



International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 4.69
IJPESH 2015; 2(1): 220-222
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www.kheljournal.com
Received: 25-07-2015
Accepted: 28-08-2015

Vishal Kumar
D.P.E, G.M.M.S, Pocket – 10,
Mani Majra, Chandigarh, India.



Correspondence
Vishal Kumar
D.P.E, G.M.M.S, Pocket – 10,
Mani Majra, Chandigarh, India.

Impact of Pranayama on breath holding time of school students

Vishal Kumar

Abstract

The aim of this study was to find out the impact of 6 weeks yoga practices (Pranayama) on Breath holding capacity of school students. The method of this study was experimental research and sample were 20 students of Govt. Middle school, Mani Majra, Chandigarh (9-13 Aged). Twenty subjects were randomized into two groups experimental group accomplished yoga practice (Pranayama) for six weeks. Paired sample 't' test was used to analyze the data of the study in use of SPSS software. Result showed that six weeks pranayama significantly increased the breath holding time of school students.

Keywords: Pranayama, Breath holding time, Yogic exercise.

Introduction

Yoga is a science of right living and it works when integrated in our daily life. It works on all aspects of the person: the physical, mental, emotional, psychic and spiritual. The word yoga means 'unity' or 'oneness' and is derived from the Sanskrit word 'yuj' which means 'to join'. There are too many misconceptions clouding the science of Yoga. People perceive it to be some kind of black or white magic, sorcery, physical or mental debauchery through which miraculous feats can be performed. For some it is an extremely dangerous practice which should be limited to only those who have renounced the world. Few others think it to be a kind of mental and physical acrobaticism that is compatible only to a Hindu mind.

The human mind is subject to certain weaknesses which are universal. avidya-wrong notions of the external world, asmita-wrong notions of the external world, asmita-wrong notions of oneself, raga-longing and attachment for sensory objects and affections, dweshad is like and hatred for objects and persons, and abinivesha or the love of life are the five defects of the mind that must be removed. Yoga, the constant meditation and introspection eradicate these mental flaws.

Yoga breathing exercises, also known as pranayama, are an important part of a developing yoga practice. Pranayama is one of the eight limbs of yoga referenced by The Yoga Sutras of Patanjali, which means that it was considered an integral step on the path to enlightenment. In addition to supporting and deepening your yoga asana practice, learning ways to calm or invigorate the body through breathing will greatly benefit all aspects of your life.

Paying attention to the breath is also a meditation technique that can be used on or off the mat, as it has the effect of keeping us constantly in the present moment. The past and the future melt away when the mind becomes fully focused on breathing.

Prana means energy, breath, or life force. Learning to direct and control prana in the body has long been considered a crucial aspect of yoga. As an essential bodily function, breathing is an involuntary act. Although we cannot control whether or not we breathe, we can, to some extent, control the way that we breathe. Exercises in breath control, such as breath retention and deliberate methods inhalation and exhalation for specific mental and physical benefits are at the core of pranayama practice.

Breathing is part of the autonomic nervous system, which is comprised of the sympathetic and parasympathetic nervous systems.

In general, the sympathetic nervous system is responsible for governing our responses to stimuli, deciding whether they are threatening, and tripping the signals that tell the body how to react. This is sometimes described as fight or flight responses. The parasympathetic nervous system helps the body calm back down after the danger or stressor has passed.

One of the things that the sympathetic nervous system affects is the breath. In the presence of real danger, the breath becomes fast and short as your body tries to load itself with oxygen to facilitate its escape. This kind of breathing is also a response to non-life-threatening stressors. It happens in response to panic and then perpetuates the panic. If we're aware of this, we can deliberately slow and deepen the breath, signaling the body that it's ok to calm down. Your breath is a powerful force you can use to control your body's responses to stress.

Pranayama Exercises

1. Three-Part Breath – Dirga Pranayam: A good breathing exercise for beginners. Doing three-part breath teaches you how to fill and empty the lungs completely, which is important because you're probably not used to using your full lung capacity. It's also a nice way to transition into your yoga session.
 2. Equal Breathing – Sama-Vritti Pranayam: Taking long, deep, slow breaths has a relaxing effect on the body. Bringing your full attention to keeping your inhalations and exhalations the same length occupies your mind, giving it a much need break from its usual hum of activity.
 3. Alternate Nostril Breathing – Nadi Sodhana: In nadi sodhana, you block off one nostril, exhaling and inhaling through the open passageway before switching sides. This helps bring you into balance by clearing the energy channels on both sides of the body.
 4. Cooling Breath – Shitali Pranayama: A simple breath, perfect for a hot day or when the body is warm after practicing yoga postures.
 5. Ocean Breath – Ujjayi Pranayama: Ujjayi breath is really interesting because it acts to calm the sympathetic nervous system at the same time as it boosts your oxygen consumption. It is the primary breath used in Vinyasa yoga because it is powerful enough to support a vigorous flow.
 6. Lions Breath – Simhasana: Lion's breath releases the tension in your face and helps you blow off some steam. You can do it any time during a yoga practice.
 7. Skull Shining Breath – Kapalabhati Pranayama: This is advanced breathing exercise should ideally be learned from an experienced teacher, as it is possible to become lightheaded if it is done incorrectly. Once mastered, this breath generates heat and clears the nasal passages.
- Pranayama in an important part of yoga. In simple terms “Pranayama” may be called “The control of Breaths”. Its essence lies in the modification of our normal breathing, and the breathing pattern can be modified in there different ways.
- a) By inhaling and exhaling rapidly, taking shallow breaths.
 - b) By inhaling and exhaling slowly, taking long or deep breaths.
 - c) By holds the acts of breaths all together

Objectives of the Study

The aim of the study was to impact of six weeks pranayama training programmes on breaths holding capacity of Govt. Middle school, Mani Majra, Chandigarh.

Method

Thirty school students, who volunteered to be the subject, were selected from Govt. Middle school, Mani Majra, Chandigarh. The age of the subjects was in range 9 to 13 years. Subject were randomly assigned to either control group (n=10) and

experimental group (n=10), using simple random sampling technique. Experimental group under went through for six weeks pranayama training programme. The training schedule is twice a day in the morning and evening session. The duration of the training is an hour daily. No training was given to control groups. Data were collected on breath holding capacity by standard timing instruments at pre and post experimental stages. Both the groups were administered with pre test for assessment of their breath holding time. Experimental group was given training of pranayama for duration of six weeks after the experiment both groups were tested again. The data collected with the standard procedure was statistically analyzed by using ‘t’ test at 0.05 level of significance.

Result and Discussion

To assess the impact of pranayama on breath holding capacity, the mean, standard deviation and 't' ratio were computed by using SPSS-16 version and result pertaining to this has been presented in Table-I.

Table 1: Descriptive statistics of Breath holding capacity (BHT of Experimental group)

Variables	Subject	N	Mean	S.D	't'
Experimental Group	Pre Test	10	28.99	4.37	12.96
	Post Test	10	69.47	12.42	

Significant at 0.05 level 't'.05 (28) = 2.05

Table-1 indicates that mean, standard deviation of pre test of Breaths Holding time, of Experiment group, which were found to be 28.99, 4.37 and Post test value were found to be 69.47, 12.42. The value of paired sample of 't' ratio of breath holding, which were shows that there was highly significant difference with pre test and post test value of BHT. The calculated value of 't' was found to be 12.96 at 0.05 level of significance which was higher than the tabulated value of 't' at 0.05 level of significant.

Table 2: Descriptive statistics of Breath holding capacity (BHT of Control Group)

Variables	Subject	N	Mean	S.D	't'
Control Group	Pre Test	10	21.53	4.98	0.601
	Post Test	10	34.16	4.691	

Insignificant at 0.05 level 't'.05 (28) = 2.05

Table-2 reveals that there is no significant difference found between calculated and tabulated value at 't' ratio at 0.05 level of significance in control group. It was also found that the 't' value of experimental group are more than 't' value of control group in Post test was highly significant differences between experimental group and control groups.

Conclusion

The result of the showed that yogic practices significantly influenced on breathing holding time. It also showed increase in capacities related to breathing holding time like O2 consumption, tolerance capacity. Therefore, it was concluded that various parameters of respiratory improved after pranayama and also revealed a significant increase in force vital capacity, peak respiratory flow rate and maximum voluntary ventilation.

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