



*Presents*

# **The Magic, Science, And Wonder Of Pranayama**

*With*

Hosted by:



**Dr. Eden Goldman, D.C., C-IAYT, E-RYT500**

Email: [Dr.EdenGoldman@gmail.com](mailto:Dr.EdenGoldman@gmail.com)

Phone: 305-336-3129

[www.YogaDoctors.com](http://www.YogaDoctors.com)

# Guru Invocation Chant

## Sanskrit

Akhanda Mandala Karam  
Vyaptam Yena Characharam  
Tatpadam Darshitam Yena  
Tasmai Shri Gurave Namah

Guru Brahma Guru Vishnu  
Guruh Devo Maheshwarah  
Guruh Sakshat parambrahma  
Tasmai Shri Gurave namah

Dhyana Mulam Guror Murtih  
Pujamulam Guroh Padam  
Mantra Mulam Guror Vakyam  
Moksha Mulam Guroh Kripa

Jai Guru Guru Jai

Om Shanti Shanti Shanti

## English

I offer the light of my practice, my heart, and my spirit to the Guru, who removes suffering and darkness, and reveals the Truth, one's own Divinity, and unfragmented Reality, which pervades the whole Universe, the dynamic and the static

The Guru is the force of creation  
The Guru is the force that preserves & nurtures  
The Guru is the force which destroys to create anew  
The Guru is the Absolute One and I bow to this guru

The Guru's image is the root of all meditation  
The Guru's feet are the root of all worship  
The Guru's speech is the root of all mantras  
The Guru's grace is the root of liberation

Salutations to the Guru, who shows me to the abode of The Divine

Om Peace Peace Peace

# Panca Maya Kosha Model: The Yogic Body Sheaths

- **Annamaya Kosha:**  
Body made of food/physical
- **Pranamaya Kosha:**  
Body made of energy/breath
- **Manomaya Kosha:**  
Body made of mind/intellect
- **Vijnanamaya Kosha:**  
Body made of wisdom/  
personality
- **Anandamaya Kosha:**  
Body made of bliss/emotions

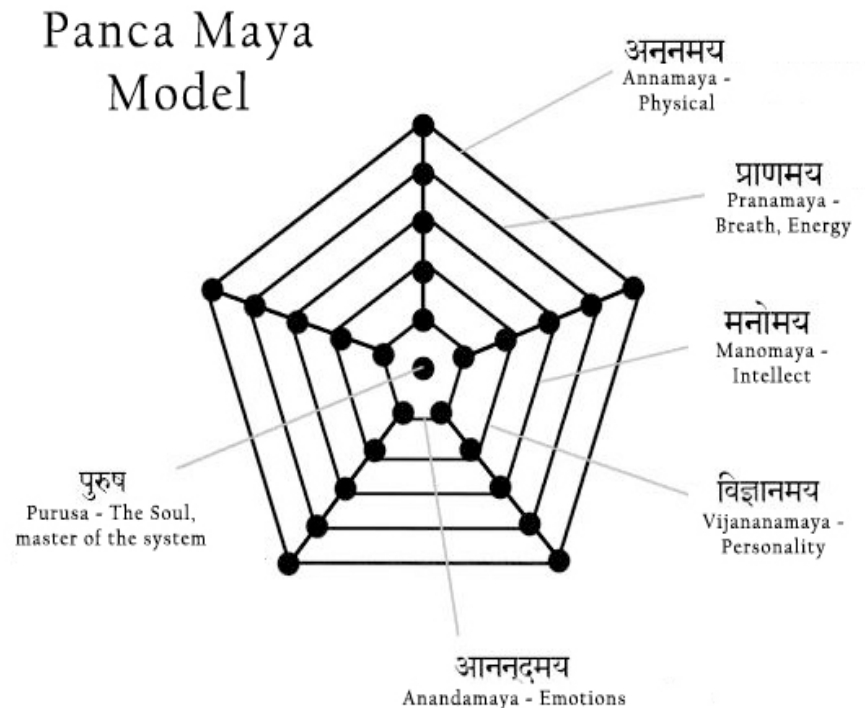
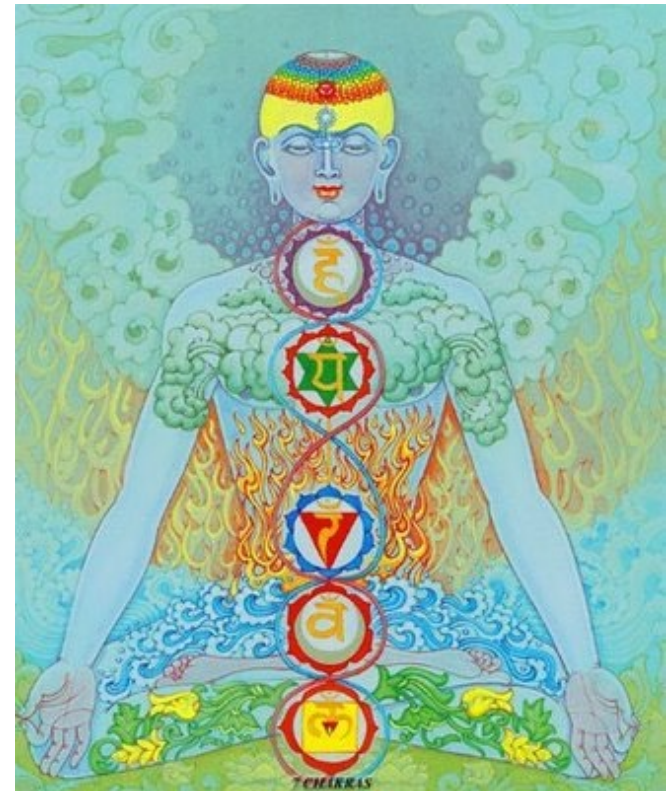


Image Courtesy T.K.V. and Kausthub Desikachar

# The Pranamaya Kosha

- The pranamaya kosha is the body or sheath made of energy
- Prana is literally defined as life force energy
- Many consider the breath to actually be prana, however, in Yoga we observe that the prana rides the breath to enter the body similar to how you ride in a car to get to Ceremny; essentially, life force energy enters the body *by way of* the breath
- There are other ways to bring prana and energy into the body besides oxygen consumption including but not limited to: eating and digesting food, gathering sunshine, maintaining positive relationships, etc.
- When the pranamaya kosha is in balance, we feel an enlivened sense of vitality; whereas, when it is out of balance, we feel exhausted and depleted



# Pranayama

- Derived from either prana (life force energy) + yama (control) meaning control of one's life force energy OR prana (life force energy) + ayama (expansion) meaning to expand one's life force energy

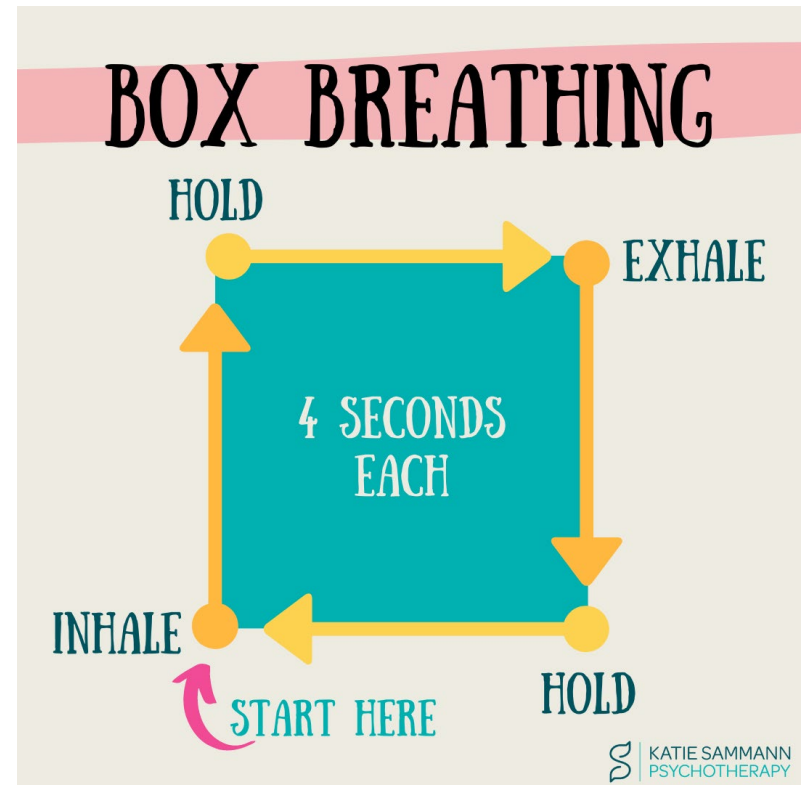


# Yoga, Prana, And The Breath

- “Breath is essential to Yoga, because breath is essential to life and Yoga is about life.” – T.K.V. Desikachar (Benevolent Breathing Discussion & Practice)
- Chandogya Upanishad (The Importance Of The Breath)
- Taittiriya Upanishad 2.2 (The Body Of Pranamaya Kosha) – It’s form is Prana (life force energy) as the head, Vyana as the right arm/wing, Apana as the left arm/wing, Akasha as the trunk, and the Earth as the tail or support
  - See [yogainternational.com/article/view/how-to-work-with-the-5-prana-vayus-in-practice](http://yogainternational.com/article/view/how-to-work-with-the-5-prana-vayus-in-practice) for more on *vyana* and *apana*
- “Inhale and God approaches you. Hold the inhalation and God remains with you. Exhale and you approach God. Hold the exhalation and surrender to God.” - T. Krishnamacharya
- *Let’s Practice Samavritti Pranayama!*

# Samavritti Pranayama

- Defined as “equal breathing” or “balanced breathing,” this pranayama-based meditation technique is performed by balancing the breath in length, depth, and speed with respect to puraka (inhalation), rechaka (exhalation), and kumbhaka (holding or retaining the breath). The most common practice of this technique includes a 1:1 inhalation to exhalation ratio as well as a more advanced 1:1:1:1 inhalation to retention to exhalation to retention ratio. It is said to be good for balancing one’s mind, calming one’s mood and temper, releasing stress, teaching concentration and moderation, and preparing one for higher states of meditation.
- This technique is also called “box breathing” when appropriated in the sports science and rehabilitation communities when performed with an exact 1:1:1:1 ratio.



# The 4-7-8 breathing method

There are many kinds of deep breathing techniques, but this method is a simple way to get started. Before you begin, pick a quiet and comfortable place to sit and eliminate distractions like cell phones or other electronic devices.



## 4

Breathe in through your nose for four seconds and fill your lungs completely.

---

## 7

Hold the breath for seven seconds.

---

## 8

Let the air out (forcefully, so you can hear it) for eight seconds through your mouth.

---

## Repeat

\*Be mindful that holding the breath is generally NOT recommended for people experiencing extremely high states of PTSD or high anxiety, so start without holding the breath at 1st (if necessary) and progressively build up to a 7 second hold.

The 4-7-8 method helps to quiet your natural response to stress, so it can be a great addition to your daily routine. Try it first thing in the morning. Or at bedtime. Or during your busy workday.

Whatever time you choose, do your best to be consistent.

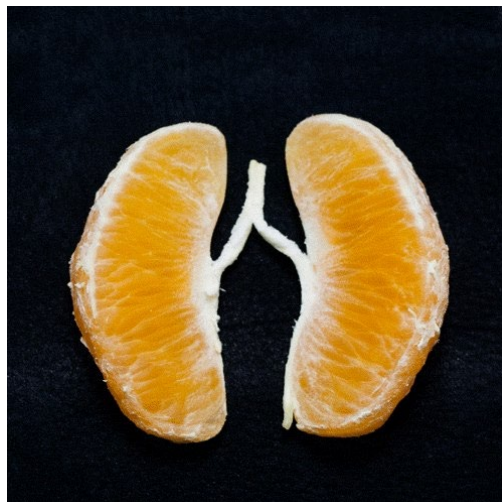
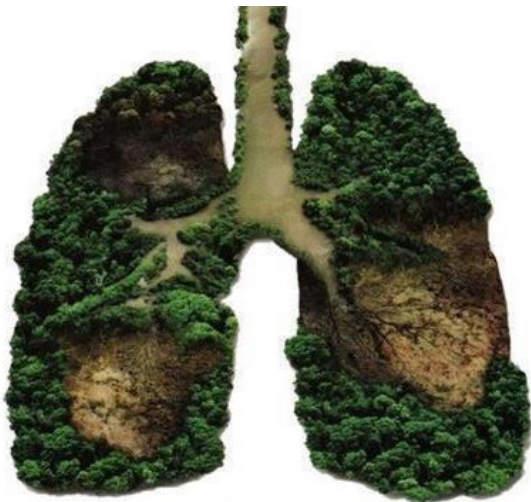
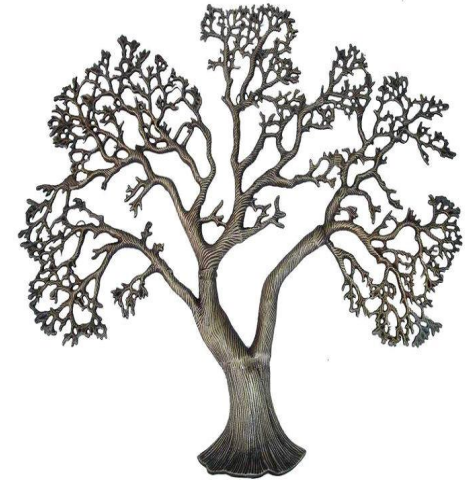
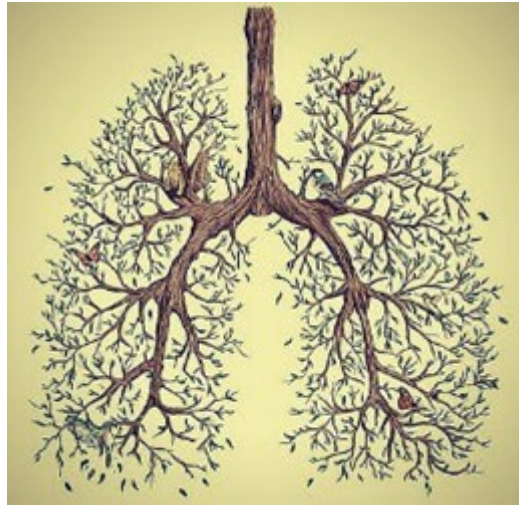
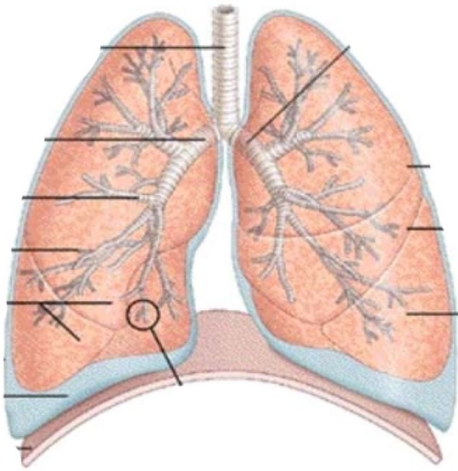
# Rhythm of Respiration

- In addition to influencing the quality of one's life, the length of the breath is also dictated by the rhythm of the respiration. The ancient yogis and rishis studied nature in great detail. They noticed that animals with a slow breath rate such as pythons, elephants, and tortoises have long life spans. Where as, those with a fast breathing rate such as birds, dogs, and rabbits, live for only a few years.
- From this observation they realized the importance of slow breathing for increasing the human lifespan.
- Those who breathe in short, quick gasps are likely to have a shorter life span than those who breathe slowly, and deeply.
- Scientifically, this idea holds true, too, as most mammals live about 1 billion heartbeats; where it might take a rabbit 3 years to reach that, it might take an elephant 80-100 years
- With modern medicine human beings can often go beyond 2 billion heartbeats – yay us lol!



[discovery.com/nature/almost-every-mammal-gets-about-1-billion-heartbeats](https://www.discovery.com/nature/almost-every-mammal-gets-about-1-billion-heartbeats)

# Tree of Life



# Definitions of Respiration in the Western Medical Model

## res·pi·ra·tion

n. Abbr. R

1. The act or process of inhaling and exhaling; breathing. Also called ventilation.
2. The act or process by which an organism without lungs, such as a fish or plant, exchanges gases with its environment.
3. The oxidative process occurring within living cells by which the chemical energy of organic molecules is released in a series of metabolic steps involving the consumption of oxygen and the liberation of carbon dioxide and water.
4. Any of various analogous metabolic processes by which organisms, such as fungi, obtain energy from organic molecules.

“Respiration means the transport of oxygen from the atmosphere to the cells and, in turn, the transport of carbon dioxide from the cells back to the atmosphere.”

- A.C. Guyton. Textbook of Medical Physiology. 4th Edition. P456, W.B. Saunders, Philadelphia, 1971

# The Four Stages Of Breathing



## Stage One: Inhalation

Inhale slowly, deeply and consistently, breathing in from the core using the diaphragm. In yoga terms, this stage is called Puraka.



## Stage Two: Retention

Stage two involves retaining the air from the inhale. In Yoga, this stage is called Kumbhaka.



## Stage Three: Exhalation

Steadily and slowly, exhale the air retained after inhalation. Your muscles should return to a relaxed state. In yoga, this stage is called Rechaka.



## Stage Four: Suspend

Stage four begins when lungs are empty. This is a pause, with no movement of air in or out of the lungs. Your muscles should stay relaxed in this stage before you begin the cycle again with stage one. In yoga, this stage is called Bahya Kumbhaka.

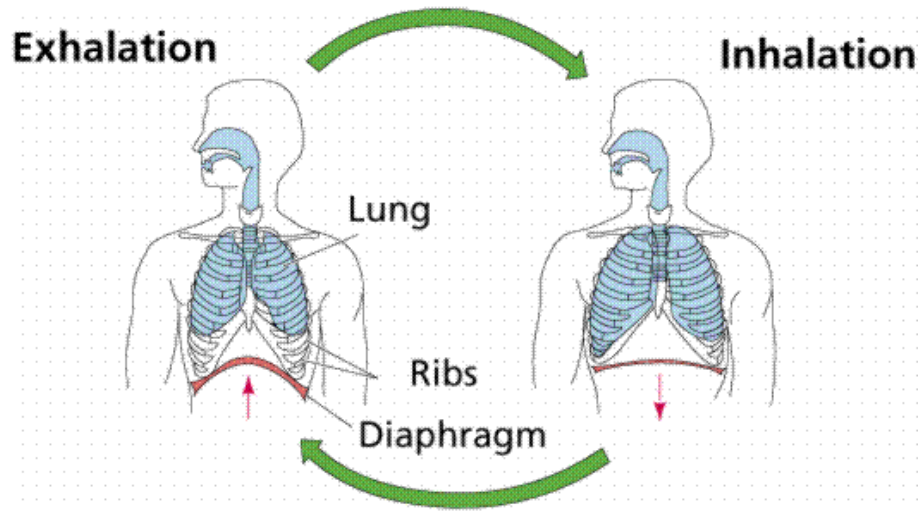
# Respiratory Sequence

- In the respiratory sequence, erythrocytes carry oxygen in loose combinations with hemoglobin through the circulatory system, which are given up to the body cells that need it. In cellular respiration, the blood cells release oxygen and pick up carbon dioxide. The lungs dispose of the carbon dioxide, left there by the red blood cells, in the process of breathing.
- But what's REALLY happening?  
*Are we really even breathing?*
- Kahlil Gibran said, "What is God? He is the breath inside the breath"



# Breathing

- The lungs inflate and deflate 12-20 times per minute in adults as their elastic tissue allows them to expand and contract like a bellows worked by the diaphragm and the intercostal muscles. The diaphragm contracts, flattening itself downward, and thus enlarges the thoracic cavity. At the same time the ribs are pulled up and outward by the action of the narrow but powerful intercostal muscles that expand and contract the rib cage. As the chest expands, air flows in. Exhalation occurs when the respiratory muscles relax and the chest returns to its minimum size, expelling the air.



# Inhalation

Inhalation starts with a thought. The brain sends a signal to the cervical spine to activate the nerve from the third to fifth cervical vertebrae to instruct the diaphragm to descend. Simultaneously, the thoracic muscles contract and all three dimensions of the ribcage swing open. Since the pleural membranes of the lungs are attached to the ribs, the lungs are expanded. Due to the expansion of the lungs and descent of the diaphragm, a negative pressure is created in the lungs and the body has the impulse to take in air. Once a balance of air pressure is achieved, the muscles of exhalation take over and the body's impulse is to expel air. The ribcage closes and the diaphragm returns to its initial domed position.

# Muscles for Health and Longevity



- The intercostal muscles and the diaphragm are very important muscles for health and longevity. They have been called, at times, “the fountain of youth” as they are the primary breathing muscles
- The lungs are not a muscle – they fill with air due to a pressure imbalance created by the diaphragm
- The diaphragm connects to the pericardium (casing of the heart), the ribs, the quadratus lumborum (QL), muscles of the back, and the psoas muscle AND the diaphragm literally gives the heart a little massage when you breathe deeply
- According to The National Institute of Aging, pulmonary function measurement is an indicator of general health and vigor and can be used as a primary measurement of potential life span. Singing has been proven to stimulate and improve pulmonary function along with other parts of our body. As we get older, our costal muscles can start to calcify, affecting the radius of expansion of our ribcage. If our ribcage cannot expand, then our lungs cannot completely open and may lose their elasticity.
- Breathing exercises and pranayama practice keep our ribcage flexible and our diaphragm strong.
- *Let's practice 360-degree resistance-based pranayama technique!*

# 360 Degree Resistance-Based Prāṇāyāma Technique

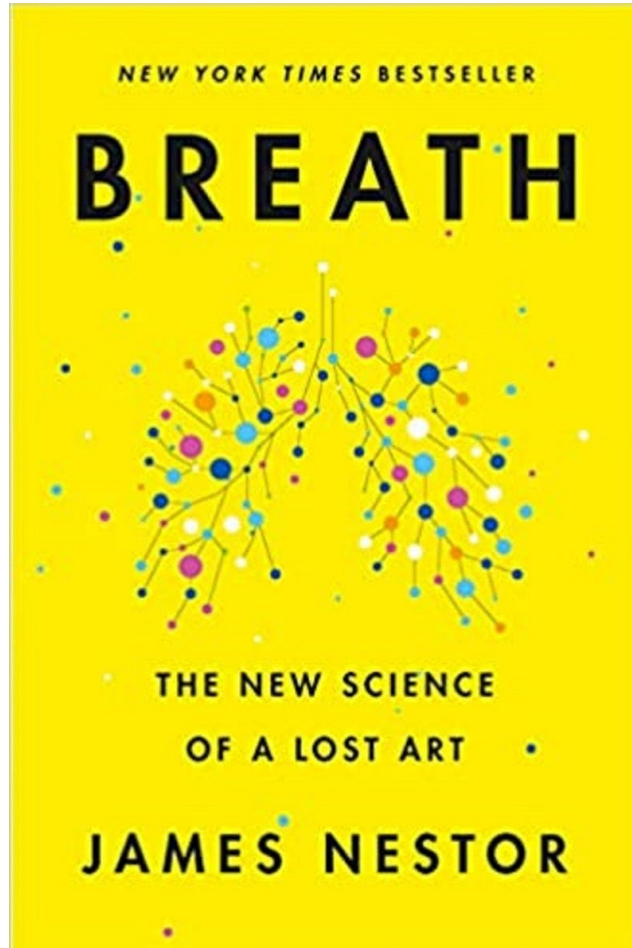


*Let's practice 360 degree breathing!*

“If breathing is not normalized – no other movement pattern can be.”

– Karel Lewitt, M.D., D.Sc.

# James Nestor's Breath



- Identifies the term *pulmonaut*, as a breath explorer, essentially one who works with the breath and explores different breathing practices
- Highlights 5.5 breaths per minute (or 1 full breath in & out every 11 seconds) as an ideal scientific ratio
- Nestor is adamant about nose breathing being the correct form, including copious reports and studies about mouth breathing and how it leads to all sorts of health issues including asthma, chronic lung and sinus infections, sleep apnea and deprivation, hypertension, dental caries and periodontal disease, and changes in facial bone structure.

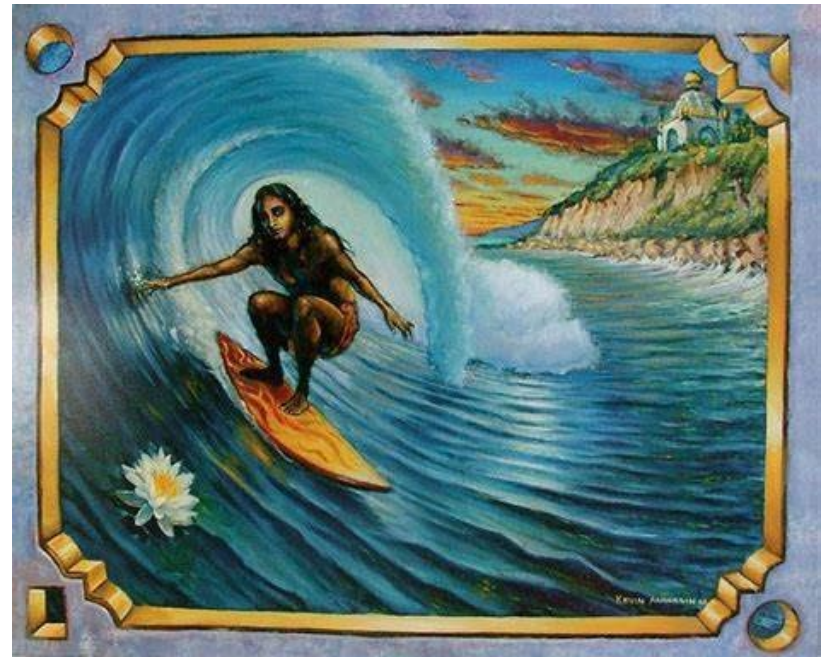
# Regulating Breath



- The breath influences the activities of each and every cell. And most importantly, it is intimately linked with the performance of the brain. Human beings breathe about 12-20 times per minute, or roughly 21,600 times per day (once every 4 seconds), and when in the parasympathetic relaxation response we generally breathe about 4-9 breaths per minute.
- A regular Pranayama practice allows you to take control of the expansive nature of your breath. This leads to effective, efficient, and optimal breathing and up to fifty percent more oxygen transferred into the blood. This is extra nourishment to every muscle and cell. It also forms a bridge between the conscious, and unconscious areas of the mind which results in more natural, relaxed rhythms of the body, and mind.

# Ujjayi Pranayama

- Translated as “victorious breath,” ujjayi pranayama involves oceanic, wave-like guttural breathing that maximizes the efficiency of the diaphragm and lungs and puffs the chest out like a proud conqueror. The technique highlights a small, soft hissing sound created in the back of the throat and cultivates an energetic quality that is energizing, calming, and balancing, improves oxygenation, creates an internal heat in the body, and increases one’s focus when actively engaged in a Hatha Yoga practice.
- *Let’s practice Ujjayi breathing and also practice the God/Peace and Aah/Eeee pranayama too!*



# Yoga and Pranayama's Effect On The Vagus Nerve

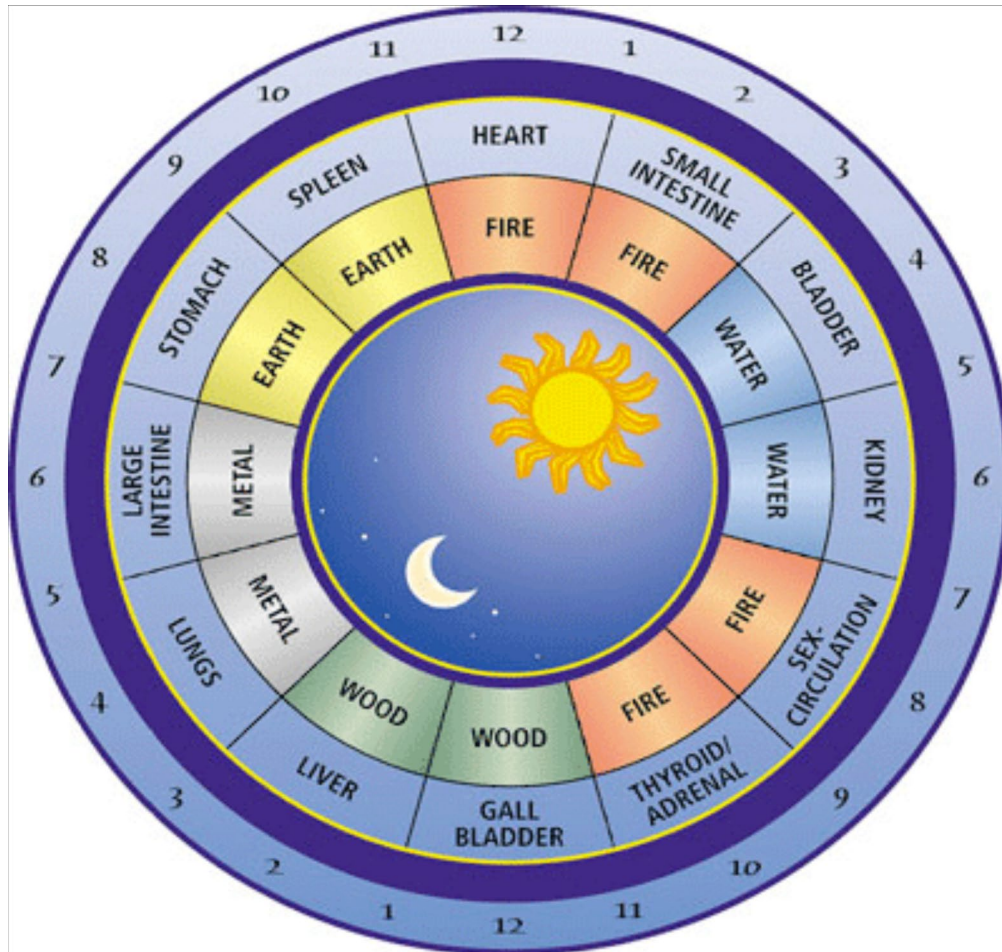
- Yoga's emphasis on long exhalation and conscious slow breathing reactivates the parasympathetic nervous system. Physiologically, yogic breathing helps to stimulate the vagus nerve and strengthens the body's means of relaxing itself. Yet, to date, the precise mechanism remains unclear. Lengthened exhalation and breathing with increased airway resistance (as in ujjayi pranayama in Yoga) have been hypothesized to effect physiologic change through vagal nerve stimulation (Brown and Gerbarg, 2005). It seems that ujjayi breathing "stimulates vagal nerve afferents to the brain . . . [which] induces a parasympathetic reduction in heart rate and most likely a withdrawal of sympathetic input to the heart" (Brown and Gerbarg, 2002).

# Yoga and Pranayama's Effect On The Vagus Nerve (Continued)

- Dr. Kevin Tracey has also concluded that there is a vagal/cholinergic anti-inflammatory system whereby vagal activation seems to dampen inflammation. He concludes that meditation and related practices likely induce their benefits through such vagal stimulation (Tracey, 2002). Activating the vagus nerve can lead to other neuroendocrine changes, including increased acetyl choline release in the liver, spleen, heart, and gastrointestinal tract, all of which can further inhibit the release of proinflammatory cytokines from tissue macrophages (Olivo, 2009). These cascades of changes stimulated in Yoga Therapy may begin to bring remedy and relief to nervous system disequilibrium and chronic pain patients.

# Circadian Clock Organ Chart

(used in Chinese and Japanese traditions of TCM and Qi Gong)



- In TCM, to nourish an imbalanced organ it is customary to deliver a tonifying treatment during the time of the organ or during the opposite time period of the organ. Ex: Offer a stimulating treatment to the lungs during 3-5pm.

# Optimal Time of Day for Better Lung Function

- A study presented at the American College of Chest Physicians looked at 4835 patients over a 5-year period measuring several breathing tests
- Results showed that patients' airway resistance was most prominent at noon and reached its minimum 4 PM – 5 PM
- The researchers suggested that their findings may be useful in exercise prescriptions and the “administration of long-action bronchodilators”

I  
KEPT  
CALM

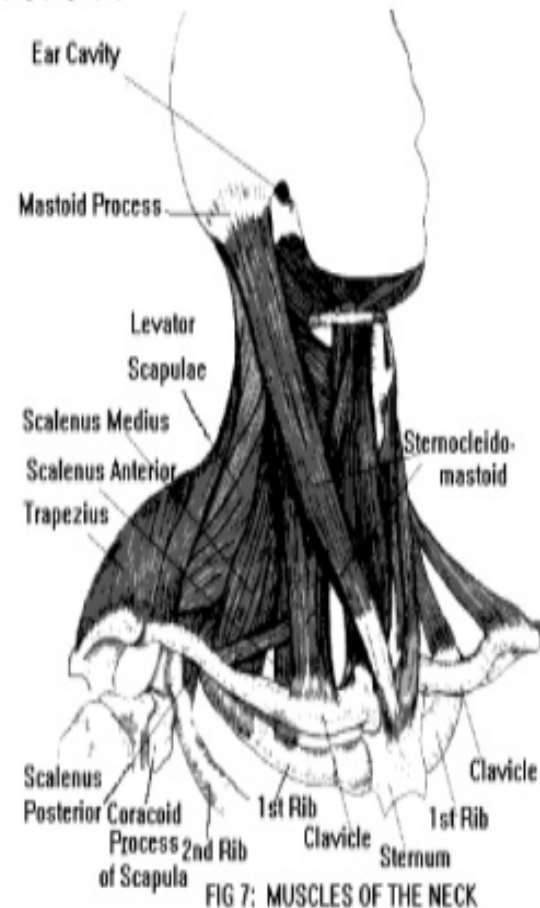


before it was so  
mainstream.

# Secondary or Accessory Respiratory Muscles

## Accessory muscles of inspiration

- The accessory muscles of inspiration are not involved during normal quiet breathing
- These muscles play a role during exercise, during the inspiratory phase of cough or sneezing, or in a pathologic state (asthma).
- The accessory muscles of inspiration are those muscles that are recruited to assist the diaphragm in creating a sub-atmospheric pressure in the lungs to enable adequate inspiration . The major accessory muscles of inspiration are :
  - Scalene muscles
  - Sternocleidomastoid muscles
  - Pectoralis muscles
  - Trapezius muscles



# Normal Pattern of Inspiration



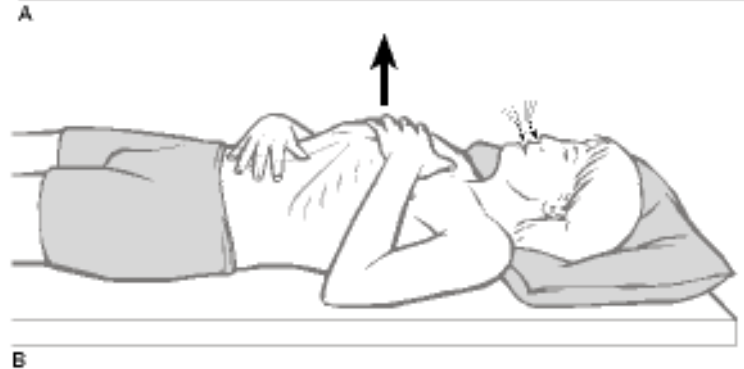
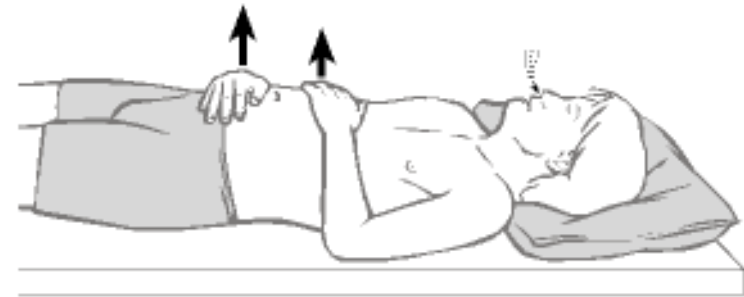
Note the expansion, like a balloon in all directions initiating in the abdomen, moving to the lower ribs and then in the upper chest

# Defining “Normal” Pattern of Respiration

- There are numerous variables and no widely accepted standard of “normal,” but commonly accepted beliefs in Western medicine include:
  - Abdominal, not chest breathing should initiate inhalation
  - Lifting the chest “up” is faulty
  - Lack of or a lifting “up” motion of the lateral ribs is faulty
  - Chronic chest lifting will result in clavicular grooves
  - Paradoxical breathing is faulty

# Respiratory Function

- Dysfunctional respiration usually occurs with **vertical** chest breathing predominating over lower abdominal and lower rib cage **horizontal** breathing
- Scalene & upper traps over-activity & poor abdominal function result from faulty breathing
- **Abnormal respiratory function is probably the most common faulty movement pattern**



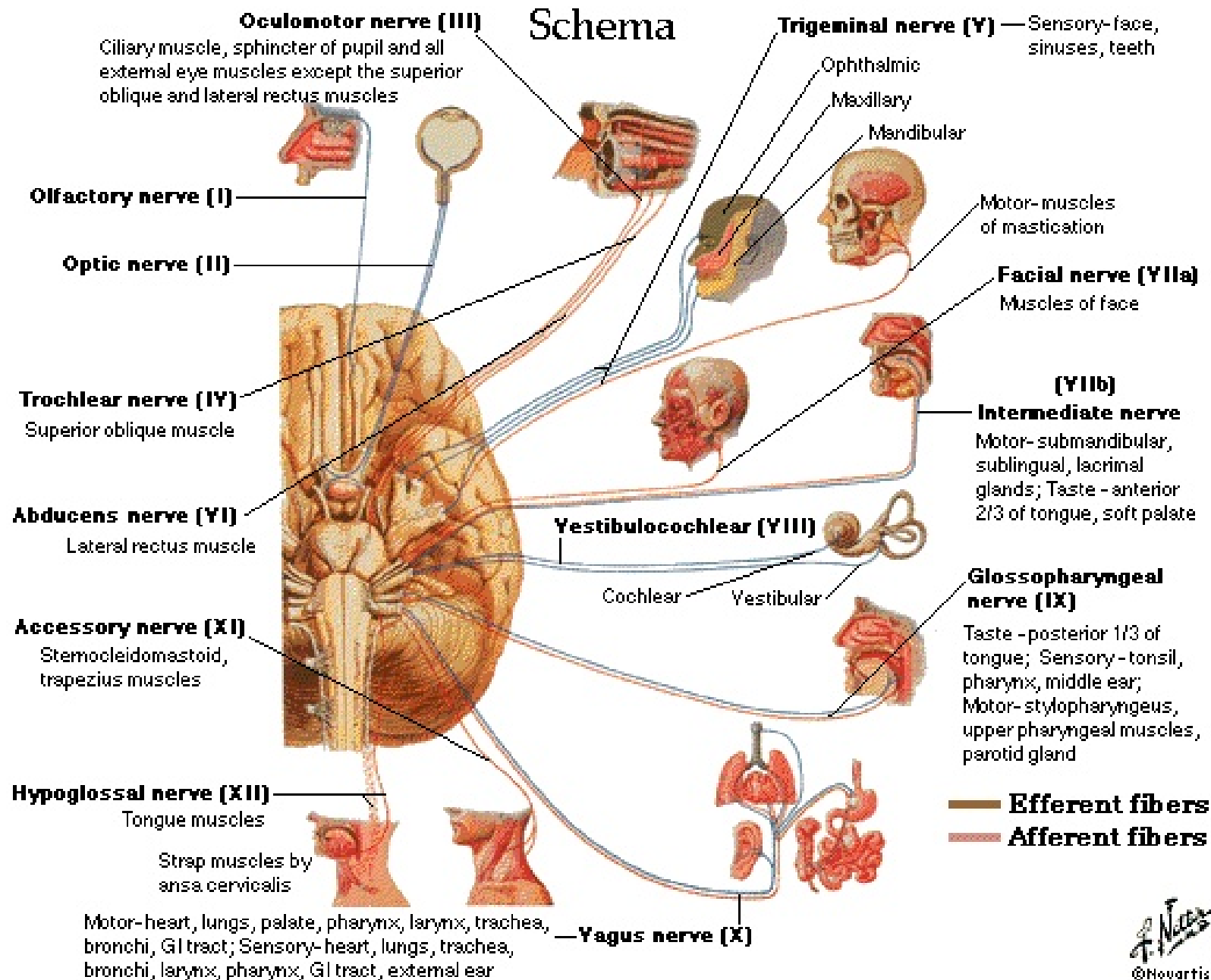
# Dirga Breathing

## AKA 3-Part Breathing With A Block



- Dirga breathing, also called dirga pranayama, is a basic breathing technique that employs a three-part complete breath that completely fills the thorax, beginning in the abdomen, then continuing to the diaphragm/ribcage, and lastly filling the chest on a long, slow, and smooth inhalation breath (and the exhalation breath simply reverses the flow of the inhalation) utilizing full capacity of the lungs.
- *Let's practice Dirga Breathing!*

# Cranial Nerves [Motor and Sensory Distribution]



# Vagus Nerve

## How The Vagus Nerve Affects Organ Systems

### Heart

Decreases heart rate, vascular tone.

### Liver

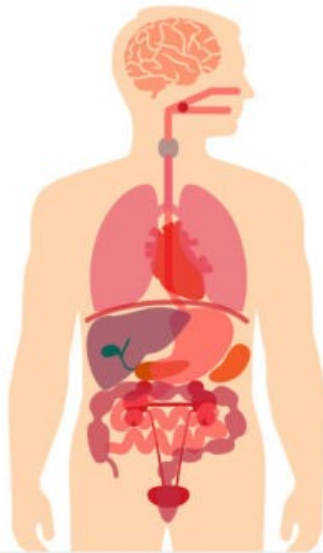
Regulates insulin secretion and glucos homeostasis in the liver.

### Gut

Increases gastric juices, gut motility, stomach acidity.

### Inflammation

Suppresses inflammation via the cholinergic anti-inflammatory pathway



### Brain

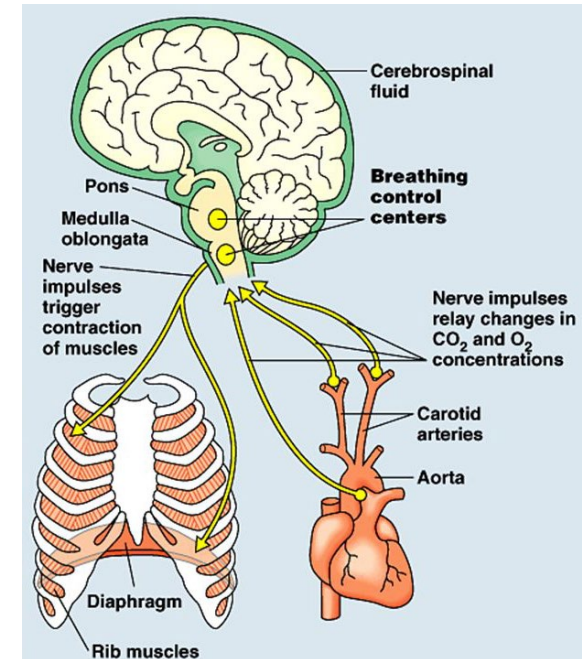
Helps keep anxiety and depression at bay. Opposes the sympathetic response to stress.

### Mouth

Taste information is sent via three cranial nerves, one of which is the vagus nerve. The vagus nerve is needed for the gag reflex, swallowing, and coughing.

### Blood Vessels

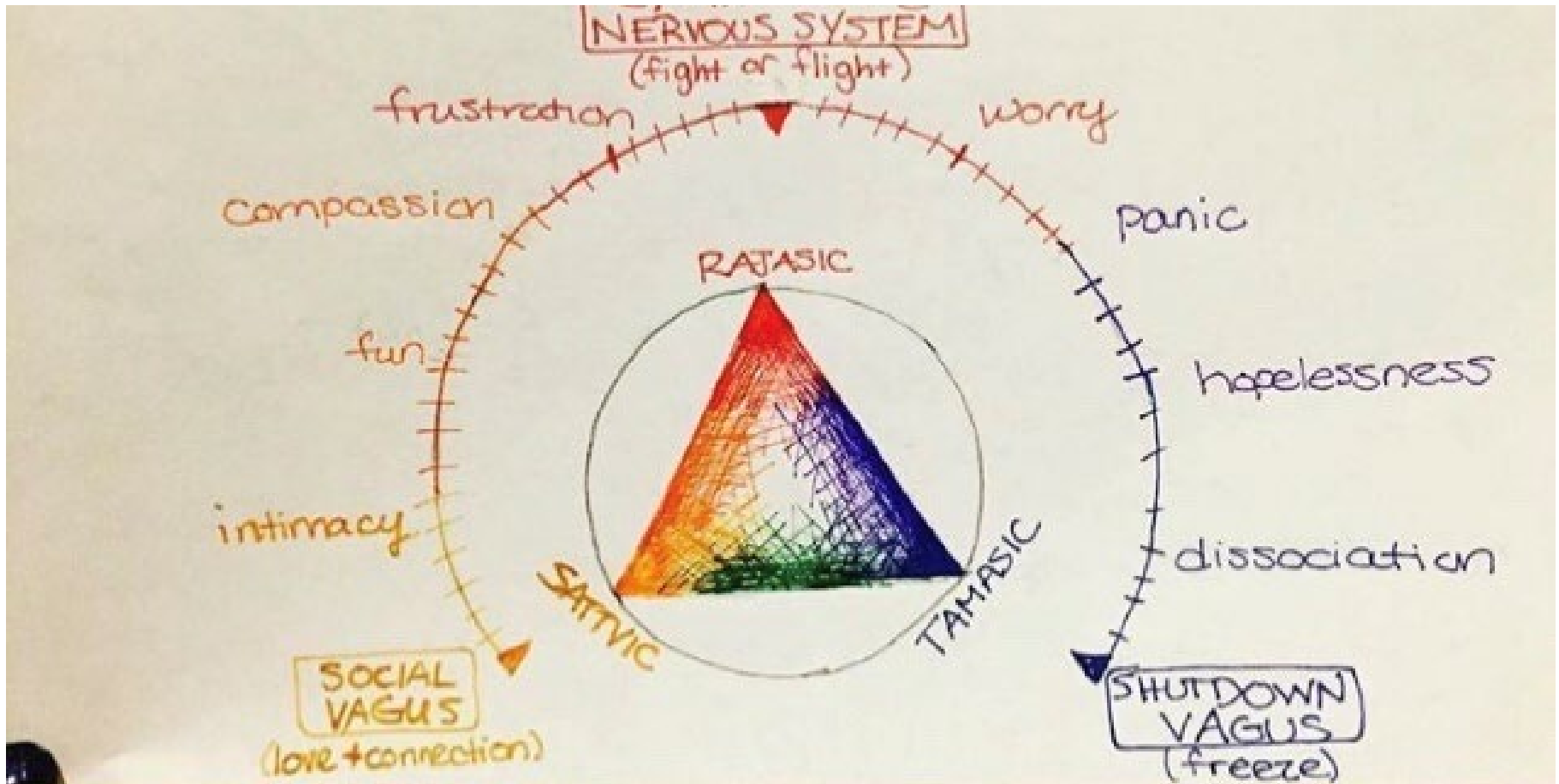
Decreases vascular tone, lowering blood pressure.



The vagus nerve has fibers connecting to both the diaphragm and the sinoatrial node of the heart that can either slow down or speed up respiration and heart rate

<https://manlyvillagemedical.com.au/migraine-depression-arthritis-gut-health-skin-irritation-lets-talk-vagus-nerve/>

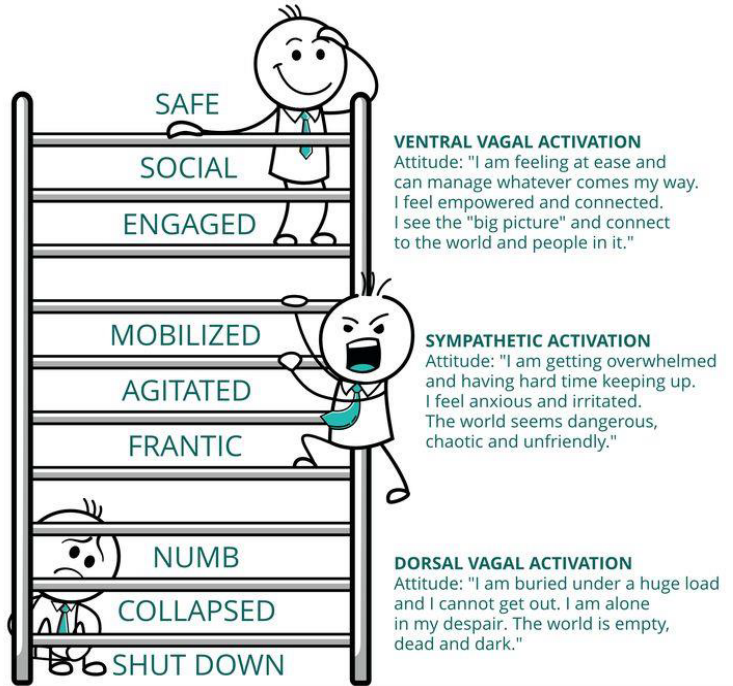
# Vagus Nerve/Vagal Tone, Gunas, And Emotions



Courtesy of Ann Swanson, M.A.

# Polyvagal Ladder

## AUTONOMIC NERVOUS SYSTEM AS A LADDER



Adapted from *The Polyvagal Theory in Therapy* by Deb Dana

## Mixed States

Just like mixing primary paint colors, two nervous system states together create an entirely different state.

**PLAY =**  
Safe & Social + Flight/Fight  
(sports, dance)

**STILLNESS =**  
Safe & Social + Shutdown  
(cuddles, meditation)

**FAWN =**  
Flight/Fight + Shutdown  
(autopilot, appeasement)



Complex trauma changes our ability to access safe & social mode. Many survivors will have difficulty accessing play and stillness until the ventral vagal nerve complex is healed.

Trauma Geek

Make sure to fill out the polyvagal ladder form as a reflective exercise here: [Polyvagal Ladder - Regulating Resources \(irpm.org.uk\)](https://irpm.org.uk/polyvagal-ladder-regulating-resources/)

# Yoga Sutra 1.34

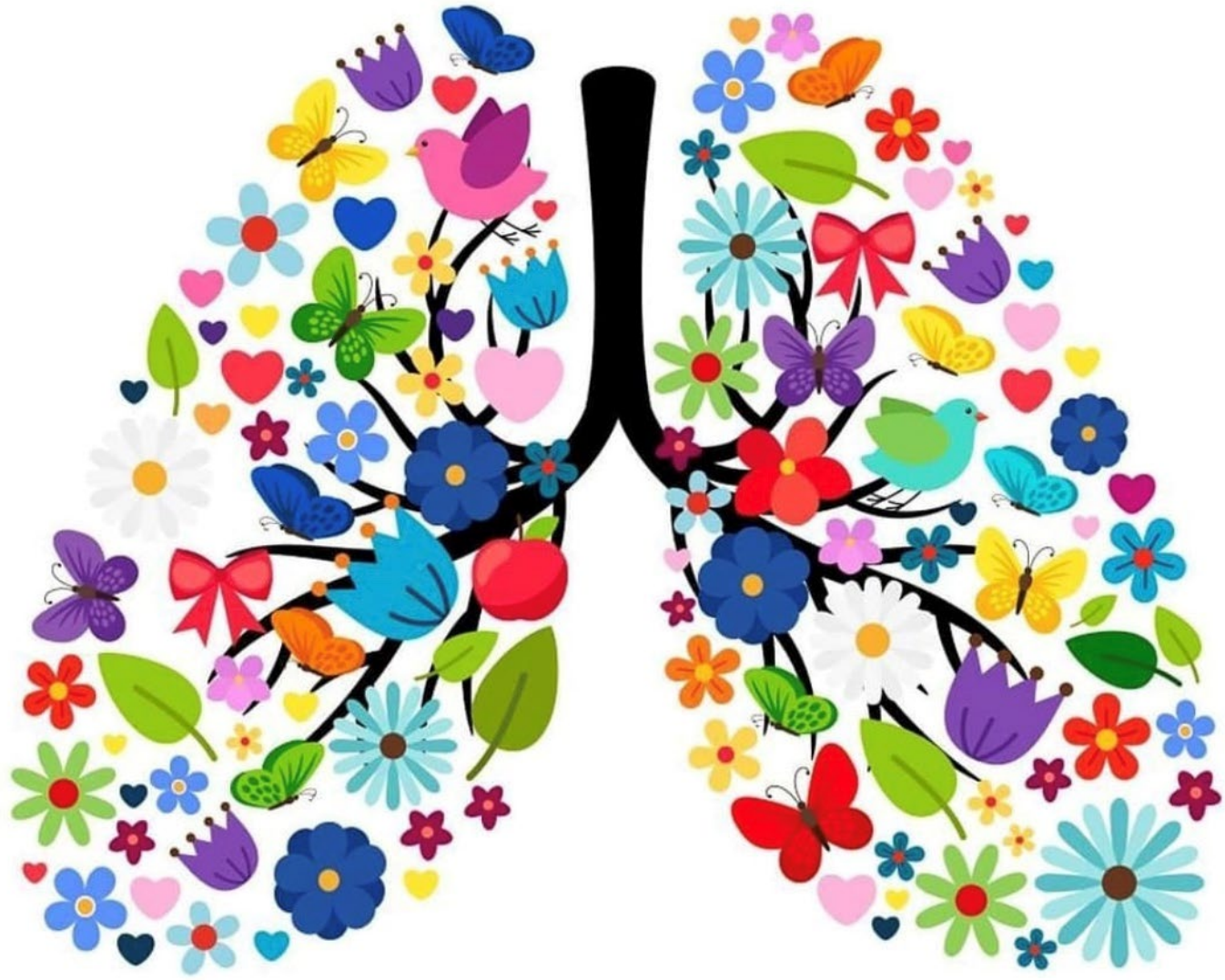
- Yoga Sutra 1.34 – The Long Exhale Sutra
- Prachardana Vidharanabhyam Va Pranasya: Regulating the breath (specifically, the exhalation and retention), will help bring down the agitation of the mind and facilitate calmness, while bringing a connection between our mind and breath. If the breath is slow, mind will follow. If the breath is fast, so is the mind.
- The Va Sutras 1.23-1.29 and 1.32-1.39 O:-)
- *Let's practice TKV Desikachar's extended exhale technique!*



# Delaying Exhalation To Strengthen The Mechanism Of Breathing

- Conscious inhalation is an active process. The individual instructs the body to take in air. Exhalation is a passive process in which the muscles of expiration recoil to their pre-inhalation position. For COPD patients or for lowering stress and tapping into the parasympathetic system, we want to gain control of the muscles of exhalation to slow down the process of recoil. One way to do this is to have control over the muscles of the ribcage. After the ribcage opens, on inhalation, we want to delay its descent, thus prolonging the position of inspiration and not allowing the exhalation muscles to take over.





# Oxygen Consumption And Respiration

- A study analyzed oxygen consumption, breath rate and breath volume on 40 male volunteers while performing two yoga practices: cyclic meditation (CM) and savasana (SA)
- During CM participants practiced asanas interspersed with periods of supine relaxation and SA had participants lie in a supine relaxed position throughout the practice
- Both types produced significant changes in all three areas of study:
  - Oxygen consumption decreased 32.1% after CM and 10.1% after SA
  - Breath rate decreased 18% after CM and 15.2% after SA
  - Breath Volume increased 28.8% after CM and 15.9% after SA

*Applied Psychophysiology Biofeedback.* 2000 Dec; 25(4): 221 – 227

# Stress Signs



- B.K.S. Iyengar says in his book *Light on Life*, “clenching the jaw is like clenching the brain”
- Clenching the jaw and/or facial muscles creates a sympathetic (fight or flight) response
- Harvard Med school proved that 80% of all injury is caused by stress
- Clients’ non-verbal responses thus need to be monitored to decrease stress and increase effectiveness of treatment
  - Examples include clenching the jaw, furrowing the brow, tightening around the eyes, stopping the flow of the breath and not being able to speak

# Slumping Posture Effects on Breathing

- A slumping posture contributes to chest breathing by pushing the lower ribs into the upper abdomen. This limits the diaphragm, which ought to be the primary muscle of respiration, so the chest (and sometimes the neck) muscles take over



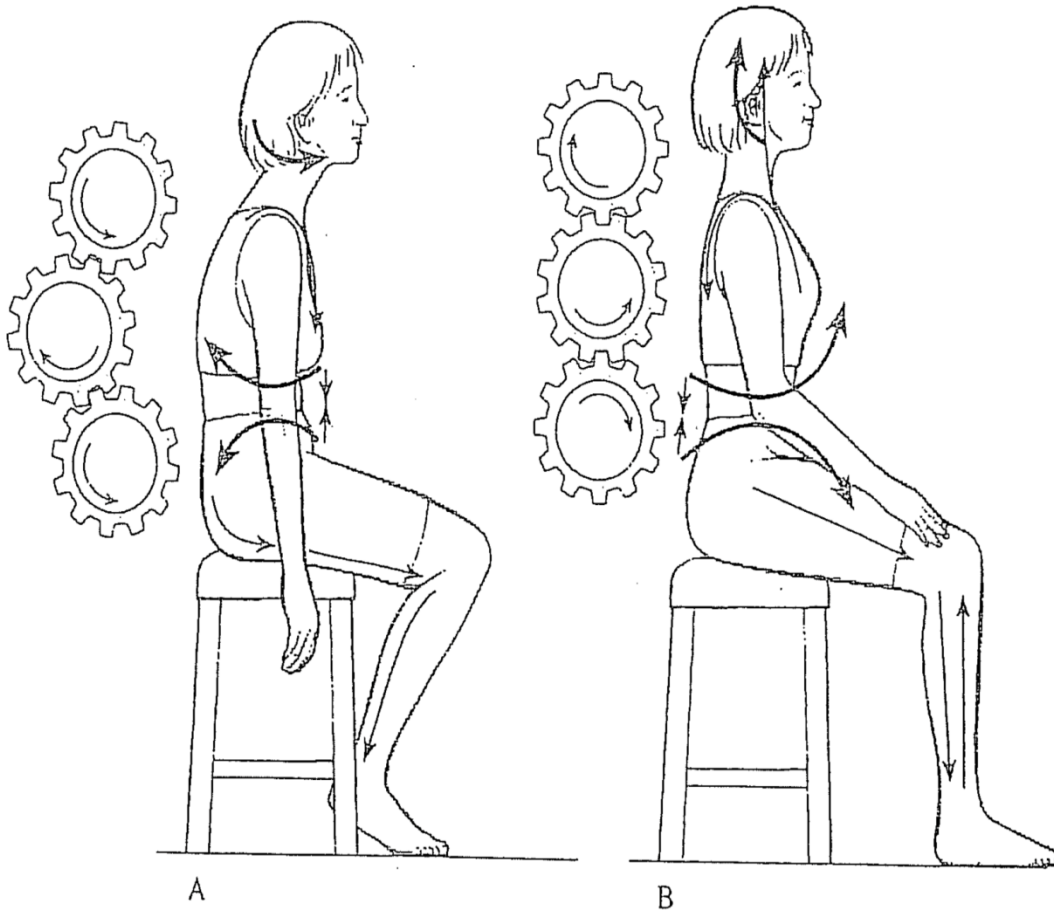
# Postures Effect on Breathing



Diaphragmatic expansion while breathing is hard to achieve in this rounded posture.

What are some ways we can open the spine to enhance our pranayama practice?

# Mid Thoracic Dysfunction



**Table 1** Functional adaptations secondary to T4–T8 dysfunction

- Round shoulders and upper trapezius overactivity
- Head forward posture
- Chin protrusion
- Sternosymphyseal approximation
- Increased lumbar lordosis

Exercises: Brugger's Seated, Wall Lean, Foam Dive, Foam Roll, Sphinx on Tummy

When treating dysfunction, it is important to restore the optimal biomechanics so that the injured soft tissue, which may be responsible for pain perception, may heal

# Some Functional Stretches For The Neck And Upper Back



# Sthira Sukham Asanam (Sutra 2.46)

## **Sthira**

*Steadiness, firm, structured*

## **Sukha**

*Ease, permeability, pleasantness, gentleness.*

# Specific to Traditional Pranayama Practice

In most pranayama, we use nose breathing. But, this can vary.

*Let's practice stithali/shitkari!*

Nose breathing can be the most difficult part of the Pranayama practice for some, but especially asthmatics, who are often chronic mouth breathers, which can be the result of poor breathing. This is essential for warming, moistening and filtering the air we are bringing into the body, making it just right for sensitive airways.

Nose breathing also promotes correct diaphragmatic action since it makes hyperventilation more difficult. What are some other reasons we breathe through the nose? Name 3-4 reasons. 😊

# Singing Exercises Used By Lung Doctors: Tetrazzini Exercises

- These were the favorite breathing exercises of the great opera singer of the nineteenth century, Luisa Tetrazzini (1871-1940), which she dictated for the book, Caruso and Tetrazzini on Singing in 1909 (1909, 12). For this exercise technique, you breathe through your nose and exhale through your mouth. It's a fantastic exercise to become aware of the expansion and contraction of the ribcage during breathing. It also teaches the singer how to slow down exhalation so that the recoil forces of the ribcage do not take over.

(The technique is essentially dirga breathing and segmented breathing.)

# Bhramari Pranayama

- Bhramari pranayama aka Bumble Bee Breathing “is a phonatory respiratory exercise, which scientifically accelerates the release of nitric oxide (NO) – a gas molecule and key biological messenger that plays a significant role in metabolic processes at the cellular level. Studies have proven that humming (bhramari) increases the production of NO by 15 times. NO accelerates the micro circulation of blood by dilatation and release of spasm of peripheral blood vessels, hence controls blood pressure. NO is omnipresent, present in every cell of body, and it helps in enhancing neural transmission and enhancement of memory. It affects apoptosis (aging), reproduction, lipolysis (obesity), regulation of body metabolism, and host defense. NO also controls the hormonal secretion that inhibits prolactin, catecholamine, cortisol and insulin resistance.”
- <https://swirlster.ndtv.com/wellness/the-incredible-benefits-of-bhramari-pranayama-humming-bee-breath-2246700>



**BEE MINDFUL**



# Other Nose-Based Pranayama

- Anuloma Viloma /Nadi Shodana
- Sipping Breaths/Segmented Breaths
- Breath Of Fire
- Surya Bhedana
- Chandra Bhedana
- Andddd more! ;-)

# Anuloma Viloma Pranayama

- Commonly referred to as “alternate nostril breathing,” this is a pranayama technique that traditionally involves inhaling through one nostril, retaining the breath, and exhaling through the other nostril in a ratio of 2:8:4 (inhale:retention:exhale), though other variations of the breathing ratio are often applied for various purposes. The technique involves inhaling through one nostril and exhaling through the other nostril with the breath being natural and effortless. It is said to calm the nerves, decrease anxiety and stress, harmonize the mind, and to restore, equalize, and balance the flow of prana (energy) in the body. Often, the technique skips the kumbhaka (retention of breath) and instead breathes with a balanced 1:1 or a parasympathetic-inducing 1:2 inhale to exhale ratio especially when used in therapeutic situations to decrease overall or reactive stress.

# Alternate Nostril Breathing In The News



From Anderson Cooper Interview with Hillary Clinton on September 13, 2017

# Segmented Breathing/Sniffing Breath

- With segmented breathing, aka sniffing breath, the inhalation and exhalation is divided into several equal parts, with a slight suspension of the breath separating each part, and with a distinct beginning and end point to each segment. This stimulates the central brain and the glandular system in different ways. Instead of inhaling in one smooth motion, we break the breath up into segmented “sniffs.” Try not to collapse or squeeze the nostrils in on the sniff, or pull the breath too deeply into the lungs. The goal is for the breath to strike a relaxed, yet focused area in the nasal passage to stimulate a particular set of nerves. Keep the nostrils relaxed and direct the attention to the feel of the breath further along the air passages and to the motion of the diaphragm.

4 parts in : 1 part out healing: energizing, uplifting

4 parts in : 4 parts out: clarity, alertness, triggering glands

8 parts in : 8 parts out: calming, centering

8 parts in : 4 parts out: focusing, energizing

4 parts in : 8 parts out: calming, unblocking, letting go

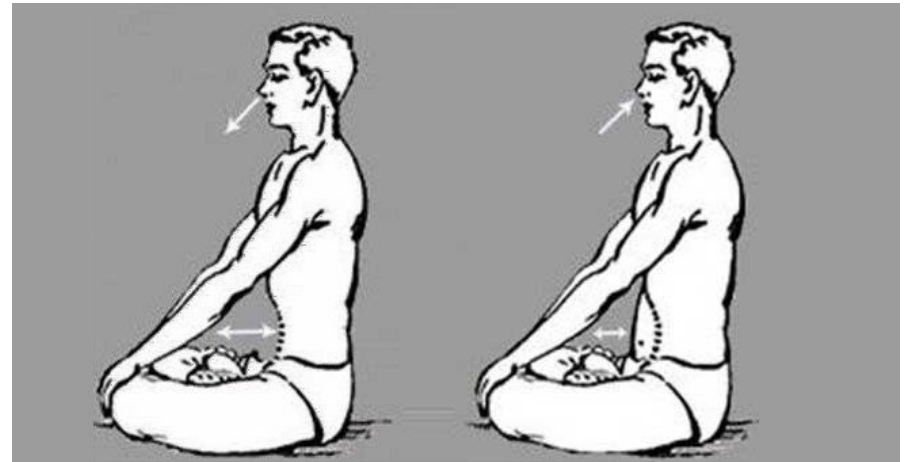
\*The ratios used above are clearly defined and allude to stable and predictable states of mind and energy. Don't alter ratios unless under a teacher's specific care.



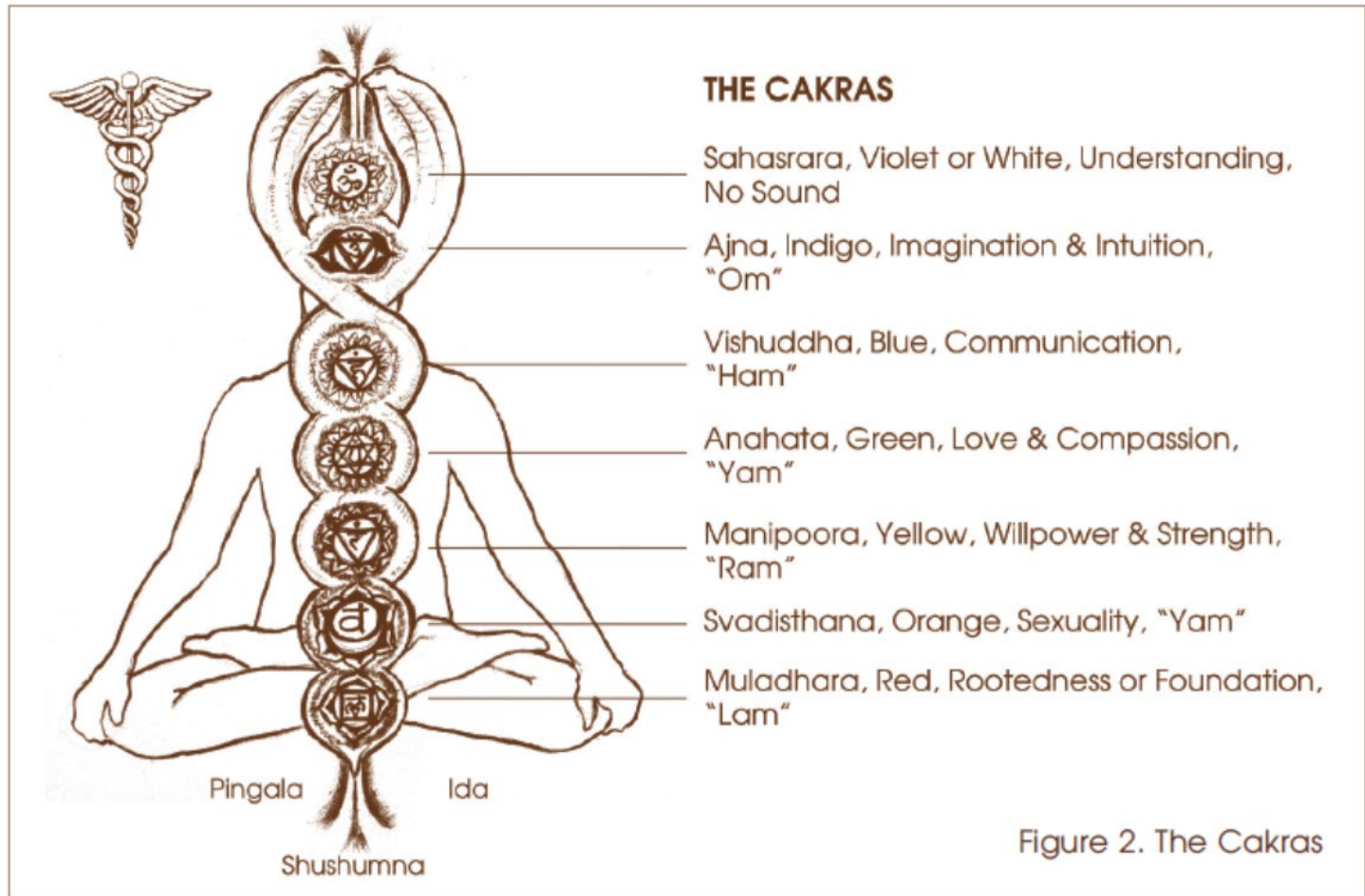
# Kapalabhati Pranayama

## AKA Breath Of Fire

- **Kapalabhati pranayama** is one of the six shat karmas (cleansing techniques) mentioned in the Hatha Yoga Pradikipa and literally means “skull shining.” This is a joy-inducing diaphragmatic breathing technique that is performed with forceful exhalations followed by passive inhalations. Essentially, the lower belly near the umbilicus is quickly contracted or pumped as air is pushed out of the lungs and the passive release of the contraction allows the belly to rebound and suck air into the lungs. This technique has been shown to be effective in gastroparesis, sluggishness, head foginess, depression, stress, and to cleanse the sinuses of the head.



# Energetics of the Spine



# Surya Bhedana



- **Surya bhedana** is translated as “sun piercing breath” and is also called the “revitalizing breath.” This pranayama technique is performed by inhaling through the right nostril and exhaling through the left nostril or both nostrils, thus amplifying the hot “solar” energy conducted through the pingala nadi, clearing and purifying the major energy channel on the right side of the body. It is said to increase physical energy, revitalize the body, improve one’s ability to perform verbal tasks, and provides a boost for the sympathetic nervous system.

# Chandra Bhedana

- **Chandra bhedana** literally means “moon piercing” breath. This is a pranayama technique of inhaling through the left nostril and exhaling through the right nostril or both nostrils, thus amplifying the cool “lunar” energy conducted through the ida nadi, clearing and purifying the major energy channel on the left side of the body.

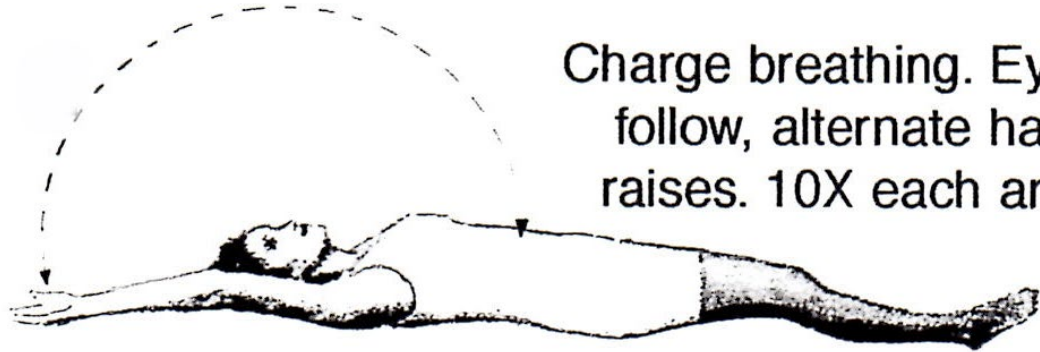


# The Benefits of Pranayama

- Anatomically, pranayama breathing techniques improve the strength of the diaphragm and the capacity of the lungs to improve the efficiency of the respiratory system, helping to increase fitness and increase the amount of oxygen entering the blood stream per breath. This oxygen helps to provide essential energy for muscle and brain function resulting in:
  - Increased efficiency of each breath
  - Increased lung capacity
  - Increased flow of oxygen to all parts of the body
  - Increase concentration, creativity and cognitive brain functions
  - Increase relaxation and calmness by releasing tension
  - Improved mind and body control, helping
  - Control emotions and relieve tension
  - Improved abdominal and diaphragm control and strength



# Cross Crawl Exercises



Charge breathing. Eyes follow, alternate hand raises. 10X each arm.



Charge breathing. Eyes follow hands. Cross Crawl with opposite arm and leg. 5X each side & 5X crossing center line.

# Inspiration to Leave With...



**Dhanvantari, The God Of Medicine and Aryurveda**