Hence, the post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 42.

The adjusted post-test means were 58.95 for asanas with meditation practice group, 55.32 for core strength exercises with meditation practice group and 52.20 for control group. The obtained F-ratio 161.91 was greater than the table F-ratio 3.23. Hence the adjusted post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 41.

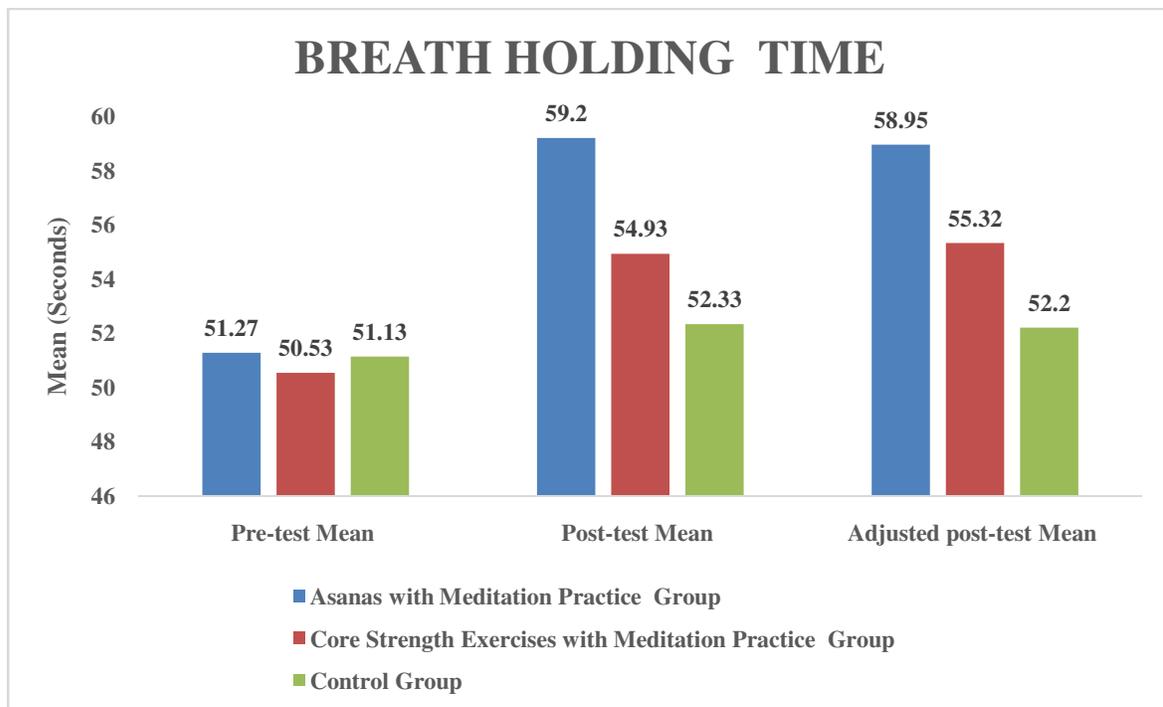
TABLE II
Computation of Analysis of Scheffe's Post-Hoc Test of Breath Holding Time
(Scores in Seconds)

Asanas with Meditation Practice Group	Core Strength Exercises with Meditation Practice Group	Control Group	Mean Difference (MD)	C.I Value
58.95	55.32		3.63	4.45
58.95		52.20	6.75 *	
	55.32	52.20	3.12	

* : Significant

Table II shows the scheffe's post-hoc test of ordered adjusted final mean difference of breath holding time for different groups. The difference between the asanas with meditation practice group and core strength exercises with meditation practice group was 3.63, asanas with meditation practice group and control group was 6.75 and core strength exercises with meditation practice group and control group was 3.12. Hence, second group comparison was significant and the first and third group comparisons were insignificant.

Figure-1 Bar Diagram on Pre-Test Mean, Post-Test Mean and Adjusted Post-Test Mean of Breath Holding Time



IV. Conclusions

- The study was concluded that eight weeks of asanas with meditation practice group had better improvement on breath holding time than other groups.
- The research showed that core strength exercises with meditation practice group also had significant improvement on breath holding time than control group.

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