



Diaphragmatic Breathing, Its Benefits And Practices

Pamela Khudan, Dr. Ravinder Kumar Verma.

Research Scholar of Maharaj Agrasen Himalayan Gharwal University (MAHGU).

Faculty of Yogic Science Maharaj Agrasen Himalayan Gharwal University (MAHGU).

Correspondence Author: vyasaadi@gmail.com

ABSTRACT

The science of breath and its various levels of functioning in the body is explored in this research. Swami Rama explains the breath as the link between the body and mind. He also expounds that diaphragmatic breathing can take one to the entry of higher consciousness. Some ways of establishing diaphragmatic breathing are described, in makarasana, shavasana, sandbag breathing. Diaphragmatic breathing is observed to be the foundation for other breathing techniques with physical, psychological, and therapeutic benefits.

Key Words: Diaphragmatic breathing, yoga, makarasana, shavasana

INTRODUCTION

Breathing is an essential part of life, yet one is not constantly aware of one's breath. This voluntary and involuntary process affects every system in the human body including the brain, cardiovascular, respiratory, and gastrointestinal systems (Hamasaki, 2020). The Yogis say without any hesitation that the breath is the link between the body and the mind and that if one can control one's respiration one can control every aspect of one's being. They knew nothing about anatomy and physiology and its terminologies unlike today with authors such as Halland et al. (2021), Hopper et al. (2019), Liu et al. (2021), Stephens et al. (2017) and Yokogawa et al. (2018) exploring the efficacy of diaphragmatic breathing from a scientific point of view.

Diaphragmatic breathing begins naturally and involuntarily as a new born human baby. Upon further observation of a baby, it is found that breathing from his diaphragm is natural. The area between the navel and the sternum moves up and down (Fig. 1).

BREATHING

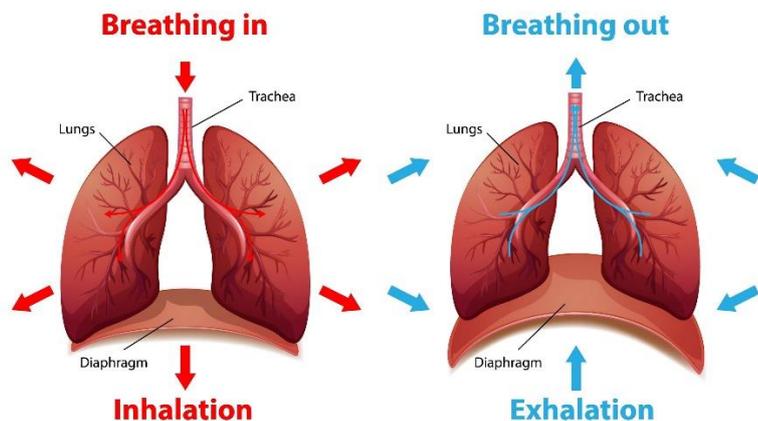


Figure 1. Diagram of Diaphragm during breathing (www.vecteezy.com)

The body is designed to breathe diaphragmatically but with further examination we would observe that our breathing may have changed a little or plenty from birth to today, this may be due to our culture and lifestyle or other. Our breathing maybe shallow or haphazard, going contrary to the natural rhythmic movement of the respiration system. Diaphragmatic breathing allows us to breathe naturally, in an even flow that can strengthen the nervous system and relax the whole body. The diaphragm is the primary muscle of breathing. It is a strong, horizontal, dome shape muscle, separating the thoracic cavity from the abdominal cavity. The heart and the lungs are located in the thoracic cavity and the stomach, intestines, reproductive organs, excretion organs are located in the abdominal cavity (Fig. 2). The diaphragm muscle is located two finger-widths just below the ribcage (Fig. 2). It is a little higher on right side between the fourth and the fifth ribs, on the left side it is between the fifth and sixth ribs. However, the center of the diaphragm is located at the xiphoid process, at the lower part of the sternum. Diaphragmatic breathing is supported by the rectus abdominis muscles (two strong muscles of the abdomen) which cooperate with the diaphragm during diaphragmatic breathing.

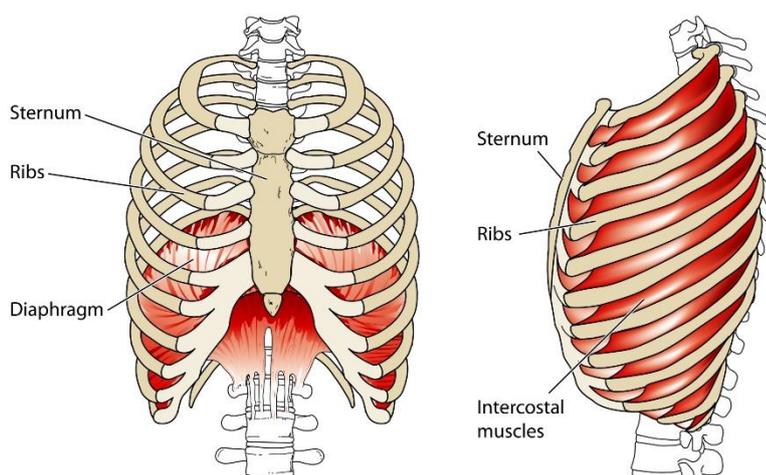


Figure 2. Location of the Diaphragm (<http://newangleyoga.com/diaphragm-yoga-location>)

Diaphragmatic breathing uses a minimum amount of effort and gives maximum amount of benefits. It is the most efficient method of breathing (Samskrti and Veda, 1986). To continue breathing the way we were born breathing we have to learn how to breathe diaphragmatically. The quality of the breath is important, the breath flow should be slow, gentle, smooth, silent, it should be deep, according to your capacity, there should be no pauses, no jerks, the inhalation and exhalation should be the same length and there should not be any pauses between the inhalation and the exhalation and the inhalation. This type of breathing is good for the heart and circulation. It is good for the

right vagus nerve; it increases the parasympathetic dominance and the digestive system as well as the liver. The pause in one's breathing indicates heart disease. The preliminary practice of diaphragmatic breathing precedes all the other pranayama practices and it is well established in makarasana. Keshaviah Prakash (2016).

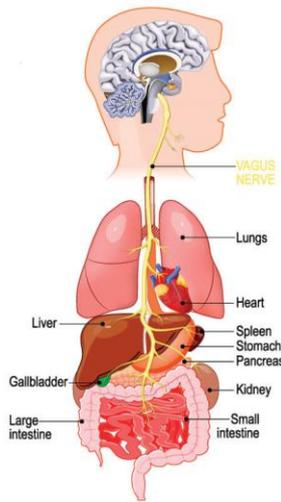


Figure 3. Diagram of the Right Vagus Nerve (<https://www.thesageoneness.com/2020/10/mindfulness-meditation-vagus-nerve.html>)

Swami Rama (1998) says that diaphragmatic breathing is the entry into higher awareness. It is important to know the science of pranayama. How the Autonomic Nervous System controls the involuntary systems in the body. The Autonomic Nervous System branches into two parts: The Sympathetic and Parasympathetic Nervous System. These two systems work in opposition with each other but in harmony. The sympathetic nervous system on both sides of the spine, made up of two vertical rows of nerve cell clusters, accelerates the rate of the heart while the Parasympathetic consists of twelve (12) cranial nerves, the right vagus nerve, which connects with the hindbrain, which goes all the way down the spinal column, through the neck, chest and abdomen, slows the rate of the heart.

In the practice of Yoga, it is important to gain control of this right vagus nerve. Gaining control of this wandering nerve one can have control of the functioning of the thyroids and parathyroid, the heart rate, the motion of the lungs, digestion and other involuntary processes. Then at will one can control the heart rate and others at will, consciously. According to Swami Rama there are two ways of gaining control of the right vagus nerve, they are through systematically practicing breathing exercises. Firstly, one learns to control the motion of the lungs so the heart function is controlled. Then the wandering nerve or right vagus nerve can be under one's control. For a yogi there are no involuntary systems. The second way of having control over the Autonomic Nervous system is through willpower.

SOME BENEFITS OF DIAPHRAGMATIC BREATHING

The Yogis say without any hesitation that the breath is the link between the body and the mind and that if one can control one's respiration one can control every aspect of one's being. They knew nothing about anatomy and physiology and its terminologies. The yogis knew that the different types of breathing affect one in various ways. So they have designed some practices to help one to establish the innate breathing.

The benefits of Diaphragmatic Breathing are numerous and are not limited to the following:

Physically, it decreases muscle tension, decreases heart rate, decreases respiration rate, and pulmonary stress. The body becomes calm. It reduces fatigue and the need for more sleep. It decreases cardio vascular risks. The lungs are filled completely with air, increasing the intake of oxygen from the air. It reduces the number of breath per minute. It forces waste product, carbon dioxide and residual air out of the lungs. Residual air may cause fatigue and laziness. The up and down movements of the diaphragm, gives a gentle massage to the organs that surrounds it, this gentle massage increases the circulation in these organs and help it to function more efficiently. Samskrti and Veda (1985). It increases

the parasympathetic dominance and relaxation state. It reduces the sympathetic tone. It increases blood and oxygen to the brain and heart. It increases the transfer of oxygen from blood to tissues. It increases the lymphatic circulation and venous flow returning to the heart. It is associated with normal blood pressure and it is an indicator of good health. It lowers blood pressure.

Psychologically, it increases the strength of the ego, emotional stability, confidence and self-esteem, physical and intellectual alertness, one's perception over the environment leading to the mind becoming calm. It decreases one's perception of pain and stressors thereby reducing anxiety, phobias, and psychosomatic problems.

Therapeutically, diaphragmatic breathing aids in decreasing anxiety and restoring emotional balance. It increased parasympathetic dominance, producing a relaxed body and a calm mind.

DIAPHRAGMATIC BREATHING PRACTICES

Diaphragmatic breathing can be established through the following technique:

In Makarasana or the crocodile pose, Diaphragmatic breathing can become established and it can be used for relaxation as well. It is important to know that diaphragmatic breathing aids in reducing chest and clavicular breathing. This posture allows you to observe the effects of the movement of the diaphragm muscle as you inhale and exhale. The reverse of makarasana will be discussed here as well. Those subjects who are uncomfortable lying face-prone can practice diaphragmatic breathing, lying in shavasana (corpse pose). While lying in shavasana, gently place a sand bag (specially designed bag filled with sand that covers the area between the navel and the sternum to the sides of the rib cage), on the area between the navel and the sternum. It can weigh approximately 15 to 16 pounds (Ahymisin.org).

PROCEDURE FOR TECHNIQUE 1 (IN MAKARASANA OR CROCODILE POSE).



Figure 4. Makarasana (<https://www.themindfulword.org/wp-content/uploads/2016/11/nakrasana.jpg>)

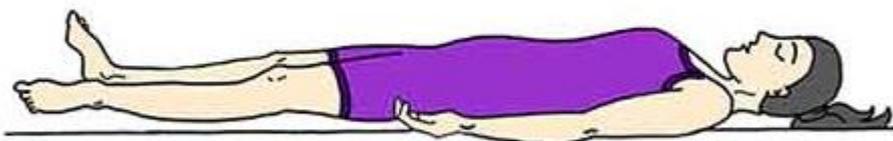
- Sit in any steady comfortable posture
- compose your body and mind, bring it to center
- Now lie on the floor face prone, placing the area between the navel and sternum on the floor first.
- You can place the two big toes together or place your feet comfortably apart.
- Now fold your arms in front of your body, with the right hand over the left hand (this can be interchangeably).
- Now adjust your hands ensuring that it is not too close to your chest or not too far, ensure that the sternum is not of the floor.
- If the chest is resting on the floor you are not in the posture, it should be off the floor.
- Rest the forehead on your forearm.
- Now relax the whole body in this position. Let the breath flow freely, gently, slowly, smoothly, silently, let it flow.
- Then bring your awareness to the area between the navel and the sternum.

- Now as your breath flows in and out observe the effects it has on this area.
- As the breath flows in observe the pressure of the abdomen against the floor increasing.
- As the breath flows out observe the pressure of the abdomen against the floor decreasing.
- Keep this observation on going. Let the body and mind relax.
- Now observe how the body's muscle tension decreases, how the respiration and heart rate are decreasing.
- Observe your smooth free flowing breath. Smooth, gentle, silent breathing.
- Eliminate any pauses, jerks or irregularities in the breath. Let there be no pauses between the inhalation and the exhalation, and the exhalation and the inhalation.
- Smooth flowing continuous breathing
- If the mind begins to wander of, very gently bring the mind's attention to your breathing and continue to feel the pressure of the abdomen against the floor increasing as you inhale and decreasing as you exhale.
- Relax totally and completely.
- Om Shanti, Shanti, shanti
- May there be peace, peace, peace. (Keshaviah Prakash, 2016).

In makarasana the area between the navel and sternum on the floor, one can feel one's body weight on this area. In this area one will find the organ of breathing, the diaphragm. It attaches itself to the ribcage and goes all the way to the spine and attaches itself. Several nerves soft tissues and blood vessels pass through the diaphragm. Some of them are the aorta, inferior vena cava and oesophagus, phrenic nerve, thoracic duct and the vagus nerve. The right vagus nerve comes down the oesophagus into the stomach. This is why one can gain control of the parasympathetic nervous system by doing makarasana.

From makarasana gently roll over on your back in shavasana, keeping the feet comfortably apart. Arms resting at the sides of the body with the palms facing upwards. Relax the entire body and continue to let the breath flow smoothly, gently, slowly and silently. With your gentle breathing, observe the gentle rise and fall of the navel and stomach area. Now place the left hand on your chest and right hand between the navel and the sternum. There should be no movement under the left palm. Movement should be under the right palm. Continue to breathe slowly, gently, smoothly and silently. In this posture, you can stay for 10 to 20 minutes observing your breath. (2 or 3 times a day). One can relax the body and mind quickly in this posture, Swami Veda Bharati (2008).

SHAVASANA THE CORPSE POSE



yogicwayoflife.com

Figure 5: Shavasana

ESTABLISHING DIAPHRAGMATIC BREATHING THROUGH SANDBAG



Figure 6: Diaphragmatic breathing with use of sandbag (https://images-s3.yogainternational.com/assets/content/articles/Diaphragm_Exercises_2.jpg)

Sandbag breathing is used to establish diaphragmatic breathing. The name is derived from the using of sand to fill the bag. The sandbag is placed in the area between the navel and the sternum. Here the diaphragm, liver, stomach, pancreas, kidneys, and more... are benefitted from the practice,

Method: relax and breathe freely. relax the whole body, feel the abdomen relaxes as the breath flows in and out. Ensure that there are no pauses between the breaths. When the breath flow is established place the sandbag between the navel and the sternum and keep your attention there. Continue to breathe freely. Observe how the bag rises from the motion of the diaphragm. It may take some time to get adjusted to the weight of the bag. Take the sandbag off if you feel any discomfort. Yoga International .com

PROCEDURE FOR TECHNIQUE 2 - NADISHODHANAM (Alternate Nostril Breathing)

(SWAMI MUKTIBODHANANDA, 2012)

He believes that the first pranayama practice is nadi shodhana pranayama, alternate nostril breathing, this breathing practice activates and harmonises both ida and pingala nadis. According to Swami Muktibodhananda, shodhana means to purify. The practice is translated in English as nadi purification pranayama. In order to learn pranayama correctly, firstly, it is important to be acquainted with natural breathing.

Alternate Nostril Breathing: base is diaphragmatic breathing

- Sit in a comfortable position. Establish diaphragmatic breathing.
- Place your fingers in Vishnu mudra.
- Close the right nostril with your thumb and left nostril with your little finger.
- Now inhale through the left nostril and hold the breath according to your capacity, then exhale through the right nostril.
- Then inhale through the right nostril, slowly fill your abdomen, then hold the breath to capacity (kumbhaka), and exhale through the left nostril.
- Repeat and do according to your capacity.

One important benefit of this practice is that it alternately purifies all the nadis in a space of three months and balances the energy in the brain. One subtle note from Hatha Yoga Pradipika chapter 2 verse 2, “when prana moves Chitta (the mental force) moves, when the prana is without movement, chitta is without movement. By this (steadiness of prana) the yogi attains steadiness and should thus restrain the vayu (air).

PROCEDURE FOR TECHNIQUE 3 – SIMPLE BREATH AWARENESS

(HATHA YOGA PRADIPIKA)

- Lie in shavasana and relax the entire body from head to toes.
- Bring your awareness to your breathing, observe how it goes through the nostrils, down the trachea and into the lungs. Establish diaphragmatic breathing.
- Feel the lungs as it expands during inhalation, feel the rise of the stomach and slight tension in the region of the chest.
- On the exhalation feel the gentle fall of the stomach, contraction of the lungs, the entire body relax, while the air continues to flow in and out through the nostrils.
- Now let the breath flow naturally (practice for 5 to 10 minutes).
- After perfecting this practice, then do the practice in a sitting position.

CONCLUSION

It is important that everyone breathes diaphragmatically because it is the foundation on which all other breathing techniques stand on. The benefits of diaphragmatic breathing are numerous, and anyone can do it in order to improve their physiological, psychological and emotional wellbeing. Diaphragmatic breathing can take one to entry to higher consciousness. Diaphragmatic breathing is a sacred and silent practice; anyone can do at any time. It can be kept as a secret practice. One can practice diaphragmatic breathing in any position, from standing, sitting, in twisting and being inverted. It is relaxing and the position becomes more comfortable, and one can remain in the position for a longer period. Diaphragmatic breathing can be practiced every moment as one walks, talks, jump, sing and dance. It is an integral part of the science of breath.

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