

Pranayama & The Art Of Breathing

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Introduction

The Sanskrit word pranayama (also known as pranayam) is translated as “the science of breath” in some circles, and in others it has a broader meaning, “expansion, manifestation of energy.” Pra (first unit) na (energy) is the vital and primal energy of the universe. According to some Eastern Indian writings, the universe comes from akasha (ether, space) through the energy of prana. Akasha is the infinite, raw material of the universe. Prana is the infinite, raw energy of the universe. One who has learned how to control prana controls all the energies of the universe, thus controlling his or her body, emotions and mind.

Even though prana is a term loosely used to cover all energies, ancient manuals of yoga speak of ten pranas, five major and five minor ones. The five major pranas are udana, prana, samana, apana, and vyana. Udana rules the upper part of the body from the larynx up, and governs use of special senses beyond the five senses. Prana rules between the larynx and the heart, governing speech, breath and the respiratory system. Samana rules between the heart and the navel, governing all metabolic activity in the act of digestion. Apana rules below the navel and governs the kidneys, colon, rectum bladder and genitals. Vyana permeates the entire body and governs relaxation and contraction of all muscles, voluntary or involuntary. It also governs the joints and their movements. By controlling the prana (breath) one can access and influence all the other pranas, which explains the universal usage of this word for representing all the pranas.

Energy and matter bear an important connection with each other. They are one and the same, really. If matter is dispersed, energy is the result. If energy is condensed and harnessed, matter is the result. It takes a lot of energy to make only a little bit of matter. It takes only a little bit of matter to make a lot of energy. One quarter pound of matter would be the equivalent of 200 H-bombs going off, about 200 times the power of the bomb that destroyed Hiroshima. Obviously, scientists are interested in learning how to convert matter and energy back and forth, but as a species, we are far from utilizing these physical laws, especially in a benevolent way.

Breath is an energizing force concerning the matter in our bodies. Energy is referred to as prana in Sanskrit terms. Breath is our first and foremost energy, carrying over to all the other bodies after reaching the physical body. Even the physical body comes after energy, not before. We talk about mental energy, emotional energy, physical energy, spiritual energy...all of these are types of prana. If one wants to alter any of these structures, one would do so through prana. Prana is the vital link between all of these structures. In ancient Eastern Indian scripture, five prana are described, each having its separate function. The pranic sheath has a complex anatomy. In it are pathways called nadis. Through them, breath flows and is converted to the energy forms that are needed by the different “bodies” of the human, not just the physical body.

In the body, energy is constantly being consumed, produced and exerted. It is being shifted from point to point, creating an energy flow. Different kinds of breathing create different types of energy flow. Fast breathing creates shorter waves of energy, bursts of energy, and slow breathing creates longer waves of energy, steady slow frequencies of energy. Different types of energy flow create different results and states of mind.

Everyone develops habitual ways of breathing or moving energy, and there are differences from one body to the next as to its health and vitality. If the energy flow is changed, the body will change. For instance, if a person learns to breath differently, less shallowly, the body will change for the better. If a person’s breathing becomes less open, the body will change for the worse. A shock or injury can also change a person’s breathing and energy flows, and it may result in a change of posture or other factors that affect energy flow. If the body is undernourished, concerning energy, it will become sick

There is much speculation as to how one might affect different types of energy flow through the breath, and thus attain different results in physical, emotional, mental and spiritual states. One who sits down and purposely alters his or her breathing patterns will gradually see changes in the way his or her body, emotions and mind function. Some animals are able to regenerate body parts, and this is most likely because there is some sort of persistence in the energy flow, causing matter to manifest. People who have had limbs amputated always report still feeling the limb, and it may even be painful. This is also because there is still an energy flow there, the energy that precedes the manifestation of the physical body. The physical body is nothing more than a crystallization of energy patterns that underlie it. It is seen in Kirlian photography that if a leaf is torn in half, the

energy of the half that is gone is still there, quite intact. It is possible that if the energy of human limbs that are missing persists long enough, the physical manifestation would eventually reappear. Some plants do regenerate this way. This is why plants seem to grow back even stronger and fuller when they are pruned back. They have a burst of energy to replace that which was lost. There are even animals that can grow limbs back.

There is one cell in the very beginning of a human form. That cell then divides, and continues to divide. But what causes these cells to turn into a skin cell, a muscle cell or a bone cell? What tells them to be a heart instead of a leg? It is the underlying pattern of energy that is the template for the human body. The cells are following a guide, a field of forces around which they shape themselves. If there was no template, there would be no organization of these cells and it would just be the same kind of cell over and over again, never turning into something different from the cell it was divided from.

The Upanishads, ancient Eastern Indian texts, say that the pranamaya kosha (energy body) is created by even a deeper level of existence called the manomaya kosha (mind). The mental is even subtler than the energy (prana), which it uses to create physical matter. In this era, most of the mainstream population believes that the body comes first and gives rise to the mind. Most people believe that the fetus or embryo has no mind and that its personality and mind evolve from the physical body. It is believed that the Earth formed out of mindless material, and life arose from this lifeless soup, eventually emerging into a consciousness like humankind. However, it is actually the other way around.

Eastern thought has been quite opposite of Western thought, believing that consciousness is the one that had the idea of creating matter in the first place, a vehicle in which to have experiences in a physical reality. First came consciousness, then the mind, the mind being the first manifestation created by consciousness. Out of the mind comes the manifestation of physical, material existence. Out of this came the human, animal and plant bodies. We are born of something beyond physical existence, and it is to there that we return. This implies that our existence is born out of something that precedes physical reality, and this is a disconcerting thought to the Western way of thinking. Out of the nothingness, mind and physical reality appear, and then it disappears back into that same nothingness after it is experienced. Consciousness expands into manifestation, and then it contracts back into nothingness, expands again, and then pulls back. The entire universe is nothing more than a cosmic exhalation and inhalation process. This process of the coming and going of experiences is evident in all things. Humans and animals breathe, and so do plants. We are born into manifestation, and then we die, returning to that which preceded the physical body. The cosmic breath is happening right here inside your human body even as you read these words.

Pranayama & The Nervous System

The nervous system contains the central and autonomic nervous system. The central nervous system consists of the brain, twelve pairs of cranial nerves, the spinal cord, and thirty-one pairs of spinal nerves. The cranial and spinal nerves spread throughout the body. These nerves send out and send in to the brain pain and motor impulses. Prana flows throughout these pathways. It also flows through all the nadis, or energetic pathways, which have been studied by ancient yogis and correlate with many of the meridian paths described in literature about acupuncture techniques.

Nadis means channels or vehicles. Some texts describe 72,000 nadis in the body, other texts mention as many as 350,000 of them, but fourteen are considered important, and only six of them are the most important of all. They are called the ida, pingala, sushumna, brahmani, chitrana, and the vijnana. Among these six, three are even more important than any others. These are centered on the spinal cord, wrapping upward. We learned about these in the UMS Chakras & Auras course while exploring kundalini. Here we will look at how they relate to the nostrils and breathing.

Pingala (surya) flows through the right nostril. Ida (chandra) flows through the left nostril. Both criss-cross back and forth across the spine. Sushumna is the central pathway moving straight down the middle of the spine and is the moment when both nostrils are open and operating equally. The meditative expansion of that moment is called sandhya, a state in which the meditator cannot be disturbed by sounds, thoughts, or any other disturbance from within or without. It is a "magic moment" or "magic zone." All three of these nadis begin in the base of the spine, in the root chakra, or mudladhara.

When the ida and pingala criss-cross back and forth across the spine, intersecting with the sushumna, these intersections are the chakras. Five of them are on the spine and the uppermost two are in the head. The ones

in the head do not have the criss-cross action from the nadis. The ones on the spine do. The ida, pingala, and sushumna are the three main nadis, but multitudes of other nadis radiate out from the chakras as well.

Scientists have attempted to compare the nadis to what we know about modern anatomy, but they do not correlate as exactly as scientists would like. Even though nadis bear a terrific resemblance to the nervous system, they cannot be detected through dissection. They are part of the energy body, which supports the physical body. The physical body is built around the energy system of the nadis. The nerves belong to the physical body and the nadis belong to the subtle body, two different systems indeed.

The techniques of pranayama are designed to bring the central nadi, the sushumna, into primary function, rather than the ida or pingala dominating the functions of prana flow. With activation of the sushumna as the primary flow for prana, the yogi experiences freedom from the human condition, and joy. By opening up flow of the sushumna, the yogi raises kundalini, the sleeping serpent, from the root chakra, the mudladhara. This kundalini energy, which is very powerful, passes through and blows open each chakra. The resulting states of consciousness, represented by the thousand petalled lotus, the crown chakra at the top of the head, is considered the highest state a person can reach in the human form. It is union with cosmic consciousness, beyond time and space, and also called shakti. The person merges his individual self, soul, or atman, with the cosmic soul, or Brahman.

Pranayama is one of the pieces of raja yoga (royal yoga). The first four pieces are yama (restraints), niyama (observances), asana (postures), and pranayama. The next four pieces of raja yoga are pratyahara (sense withdrawal), dharana (concentration), dhyana (meditation), and samadhi (superconscious state, freedom from reincarnational cycles).

Controlling breath and nerves results in controlling the mind, and controlling the mind results in freedom. According to yoga, disease is the result of imbalance and blockage in the flow of prana. Psychologists have discovered that there is a connection between personality types and breathing patterns. The yogi believes that by changing the pattern of breathing, one can transform the personality. When the mind is disturbed, the breath is disturbed and vice versa. By making the breath deep, even, and smooth, the mind relaxes and thus the personality changes, or the physical disease goes away.

One of the aims of yogic breathing, the practice of pranayama, is to regulate this unequal flow of breath through the nostrils, bringing balance between them, and having both nostrils equalized in their flow. This equalization devitalizes the ida and pingala and opens up the blocked sushumna nadi. Equalizing the flow of breath in the left and right nostrils brings health, balance and harmony to the mind and body. This is not done on a 24 hour per day basis, however, for this would actually cause an imbalance. It is simply useful for determining which side is dominant at any given time if a particular activity is coming up that would be served better by using one side or the other as the dominant affector.

Breath Awareness In Meditation

Turiya is the highest state of mind possible. It is the seventh level of breath awareness in meditation. Since the beginning of life, the child learns how to move, not how to be still. The yogi learns how to be still. It can take many years to learn how to be still. Most teachers of meditation teach the student breath awareness before leading the student to more advanced methods of meditation. Deeper states of meditation simply cannot be reached without awareness and control of the breath. The mind identifies with the outer world, and in order to be aware of that which is beyond the mind, perfect stillness and tranquility must be achieved.

The first thing to become aware of is the breath. Many people wonder why their meditations are not more powerful or deep, but usually it can be traced back to the fact that they are not, nor have ever been, aware of the breath. Awareness of the breath is the first movement of the mind inward.

The following is a series of steps inward in breath awareness:

1. Find a comfortable posture.
2. Develop calm, serene breathing.
3. Develop a calm and steady mind.
4. Control the conscious mind.
5. Control involuntary processes and the unconscious mind.
6. The mind becomes aware that it is conditioned by time, space and causation. Train it to become aware of the now, an essential part of understanding eternity.

7. **Turiya** is attained, the highest state of bliss, peace, happiness, and wisdom.

The mind forms habits, ruts that it uses for thought processes. Meditation is not about allowing the mind to wander aimlessly, but harnessing the mind and making a conscious effort to coordinate the body, the breath and the mind. In teacher/student traditions, the teacher waits until there are signs in the student of body/ mind stillness and serenity of the breath. When the student has successfully stilled the mind and body, more advanced states are taught.

For the beginner in meditation, it is common for him or her to experience elevated itching, twitching, muscle spasms, and pain. These may be movements that there was no awareness of before. All of these movements are caused and reflected by the untrained mind. No act is independent. The mind moves first, and then the twitching or itching ensues. When the student has learned to be still in the mind, the body becomes still as a result. In meditation, the first thing one must do is learn how to sit still! This is a tall order for some people.

Breath awareness prepares the student for higher levels of consciousness. A one-pointed mind is absolutely necessary before meditation can truly take place. Just closing one's eyes and trying to think of nothing is not meditation. That is preparation for meditation. Pranayama can be the doorway to true meditation.

Sushumna is the name of the central nadi. It is also the name for "joyous mind." There are techniques for developing sushumna, which is the prerequisite for true meditation.

1. Concentrating on the bridge between the two nostrils
2. Doing pranayama exercises and using the jalandhara bandha
3. Meditating on the chakra system

Cellular Respiration

Cells are tiny, individual, living, sentient beings. Their life is dependent on the flow of energy, prana. Usually one thinks of the food eaten as the source of energy, but this is not the case in its entirety. The food is useless to the body without the oxygen. The air is also supplying prana. The food is then "burned" in the body, creating energy, but the oxygen is necessary to convert it.

A fire is a fast and hot "explosion," which is obviously not the kind of burning that the body does. The body could be seen as a slow burning furnace. This slow burning furnace creates energy by combining food fuel (carbon) with oxygen, thus producing CO₂ (carbon dioxide). In a visible fire, light is visible because the burning is so rapid. In the body's "fire," the burning happens so slowly that light is not visible, except in the auric field displayed by Kirlian photography.

All living organisms are, in essence, slow burning furnaces, creating energy out of the burning of food with its proteins, carbohydrates and fats. Sometimes the energy is not used in the moment that it is created, so it is stored in an energy storage molecule called an adenosine triphosphate, or ATP, and this is found throughout biological systems throughout nature.

Cell respiration is, then, a situation where nutrient fuel is burned with oxygen to release energy. The respiratory system of the body delivers the oxygen and makes it available to the cells. A change in the respiratory system, blockages, poor conditions, or pollutants covering the lungs, all of these can seriously contribute to the inability of these cells to function as tiny furnaces.

Circulatory System & Oxygen

In order for the oxygen to be delivered to the cell, it must go through a myriad of systems before it gets there. Oxygen travels through the lungs and the circulatory system before it reaches the cell. The oxygen enters the *trachea* (throat), splits off into two tubes supplying each lung, and then branches off into even smaller branches until these branches become microscopic in size. After many branching levels they end up in tiny bronchioles which bring the oxygen into little air sacs called *alveoli*. These air sacs are so tiny that the lung tissue in this area looks solid to the naked eye. Here is where the gas exchange takes place. It happens in these cell-sized bubbles.

Blood vessels surround the *alveoli* and the blood cells bend to fit into these bubbles. The blood grabs the oxygen molecules and carries them off into the blood stream. The blood is not, however, distributed evenly around these *alveoli*, which deliver the oxygen. When one is standing, the blood is thickest around the bottom of the lungs. However, gas exchange is greater in the upper portions of the lung. The degree of efficiency of oxygen transfer can be changed by compensating reflexes in the lungs, and the way a person habitually breathes.

Smoking is about the worst thing anyone can do to his or her breathing apparatus. Emphysema is the result of cigarette smoking and every smoker has it to some extent or another, even if the more serious symptoms of emphysema are not prevalent. Smoking breaks down the lining in the *alveoli* and this happens slowly over a period of years until a full-blown case of emphysema is evident. If the *alveoli* were flattened and spread out, they would cover the space of an entire floor of a house or apartment. This is why it takes so long for emphysema to show up. Pre-emphysema symptoms would be "shortness of breath" for not as many *alveoli* are being utilized as should be.

Hemoglobin molecules within red blood cells transport oxygen in the bloodstream or it is directly dissolved in the blood. *Most* of the oxygen is carried in the hemoglobin molecules. These molecules are made up of four protein chains attached to an atom of iron. Iron is what the oxygen is attracted to, and this bonding causes the blood to be bright red. When hemoglobin transports the waste material from the cells after the conversion of the fuel and oxygen, it carries CO₂, causing the blood to be bluish. Arterial blood, the vessels that deliver the oxygen, tend to be in the inner parts of the body and these are red. Venous blood carries the waste products away and tends to be on the outer parts of the body. Venous blood is blue.

O₂ and CO₂ should be the only molecules that bind to hemoglobin, but sometimes there are other gases present in the air that can enter the bloodstream via the lungs. These gases can crowd out the O₂ and cause a crisis. One of these is carbon monoxide, found in cigarette smoke and automobile exhaust. Carbon monoxide is 240 times more likely to attach to hemoglobin, and this results in a decreased amount of hemoglobin available to carry O₂, creating a type of anemia. A person who smokes has somewhere between 5-15 % of his or her hemoglobin tied up in transporting carbon monoxide, a toxic substance, rather than carrying oxygen. Carbon monoxide causes damage. It also hardens the arteries, leading to heart attacks and strokes.

If this is not knowledge that will cause you to stop smoking if you are a smoker, then nothing will. Even though this knowledge is quite prevalent, and every one knows that smoking causes these problems, still the epidemics of emphysema, heart attacks and strokes go on. (To be fair, heart attacks and strokes can be caused by other factors as well.) This leads one to conclude that people who smoke may secretly harbor a death wish, even unbeknownst to themselves.

Once hemoglobin carries an oxygen molecule, it travels throughout the body and finds cells that need the oxygen. The driving force is the heart. The right side of the heart takes CO₂ rich blood from the body and pumps it into the capillaries surround the *alveoli* in the lungs and gas exchange occurs. This blood then becomes oxygenated and the CO₂ is expelled through the exhaled breath. This oxygenated blood is redistributed throughout the body by the left side of the heart.

The oxygenated blood moves into increasingly smaller blood vessels until it reaches some that are as small as the *alveoli*. A gas exchange similar to that in the lungs occurs between the cell and the hemoglobin. The cell takes the oxygen molecule and gives the hemoglobin CO₂. The blood again turns blue. The hemoglobin then travels into increasingly larger vessels until it goes through the right side of the heart and ends up in the lungs again.

Three Types Of Breathing

The diaphragm is the muscle that causes the lungs to move and is located underneath the lungs, above the stomach. When the diaphragm moves downward, the lungs inhale. When the diaphragm moves upward, the lungs exhale. Diaphragmatic breathing is evident when the lower belly extends on an inhale rather than the chest. There are three types of breathing, which will be expounded upon more as we move further into this material: thoracic breathing (mid-chest), clavicular breathing (upper chest), and diaphragmatic breathing (belly, abdomen). Diaphragmatic breathing is the most efficient breathing there is. This is because most of the blood is circulating in the lower parts of the lung, and oxygen infusion is mostly happening there. The diaphragmatic breathing pulls the oxygen lower into the lungs, thus increasing the efficiency of oxygen infusion into the blood stream because the oxygen is exposed to more of the blood. Interestingly, children and infants do this naturally. It is only later that adult humans stop using this most efficient way of breathing.

Thoracic Breathing, chest breathing, fills only the middle and upper portion of the lungs, not the lower portions where most of the blood is. Clavicular Breathing is centered around the collarbones and only comes into play when the body needs great amounts of oxygen, for instance, while exercising.

The three types of breathing can be coordinated into an exercise in which a deep breath is taken. This is a complete yogic breath incorporating all of the lung capacity, not just portions of it. First the lowest part of the lungs are filled, diaphragmatic (belly), then the middle portion is filled, thoracic (mid-chest), then the uppermost part is filled, clavicular (upper tips of the lungs near collar bone). An example would be a yawn, or a sigh. Everyone has experienced how relaxing it is to let out a big sigh, or a yawn.

Breathing Habits

Emotions have a lot to do with breathing. When a person is relaxed and happy, diaphragmatic breathing is a natural result. When people are angry, fearful or otherwise “tight,” they mostly use thoracic or clavicular breathing. Some people don’t even realize that they freeze between breaths, stopping the breathing process altogether. This can happen whether these emotions are conscious or unconscious. It has been suggested by some scientists that perhaps people use thoracic or clavicular breathing in order to block angry, aggressive, anxious or fearful emotions from their conscious mind. These powerful emotions have strong associations with the lower parts of the body, including associations with lower chakras, so it only stands to reason that the breath is shallower in order to escape these emotions, or at least tone them down.

Hyperventilation is a result of acute anxiety, and this triggers the sympathetic nervous system. The parasympathetic and the sympathetic system are both parts of the autonomic system, two branches. The parasympathetic system deals with slowing the heart rate, speeding up digestion, and activating cleansing processes in the body, things that the body does while in a state of repose. The sympathetic system deals with active things like responding to emergency situations, physical exercise, anger, and panic. Adrenaline rushes are triggered by the sympathetic nervous system.

Just as emotions can trigger certain breathing patterns, which could be learned and habitualized, breathing can also recreate or reinforce an emotional atmosphere. It becomes a potential tool for interrupting, inspiring or controlling emotional response patterns. The breath plays a crucial role in whether one’s disposition is a calm or anxious.

Chest breathing is also a result of self-consciousness about image in this society, since abdominal breathing is not seen as a very attractive thing in adults. The female hourglass figure is preserved by using chest breathing, rather than diaphragmatic breathing.

Most people use chest breathing rather than diaphragmatic breathing. This results in shallow, irregular breathing. The oxygen does not reach the lower lobes of the lungs, which contain the most blood flow. Diaphragmatic breathing also takes a load off the heart, for it creates more suction pressure in the thoracic cavity, improving venous return of blood.

Chest breathing is a part of the fight or flight reaction and the human organism thinks that it is always in a stressful or dangerous situation. Chest breathing gives the mind anxiety, unsteadiness and tension. All meditation techniques, or relaxation techniques, are ineffective unless chest breathing is replaced by diaphragmatic breathing. The habit of breathing into the diaphragm must be consciously practiced with diligence before it becomes the person’s natural and unconscious way of breathing, automatic.

Nasal Function

Humans breathe 18,000 to 20,000 times a day. This is mostly, if not all, being done through the nose, not the mouth, even though it requires 150% more effort to bring air into the narrow passage of the nostrils, a literal bottleneck for the air to pass through. This means there must be a good reason for it!

The nose does much more than just letting air in. Medical specialists who study diseases of the nose (rhinologists) list thirty distinct functions that the nose performs. It filters, moisturizes, warms, registers smell, brings in oxygen, creates mucus, provides a route of drainage for the sinuses, and affects the nervous system. It has many other functions beyond this as well. The nose prepares air for usage by the body.

The word nose not only pertains to the portion that can be seen on your face, but also the myriad of passageways inside the skull that involve the sinuses and the sense of smell.

The inner passageways of the nose are right under the brain. Breath is obviously quite influencing on the brain, the nervous system and the pituitary gland (which is on the floor of the brain). There is vast information on the functions of these inner passageways and how they work. For the purposes of this course, we will

particularly look at the effects of one nostril being predominant over the other and vice versa, and the effects of breathing exercises.

Mucus

Mucus membranes coat most of the passages that carry air into the lungs. The bronchi, the branches within the lungs, are also producers of mucus. Dry air is not as easily used by the human organism. Mucus keeps the nasal passages moist and moistens the air for use by the body.

The mucus is moved by the cilia, little by little, upwards into the throat. Cilia are little hairs in the entire respiratory system from the lowest part of the lungs to the end of the nose and throat. This is a constant process all day and night. At night their job is easier because they are not working against gravity, as they are during the day. This is why there is more mucus upon awakening than any other time of the day.

The mucus is mostly swallowed, and only a small amount actually goes out the nose. The mucus coming out of the nose is usually not the mucus coming out of the lungs. It comes from the sinus passages and the nose itself, for the nose also produces mucus in order to combat pollutants in the air. The mucus that does not come out of the nose moves into the gastrointestinal tract by swallowing in the back of the throat. The digestive juices kill the microbes in the mucus. Mucus is broken down and recycled.

Smokers develop a great deal of mucus. If they stop smoking, a cleansing period ensues with headaches (from toxins in the mucus), nausea (excess mucus in the stomach upon awakening), and coughing. If one does not stop smoking, coughing is not due to cleansing. It is due to irritation from the smoke, coal tar, 96 chemicals normally found in most cigarettes, and the destruction of cilia. The smoke of cigarettes completely destroys cilia, and this takes away the body's avenue for removing mucus up and out of the lungs to the throat. After one stops smoking, the cilia are gradually regenerated and mucus movement can return to normal.

Left/Right Nostril Dominance

Breath can be used to shift physical, emotional and mental gears. Controlling the breath can lead to some interesting experiences. In fact, your body is regulating these shifts all day long. For instance, at any given time in the day one of your nostrils is more open than the other. This is not a hypothesis; it is something you can see for yourself. Check it out! There are moments when both nostrils are pulling through equal amounts of air, but this is only during the short time when the equilibrium of the breathing is being shifted from one nostril to the other. Otherwise, one nostril or the other governs each moment of the day. Certain activities are ideal depending on which nostril is governing the air movement into and out of the body. In the Upanishads, it is said that one should eat only when the right nostril is open. Otherwise, the food is not digested right in its initial stages. On the other hand, if you eat while the left nostril is governing, the body will quickly shift to the right nostril. Exercises for purposefully shifting the dominant nostril will be given shortly in this course.

It is most useful to know which side of the nostrils accentuates different activities. These dominant nostril exercises help restore coordination between the two sides of the body and the brain. You can voluntarily switch the flow of air from one side of the nose to other, thus preparing yourself for whatever task is at hand. If you are about to take a test, eat, or run a marathon, perhaps you would like to open the right nostril and make it the dominant side for the breath to flow.

If you have trouble going to sleep, perhaps you would benefit from opening the left nostril, which supports less active energies in the body, therefore promoting sleep. One way to do this would be with nadi shodhanam breathing exercises. Another is quite simple. If you lie on the right side, the right nostril closes and the left opens up. Laying on the side, with one nostril higher than the other, triggers the erectile tissues in the lowest nostril. This is not because of gravity, as was thought for a long time. It is because pressure on the down arm and the side of the chest trigger a reflex that dilates the nostril that is up and closes the one that is lower on the side where the pressure is.

All of this said, the purposeful direction of physiological reflexes triggered by left or right nostril dominance in the breathing is not a good idea to force for more than a few hours. It is said by yogis that it will invite disease into the body if one nostril stays open for six or eight hours. If the breath stays on one side of the nose for a day or more, the possibility for disease is quite serious. The ancient yogis documented their studies of the breath and found that it must be related to the flow of energy (prana) and it is important to let it run its natural course most of the time. It is not uncommon for a person to notice that he or she isn't feeling quite right

after nose surgery, and ones who have had a long time blockage in one or the other of the nostrils or inner passageways are reported to have mental illnesses. To have the nose changed can tamper with the emotions and mind, the basic foundation of oneself.

Nasal Erectile Tissue and Relationship to Left/Right Nostril Dominance

Erectile tissue is only found in a few areas of the body, the genitals, breasts and the lining of the nose. This tissue receives extra blood through microscopic passageways, causing the tissue to expand and harden. It is not uncommon when a person has over stimulation of sexuality for the nose lining to swell as well. It is called honeymoon nose, for newlyweds are often engaged in a lot of sexual activities.

The swelling of the nasal erectile tissue, independent of sexual activities, has a distinct, regular pattern of swelling and shrinkage, causing one nostril to be more open than the other at various times through the day. This creates a right/left variation in breath flow. This alternates in a very predictable fashion, every 45 minutes to two hours depending on the individual, and each nostril takes its turn at being predominant in the breathing pattern. It reaches a peak, and then decreases.

This is a natural pattern, but it can be interrupted by emotional disturbance, irregular mealtimes, sleep problems, pollution, infection and other forces that affect the bio-organism. This is why calm emotions, regular routines, and a sensible lifestyle are so important. This left/right breathing pattern affects brain activity, and certain kinds of brain activity are more conducive to particular activities than others.

This rhythm between the nostrils is called "infradian rhythm," a recently coined term for an ancient understanding by yogis who spent great amounts of time in self-observation cataloguing these patterns of the human body. Yogis who focused on this study of the breath were called swara yogis. They also documented the psychological and physiological states that correlated to different nostril dominations in the breath. For instance, the right nostril dominance matched more active, alert states (outer world activities), while the left side dominance promotes quiet, passive and meditative states, (inner world activities). This is very precisely the same as right and left side brain activity. Right nostril breathing is conducive to digestion, and swara yogis were prone to open the right nostril before eating. Before taking fluids and meditation, the swara yogis were inclined to open the left nostril.

Benefits Of Pranayama

blood purification
healing of injuries
weight-loss
toxin removal
increased stamina

physical vitality
altered states
emotional calm
mental clarity
spiritual powers (siddhis)

peace and well-being
nervous system purification
oxygenation of the brain
prevention of disease
relief from pain

Signs Of Toxin Removal (which will disappear within the first month)

Flu-like symptoms
headaches

mucus release
dizziness

nausea
weariness

Why Is Oxygenation So Vital?

1. Removes waste products and toxins from cells
2. Most of our energy comes from oxygen, not food

Sanskrit Words For "The Complete Breath"

- | | |
|-----------------|----------------------------------|
| 1. Inhale | Puraka |
| 2. Inhale pause | Abhyantara Kumbhaka (Full Pause) |
| 3. Exhale | Rechaka |
| 4. Exhale pause | Bahya Kumbhaka (Empty Pause) |

Conclusion

In breath exercises, one controls the breath, whereas in breath awareness one only follows it mentally. Eventually the body tremors, itches and discomforts disappear as the mind becomes calmer. Then the student is ready for more advanced meditation techniques. The breath is the link between the mind and the body. The breath is like a thermometer or gage which measures the conditions of the mind and body.

The awakening of sushumna is absolutely necessary before deep meditation and the awakening of kundalini is possible. Only when the student enjoys being still, and is not forcing oneself to be still, is sushumna possible. No meditation is successful in the long run until breath awareness is achieved, which in turn creates the joyous mind described in sushumna. The mind follows the breath and vice versa, as if they are one and the same function.

There is a direct communication between the human and the cosmos, for everything breathes, even inanimate objects, to some extent or another. The cosmos itself is breathing. All the creatures of Earth are breathing the same breath. Meditation is the sustained state of one-pointedness of the mind. The mind is then able to pierce through conscious and unconscious minds to the superconscious state. This is called samadhi, a breakthrough in meditation. Here the microcosm becomes the macrocosm just as the drop of water is no longer an individual and merges with the ocean instead, becoming the ocean rather than the drop. The individual atman is united with total identity, the cosmic self. The kingdom of God is within oneself and the ultimate freedom is now possessed, the freedom from the human condition as self-identity. This completes the evolution of man to God. This completes the human journey. Even if no other meditation practice is used, something as simple as the practice of breath awareness can bring one to this state. Pranayama is the doorway to deep stillness, and stillness is the doorway to the universe that is within you.

Exercises

To Wash the Nose

A neti pot is used to cleanse the nose and sinus passages. A necessary ingredient to equalizing the flow of breath is to cleanse the nostrils first. Breathing through both nostrils is said to assist in harmonizing both the active and passive systems of the body, so the neti wash is useful before a meditation of this sort. Search on the internet for neti pots, if you would like to purchase one, and you will find them.

Jala Neti

Yoga manuals describe jala neti as purification with water. The water draws out extra mucus and dirt and draws water from swollen turbinate structure inside the nasal passages. It also triggers drainage of the sinuses. Daily practice makes a person more immune to common colds, congestion of the sinuses, and other types of respiratory infections.

Mix 1/4 tsp of salt and lukewarm water in your neti pot. Some people use more, some people use less. Bend toward the sink, turn your head sideways, and put the end of the neti pot into the uppermost nostril and let the water flow into it. Allow the water to flow out of the lower nostril. If you need to, lift your head up and back to allow the water to flow within the nasal passageways before you let it escape. Then blow your nose, getting rid of excess water and mucus. If there is a problem clearing the sinuses, bend down toward the floor, your head lower than your hips, and continue the clearing process.

Repeat these steps with the other nostril.

Sutra Neti (String Neti)

A rubber catheter with a cotton string attached is threaded through the nostril and then drawn out through the mouth. A string by itself can also be used if it is stiffened with wax. These implements must be sterilized prior to use. This cleanses the nostrils, strengthens the mucus membranes, and is good for the eyes. (*An instructor is recommended.*)

Breathing Exercises

Breath should fill you from the bottom up, first the lower abdomen, middle chest, and then upper chest. Think of it as if you're filling up a glass with air. Use the diaphragm to control breathing and hold pauses.

Diaphragmatic Breathing

This is the most important type of breathing. Lie down on your back and put one of your palms on your belly and the other on the chest. As you inhale, the lower edge of the rib cage, the abdomen should expand and the chest should move very little. As you exhale, the belly should move more than the chest. By practicing this type of breath daily, and checking yourself as you go through your day, this will eventually become automatic. This is the way children breathe until they begin to shut down their openness.

Diaphragmatic breathing can be practiced lying down, sitting up, or standing. If lying down, palms should be upward and legs should be slightly apart. This lying down position is called shavasana (corpse posture).

There should be no external sound as you inhale and exhale. Diaphragmatic breathing decreases the breath rate automatically. You will find that you inhale and exhale less often in a minute than you do when you do chest breathing, but you will feel more energized and balanced.

Rhythmic Breathing

Cultivate rhythmic breathing along with diaphragmatic breathing for maximum results. Breathing normally happens sixteen to twenty times per minute. Learn to slow this breathing down. Most importantly, slow down the inhalation. A slower inhalation affects nerve centers. Plasma from the capillaries moves more effectively out into the *alveoli*, picking up oxygen and returning into circulation with the exhale. Lengthening inhalation increases metabolic functions in the air sacs. It also brings more oxygen into the air sacs and then into the bloodstream. It sends an increased blood supply to the *alveoli*. It also pulls the heart downward toward the abdomen, and as the diaphragm contracts and relaxes, it gives the heart a massage. It also massages the liver and pancreas, improving the functions of the spleen, stomach, small intestine and abdomen in general.

Sandbag Breathing

Place a bag containing ten to fifteen pounds of sand between the chest and abdomen. This exercise strengthens the diaphragm.

Diaphragmatic breathing creates a deep sense of peace and restfulness, even deeper rest than sleep provides. If practiced ten times a day for at least two months, a big change will be apparent in personality, mind and physical functions. One will be free of the stress that is the source of so many physical and psychosomatic illnesses and diseases. The nerves will calm, the face and body will be more relaxed in posture, and a glow will result.

Left/Right Nostril Exercises

Moon breath: left nostril; activates the sympathetic nervous system, nourishes and regulates body functions, increases intuition and creativity.

Sun breath: right nostril; activates vasomotor system, releases intense physical energy when it is needed

Both nostrils simultaneously; controls destiny, death, time and greatly expands longevity.

Nadi Shodhanam (Channel Purification) also called Nodi Shodhanam

The practice of yoga breathing through alternate nostrils is called nadi shodhanam. In this technique the flow of air is deliberately changed back and forth from one side or the other, by closing one nostril or the other with the fingers. This is practiced with diaphragmatic breathing (belly breathing). This exercise is designed to deactivate the ida and pingala, and cause the prana to flow through the sushumna nadi primarily, thus activating kundalini.

The scientific proof is in. It has been found that one nostril is easier to breathe through than the other at any particular time and it alternates every two to three hours every day. The nasal cycle corresponds with brain function. Electrical activity of the brain is greater on the opposite side of the nostril that is less congested. The right nostril energizes the left side of the brain which controls logic and verbal activity. The left nostril energizes the right side of the brain which controls creative activity. Also, certain diseases and mental imbalances can be related to one nostril or the other being congested too long. For instance, prolonged breathing through the left nostril (over many years) will cause asthma. Prolonged breathing through the right nostril is believed to induce

diabetes. The attempt to balance the left and right should be done for meditation purposes only. Breathing through one nostril or the other all day is not recommended.

1. Sit erect in a chair or in a cross-legged or lotus position. Using a kneeling bench is also acceptable.
2. With the right hand, fold your index and middle fingers, rest them on the bridge of the nose if you want to, and use the right thumb to close the right nostril.
3. With right nostril closed, exhale completely in a smooth steady fashion through the left nostril.
4. At the end of exhalation, close the left nostril with the ring finger, open the right nostril and inhale slowly for the same duration as the exhale.
5. Close the right nostril and exhale through the left nostril again for the same duration as the inhalation.
6. Do this cycle of inhalation through the right nostril and exhalation through the left nostril two more times.
7. At the end of the third inhalation through the right nostril, exhale through the same nostril, keeping the left nostril closed.
8. At the end of exhalation through the right nostril, close the right nostril then inhale and exhale through the left nostril. Repeat the cycle two more times.

Three cycles through these steps is considered a "round." Between rounds take three breaths through both nostrils. When doing this exercise, breathe slowly and gently. There should be no sound being made by the breath. Less turbulence is better. Do not make this technique strenuous or stressful. This is a meditative breath. Also, do not let the mind wander to other thoughts. Concentrate on the breath itself. This is a very centering technique and can put the person practicing it into a deep trance. Nadi shodhanam is a study of the self rather than a mechanical exercise.

This exercise is summarized as this:

Three cycles of exhalation through the left nostril and inhalation through the right nostril.

Three cycles of exhalation through the right nostril and inhalation through the left nostril.

Inhalation and exhalation is of the same duration each throughout this exercise.

Breathing should be diaphragmatic with no sense of exertion. Breathing should be relaxed. With practice, lengthen the duration of inhalation and exhalation.

Here are two more variations:

Purification Breath (purification of blood and nervous system, using diaphragm to force breathing)

1. Inhale from bottom-up, fill the glass (four counts)
2. Pause (as long as possible)
3. Exhale with force (one count), while bending over and facing the floor, bringing the head below the belly, force every last bit of breath out, if necessary cough the last breath out, pull diaphragm up and back toward the spine with a sucking motion up into the throat as if trying to pull the diaphragm up into the chest
4. Pause (as long as possible)
5. Allow breath to come back in regularly
6. Repeat steps 1 - 5

This breath helps with purification and also weight loss. It also helps with bringing your spiritual powers (siddhis) into your consciousness. The weight-loss benefits come with the pause after the exhalation in all breathing exercises where the exhalation is forced out and the empty pauses are held for as long as possible. What happens as the exhale breath is held out (the empty pause, Bahya Kumbhaka) is that the blood rushes around trying to find energy. It gobbles up whatever it can find, like fat tissue, toxins, unused glucose, etc. Once it is in the bloodstream and oxygen is reintroduced, the blood discards the substitute energy and it can be carried out of the body. Drink plenty of water afterwards, for this is a detoxification exercise. If you want to lose weight in certain areas, stretch that spot while doing this breathing exercise. The blood will rush to that area and focus on it because stretching is actually creating a mini-injury to the muscle tissue in that particular stretch. The blood always rushes to repair injuries.

Breath Of Fire, Bhastrika Pranayama (strengthen, purify, revitalize entire body systems, use diaphragm to force breathing, this exercises is also known as the “Bellows” pranayama)

The diaphragm works like a bellows, forcing air out. The inhalation is forced, not passive, and the exhalation is also forced. Seven to twenty one cycles are done, with a rest for a moment before another cycle is attempted.

1. Inhale
2. Using diaphragm, force air in and out in rapid repetitions with emphasis on the out breath. Often this is done with the sound of “Shhh” on the out breath. It can also be done with the sound “Ha” or “Ho” on the out breath.
3. Inhale deeply
4. Exhale rapidly with force, pull diaphragm up and toward the back
5. Pause
6. Take a few recovery breaths (normal breathing) before starting another round
7. Repeat steps 1-6

This breath cleanses the body and strengthens the lungs. It creates intense heat in the entire body and causes energy to burn up. It purifies blood, increases circulation, restores the body’s vitality, and induces sweating. If you only have five minutes a day to devote to pranayama, this is the exercise to do.

Other Breathing Exercises

All other exercises are based on the three described above. Variations of the three basic exercises abound. Get creative, and do what feels good, and chances are you will be tapping into yet another of the techniques taught by the yogis. Some variations are as follows:

Nasal Snoring

Use one of the basic three exercises, but make a snoring sound through the nostrils into the forehead this can create lofty experiences and trancelike states very quickly, even when done at a minimal, quiet level. It is a great way to begin a meditation. It energizes the left and right energy passages (Ida and Pingala) that go up the forehead, over-the-top and the back of the skull, and wind around the sushumna (the tube in which the kundalini moves up and down the spine) down to the base of the spine. Many have reported kundalini experiences with this variation.

Humming, Bhramari Pranayama (Bhramari means “large bee”)

This exercise soothes the nerves, relaxes the skull cavity, and calms the mind. Using one of the three basic exercises, make the sound of a bee on the exhale. The vibration in the head, chest and throat clear blockages and opens up energy. This exercise is great for healing sinus problems. Repeat for two or three minutes. Another variation is to inhale through both nostrils and exhale making the sound of a bee.

Swooning

This exercise is to be practiced only by people who are proficient at pranayama and have enough experience to do this safely. Do this in a sitting or lying down position so that if you fall, you will not be hurt. Do not do this standing up. After the inhale, pause (the full pause, Abhyantara Kumbhaka) and hold until you are about to faint. This can induce euphoria and semi consciousness. If you faint, don’t worry, your automatic breathing systems will kick in. It is a way to induce near death experiences and altered states for super consciousness. Be very careful with this one! It is best to practice this with an instructor or at least a partner.

Alternating Nostrils

Try different patterns with the nostrils, for instance, inhaling through the right nostril and exhaling to the left nostril 20 times or try doing the reverse. This can create interesting brain wave activity. Try breathing in through the right nostril and out through the right nostril or vice versa. Energize a creative project right before you begin, or energize a speech are about to give. Remember that the left nostril can control right brain and the right nostril controls the left brain.

Some yogis instruct students to do three rounds of one variant, then three rounds of another variant, or just one round of each variant.

Note: if you are practicing this in the evening, reverse the order of cycles, beginning with exhalation through the right nostril and inhalation through the left nostril.

Practice the same technique for a period of time, for instance a month or so, before attempting other techniques, for only with practice of the same technique for a duration of time can a person get the full benefits of nadi shodhanam. Some techniques depict retention of the breath between inhalation and exhalation (pauses in breathing), but this is an advanced form of the exercise where the subtle differences will not easily be noticed until nadi shodhanam is well practiced. Harm can happen with these other techniques if the student is not solidly ensconced within the sushumna. Harm can happen because the student awakens more prana than he or she can handle with blocked sushumna passageways.

For your reference, when you are ready to practice with the more advanced techniques of pranayama, they are listed below. However, please take care to open the sushumna first in order to open the kundalini energy in a more practical and balanced way. It is known that opening the kundalini too fast, before the energetic system can handle it, can cause insanity.

Pausing The Breath (a tip)

Nadi Shodhanam can be practiced by pausing the breath in between the inhalation and exhalation. These pauses can produce profound states of consciousness. One of the most recommended ratios between inhalation, retention, and exhalation is 1:4:2. After mastering retention of breath during inhalation, the student can then practice retention of the breath after exhalation. This can produce profound states of consciousness. After practice, increasing the duration of pauses between inhalation and exhalation can be attempted.

Below are some of the more advanced practices, but we don't give directions on how to do all of them because an instructor is recommended for some of these.

Kapalabhati Pranayama ("pranayama that makes forehead and entire face lustrous")

This exercise helps clean the sinuses and other respiratory passages, and also stimulates the abdominal muscles and digestive organs. It consists of forceful exhalation of breath, using the diaphragm and abdominal muscles, and then a slow, passive inhalation. This cycle of vigorous exhalation followed by a passive inhalation is repeated seven to twenty one times, depending on one's abilities with the breath.

Ujjayi Pranayama ("control or victory arising from a process of expansion")

This exercise enhances the ventilation of the lungs, removes phlegm, calms the nerves and fills the body with vitality. Inhalation and exhalation are slow and deep, with partial closure of the glottis. This produces a sound like sobbing, but it is even and continuous. During inhalation, the incoming air touches the roof of the mouth and is accompanied by the sound "sa." During exhalation, the outgoing air also touches the roof of the mouth and is accompanied by the sound "ha." "Sa-ha."

Sitali Pranayama

Cools and soothes the body. Curl the tongue lengthwise until it resembles a tube. If you cannot do this, practice sitkari pranayama instead for the same benefits. The tip of the curled tongue is outside the lips. Inhaling, making a hissing sound. Exhale through both nostrils. Repeat three times.

Sitkari Pranayama

Cools and soothes body. Roll the tongue back as far as possible toward the back of the mouth with lips parted and teeth clenched. Inhale making a hissing sound. Exhale through both nostrils. Repeat three times.

Suryabhedana Pranayama

Inhale through the right nostril, retain the air and then exhale through the left nostril.

Murccha Pranayama

Inhale through both nostrils. Lock the chin, then slowly and gently exhale.

Plavini Pranayama

(Do this one in a sitting position, not standing, for dizziness can result.)

This is one of the most advanced pranayama exercises, like the Swooning exercise, but it doesn't take you quite to the brink of unconsciousness the way the Swooning exercise does. Fill the stomach completely with air, then fill the lungs in the chest cavity, all the way up to the top of the throat, and retain the breath as long as possible without torturing yourself. Finally exhale. Repeat as many times as you like.

There are many more pranayama exercises but they are only taught by competent teachers to adept yogis.

Bandhas

According to Patanjali in Yoga Sutra 1:34, having control over the pause is what is called pranayama. In Sanskrit, the pause is called kumbhaka, but breathing practices are meant to control, eliminate and expand that pause, therefore, in many ancient interpretations, pranayama means “a pause.”

The kumbhakas should be practiced with a teacher, if possible, and so should the practice of bandhas be observed as the pauses are practiced. The bandhas are locks. Three of them are jalandhara bandha (chin lock), uddiyana bandha (abdominal lock) and mulabandha (anal lock).

Jalandhara Bandha

The two main arteries which bring the blood to the brain are on both sides of the neck. The chin lock brings conscious applied pressure to these arteries. The nerve impulses to the brain fade and body consciousness is lost, bringing about a trancelike condition. This also slows down the heart and the vijnani nadi (channel of consciousness). When the chin lock is practiced in both exhalation and inhalation, it brings about a blissful state.

If retention of the breath is long, the chin lock should be applied in order to prevent the inhaled air from rushing out, for it will move into the auditory tubes and the inner ear, thus causing infections and other disorders of the inner ear. Jalandhara bandha is applied to prevent this.

Note: Some doctors in India put pressure on the carotid arteries in order to create a yogic anesthesia for the patient. Minor surgeries can even be performed with this way of anesthetizing the patient. Martial arts experts also practice these techniques in order to either desensitize themselves from an injury while engaged in a fight, or to weaken their opponent by applying these techniques to the opponent's body.

Uddiyana Bandha (Abdominal Lift)

This involves the diaphragm, ribs, and abdominal muscles. Practice this exercise in either a standing or sitting position. In the standing position, the feet are about one and a half to two feet apart. The knees are slightly bent and the spine is straight. Lean forward from the waist and place the palms of the hands just above the knees. Exhale completely, chin down, and without inhaling, suck the abdominal muscles in and up, pulling the navel toward the spine. Pull the abdomen and diaphragm up and into the cavity of the rib cage. The back will curve forward slightly. Hold this position during a pause for as long as it is comfortable, then inhale and relax.

Use force only in pulling the muscles inward and upward. Do not use this exercise if you have high blood pressure, hiatal hernia, ulcers or heart disorders. Women, do not practice it during menstruation or pregnancy.

It has been said that this exercise increases psychic powers.

Mulabandha (Anus Lock)

This exercise is practiced during pranayama and meditation. The external and internal sphincter muscles of the anus are contracted and held.

Mudras (“to seal”)

A mudra used during meditation is called **jnana** mudra. This is the commonly seen mudra practiced by yogis sitting cross-legged or in the lotus posture with the fingers arranged in the “A-OK” sign and the back of the hand resting on the knee, inside of the hand turned upward. Sometimes the hands are turned downward, which is the easiest and most relaxed position. In this mudra, the thumb and index finger are curled until they touch tips, and the rest of the fingers are in an open, straight position.

Vishnu mudra is the same as described in the nadi shodhanam exercise where the index and middle fingers are curled inward, the thumb rests on the index and middle fingers and the other fingers are outstretched. However, this mudra need not be resting on the bridge of the nose except when practicing nadi shodhanam.

These are the two most commonly practiced mudras in pranayama. See the UMS Mudras course for more information on mudras, their positions, and uses.

Testimonials

Here are a few things that some people have said about the practice of pranayama:

“On the third week of practicing pranayam every day, I started blowing out fistfuls of mucus for the entire week! After that, I felt better than I ever did. The clarity on all levels was unbelievable!” —Bruce Nichols

“I don’t know how I lived my life before doing pranayama. It’s essential to my well-being!” —Janis DeMorne

“I lost more weight doing pranayama than I ever did running on a treadmill! My metabolism was boosted and my thyroid healed just by breathing rigorously!” —Duke Larson

“I have been doing pranayama yogic breathing for almost two years now and within the first two months I saw a complete change in my outlook and feelings about life. My fears and anxiety about social and job-related interactions decreased drastically. I would highly recommend it to anyone who is feeling stressed in their life. I really wouldn’t be where I am today if I hadn’t discovered the practice of pranayama.” —Gena Trimarco

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