Breathing and Respiratory Health

There is nothing more essential to our health and well-being than breathing: take air in, let it out, repeat 25,000 times a day. Yet, as a species, humans have lost the ability to breathe correctly, with grave consequences

- James Nestor, Author of "Breath"

Breathing

“The nose is the silent warrior, the gatekeeper of our bodies, pharmacist to our minds, and weathervane to our emotions” – Dr Jayakar Nayak, nasal and sinus surgeon.

“We lose weight with oxygen, fat burns in the presence of oxygen” – James Nestor

“The key to improving body oxygenation is not taking deep breaths, in fact, you should be doing the complete opposite. Breathe light to breathe right" – Patrick McKeown, President of Buteyko Professionals International.

“If we are doing something wrong 25,000 times a day, just guess what’s going to happen. It’s going to wear our bodies down” - James Nestor

“When it comes to breathing, less is more” James Nestor, author of “Breathe”

“If we breathe too much, less oxygen is delivered to the cells… the mouth serves absolutely no function in terms of breathing” – Patrick McKeown

“You can improve your blood circulation by making simple changes to your breathing” – Patrick McKeown

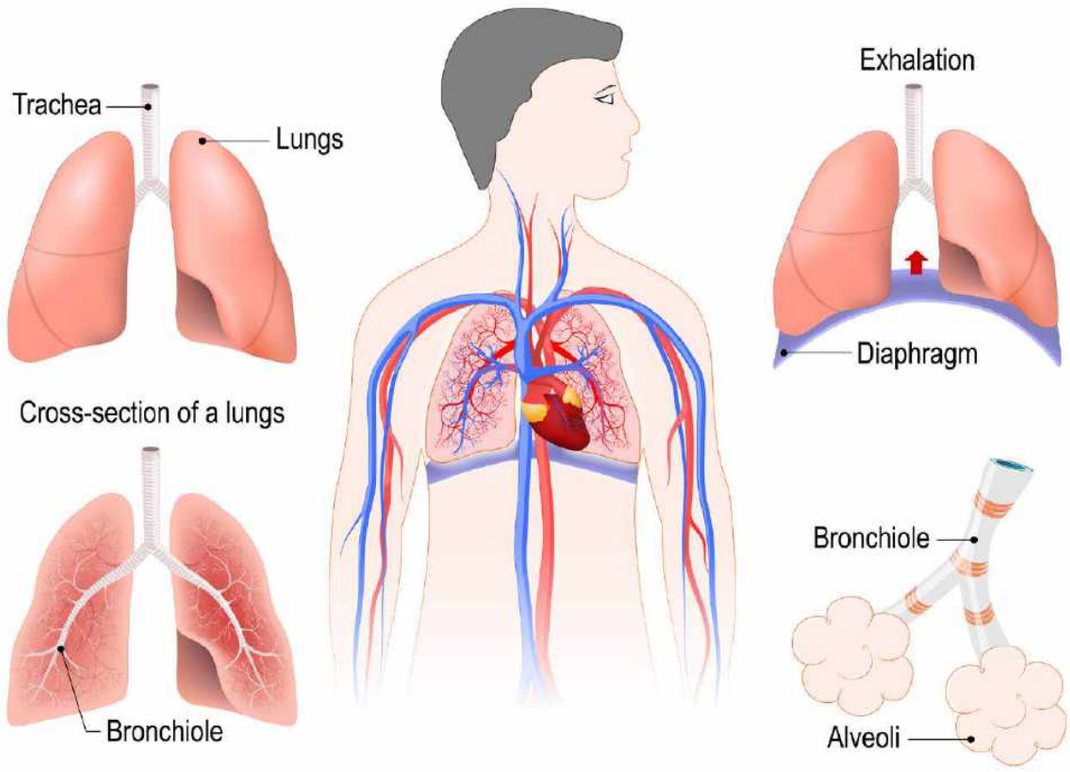
- Oxygen is the single most important substance for the body
- It is essential for every cell to produce the energy necessary to sustain life
- We bring oxygen into the body when we inhale and give off the body's by-products when we exhale
- The breathing apparatus of the body consists of: ·

The upper respiratory tract:

- Nose
- Mouth
- Pharynx
- Larynx
- Trachea

The lungs and diaphragm:

- Bronchi
- Bronchioles
- Alveoli
- Capillaries



The lungs are spongy and porous with very elastic tissue, covered by a double layer of smooth membrane, like a storage bag. If remove from the chest, they would collapse like deflated balloons

Image: Wikipedia

Breathing and Facial Development

- Two and a half billion years ago, there was enough waste oxygen for life on earth to begin making use of it, excrete carbon dioxide, and the start of aerobic life began. Mammals grew noses to warm and purify the air, throats to guide this air to the lungs, and networks of sacks to remove oxygen from the atmosphere and transfer it into the blood.

- Most animals are innate nasal breathers, it is only when an animal is sick that they usually revert to mouth breathing (except when a dog pants to cool itself), they will often pant when in pain. If we see an animal breathing through its mouth, it is not a good sign.

- We are born as nose-breathers and our mouths are closed while breathing for the first 5 or 6 months of life. It seems as when we receive our first teeth, we begin to have upper respiratory infections or nasal congestion, and mouth-breathing can then often start.

Breathing and Facial Development

- Probably half of the human beings in the Western World habitually breathe through their mouths instead of through their noses. Humans have become the worst breathers in the animal kingdom. We have traded our larger brains for a smaller snout!

- Just a few hundred years ago, the human face was different. It was forward grown, with a wide profile and large dental arches ensuring straight teeth and room for the tongue.

- Most importantly, there was plenty of room behind the upper jaw so that breathing could take place with ease.

- The modern face has changed. Dental arches can be less developed, crowding the teeth, and giving less space for the tongue. This impacts the airway.

Breathing

- Many believe this change in human development stems from a number of causes including the softness of the foods in the average modern diet causing underdeveloped chewing muscles and smaller dental arches.

- Primitive cultures were chewing on nuts, seeds, bones and raw vegetables - which was good exercise for the jaw and stimulated bone growth. Nowadays, the modern processed diet generally requires little chewing effort. Chewing assists in the development of the jaw, palate, and facial structures in children.

- Breast feeding also helps to shape the mouth. The tongue pushes the breast up to the roof of the mouth, which is how we get growth of the pallet and face. The tension that the muscle puts on the bone, activates the bone to grow. We need 3 years of breast feeding to develop the mouth and a hard diet as a toddler as the chewing helps to develop the face – Dr Dean Raio, DDS (Dentist and Breathing & Airway expert).

- The lower 1/3 of the face provides around 1/3 of the sensory motor input to the brain! Chewing stimulates essential neural pathways

Breathing

- As our ancestors began to develop tools to more finely prepare meat, and make fire, the softer, less chewable food that we ate literally changed the structure of our skulls, to ones with more recessed chins, less expansive sinus cavities, smaller mouths and more crooked teeth.

- Our ancient ancestors (and animals in the wild) had perfectly straight teeth, they never needed to have braces, had overcrowding, or the need for wisdom teeth to be removed. In the last 3-400 years, because of our diet of softer food and lack of chewing, our mouths have grown so small that our teeth no longer fit, and our airways have become smaller.

- However, this extra energy from the more easily digested food gave us larger brains and lowered larynx with more mobile tongues and lips for speech, but this expanding brain was at the expense of the sinuses, mouths and airways.

Breathing

- It is therefore likely that our ancient ancestors did not snore, have sleep apnoea or sinusitis. Of the 5,400 different species of mammals on the planet, humans are now the only ones to routinely have misaligned jaws, overbites, underbites = malocclusion.

- We have lost touch with our most basic and important biological function. To oxygenate tissues and organs, we need to breathe less, not more. The mouth doesn't serve any function at all in terms of breathing, except take the air to the lungs. It doesn't warm the air, regulate the air, it doesn't moisten the air, it doesn't harness nasal nitric oxide.

- The mouth is connected with the upper chest which is more likely to kick in a fight or flight response. Conversely, the nose is connected with the diaphragm. We can really influence our autonomic nervous system through the breath.

Breathing

- The resting posture of the tongue plays a pivotal role. Mouth breathing encourages incorrect positioning of the tongue (on the floor of the mouth), while nasal breathing naturally places the tongue in its proper resting position (on the roof of the mouth) and helps to achieve a lip seal.

- The tongue can exert up to 500 grams of force making it one of the strongest muscles in the body! What does this mean for facial growth? It means that where the tip of our tongue is sitting and where that force is being placed is actually very important. The tongue position is one of the determining factors of the shape and size of the upper jaw.

- When you are not eating or speaking, there is an ideal spot on the roof of the mouth where the tongue should naturally rest. In cases of mouth-breathing, where a child's tongue sits low in the mouth, the lower jaw will be forced back and down, affecting the way the face grows.

Breathing

- As well as providing the body with oxygen, breathing also helps to regulate other vital bodily functions, including biochemistry, the opening and closing of blood vessels and airways, and the stress response. Poor breathing habits, or incorrect breathing, can disrupt the body's biochemistry and deprive the body of oxygen, causing constriction of the blood vessels and airways, and reduce oxygen delivery to the cells.

- When we move our muscles, we generate carbon dioxide (CO2), which helps to maintain body oxygenation. **Carbon dioxide is not just a waste gas, the release from haemoglobin in the red blood cells, is dependent on the presence of carbon dioxide**. Without carbon dioxide, we won't exist, it is just as important as the oxygen. Oxygen can only disassociate from haemoglobin in the red blood cells in the presence of CO_2.

Breathing

- So a lack of carbon dioxide can put us in a state of relative hypoxia by having too little CO_2. in the blood stream. A lack of exercise results in lower production of CO2 and a larger breathing volume. Fifty years ago, it is estimated that we performed four hours of physical exercise each day.

- The regulation of breathing is determined by receptors in the brain which monitor the concentration of carbon dioxide, pH and oxygen in the blood. If we breathe too much, we remove too much carbon dioxide.

- *"When carbon dioxide was administered into the nose it was found to prevent the degranulation of mast cells which release histamine. When you give CO_2, the mast cells do not release histamine into the system. Histamine is implicated in causing inflammation both in rhinitis, allergic rhinitis (hay fever) and asthma" – Patrick McKeown*

Breathing

- Imagine the hemoglobin molecules in your red blood cells functioning as tiny magnets. They can pick up or release oxygen. The degree of their "magnetism" depends on the acid-base balance. At the proper balance, they will pick up oxygen in the lungs and give it up at the tissues where the magnetic pull is greater because of the greater density of carbon dioxide, and therefore acidity.

- In hyperventilation, so much carbon dioxide may be lost that blood becomes more alkaline (base) than it should be, and the magnetism of the hemoglobin molecules increases so that it may give up less oxygen to the tissues as it makes its rounds.

- Cells in the body produce nitric oxide. Nitric oxide causes blood vessels to relax. The lungs also make nitric oxide, and the hemoblobin in red blood cells absorbs it and ferries it around just as it does oxygen and carbon dioxide. It is released into the small blood vessels, arterioles and capillaries, where it enahces blood circulation to counteract the fact that hemoglobin arriving there saturated with oxygen tends to narrow blood vessels by causing them to constrict.

Breath and the East

- The Hindus considered breath and spirit to be the same thing, as did many other cultures in the East.

- The word ‘inspiration’ means both to take in breath and to the process of being mentally stimulated or motivated to do or feel something, especially to do something creative.

- Buddhists used breathing to lengthen their lives and to reach higher planes of consciousness.

- The Native Americans believed that breath inhaled through the mouth sapped the body of strength, deformed the face, and caused stress and disease. Their great “secret of life” was breathing. They pinched their babies’ lips shut straight after breastfeeding to keep their mouthes closed.

- In Unani they have a word 'nafas' which has several meanings of soul, spirit, essence and breath. The nafas is the breath or thread of life which runs through all of us.

- The Chinese believe that Chi is lost through mouth breathing.

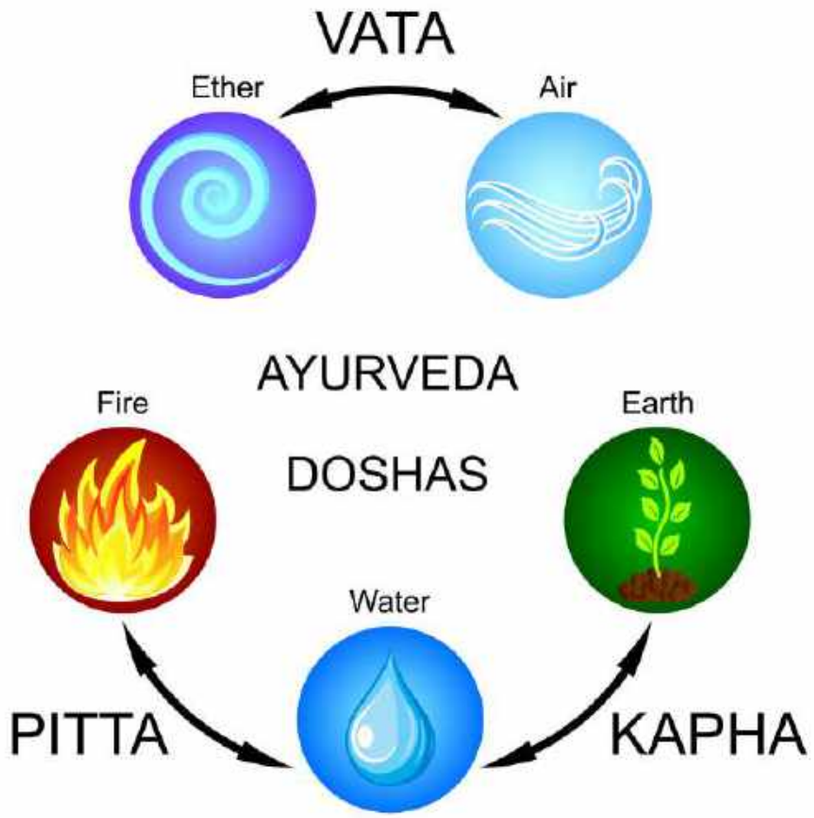
Breathing

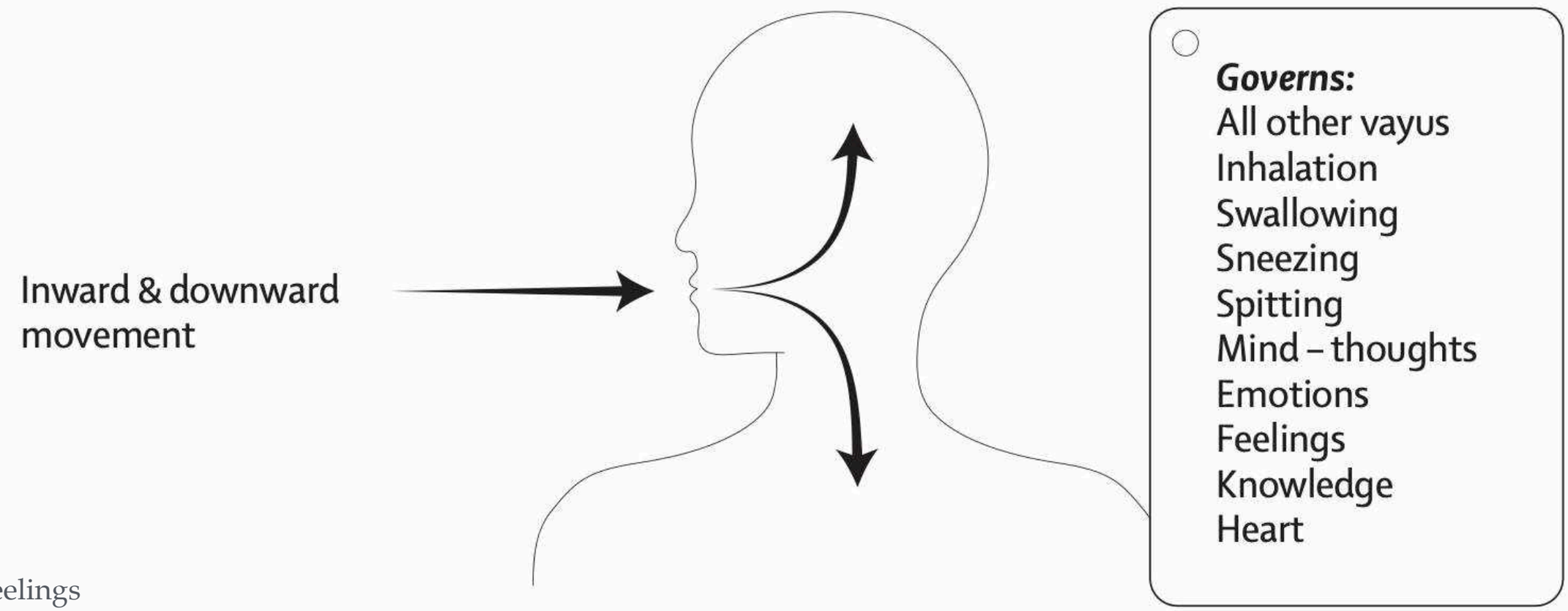
- Breathing can involve much more than simply providing oxygen for the body.
- Most adults do not utilise the total capacity of their lungs.
- According to Western physiology, the purpose of breathing ais to take oxygen into the body and convey waste out
- In Eastern physiology, however, a sceondary inner system is identified, which provides the body's supply of life-energy
- Life-energy is a concept not recognised in the West
- Eastern schools distinguish an 'inner breathing', one so deep and total that it opens up the entire body permitting an inflow of life-energy to permate every cell

- Sanskrit: prana
- Chinese: chi
- Japanese: ki
- Tibetan: thig-le or rlung

Ayurveda

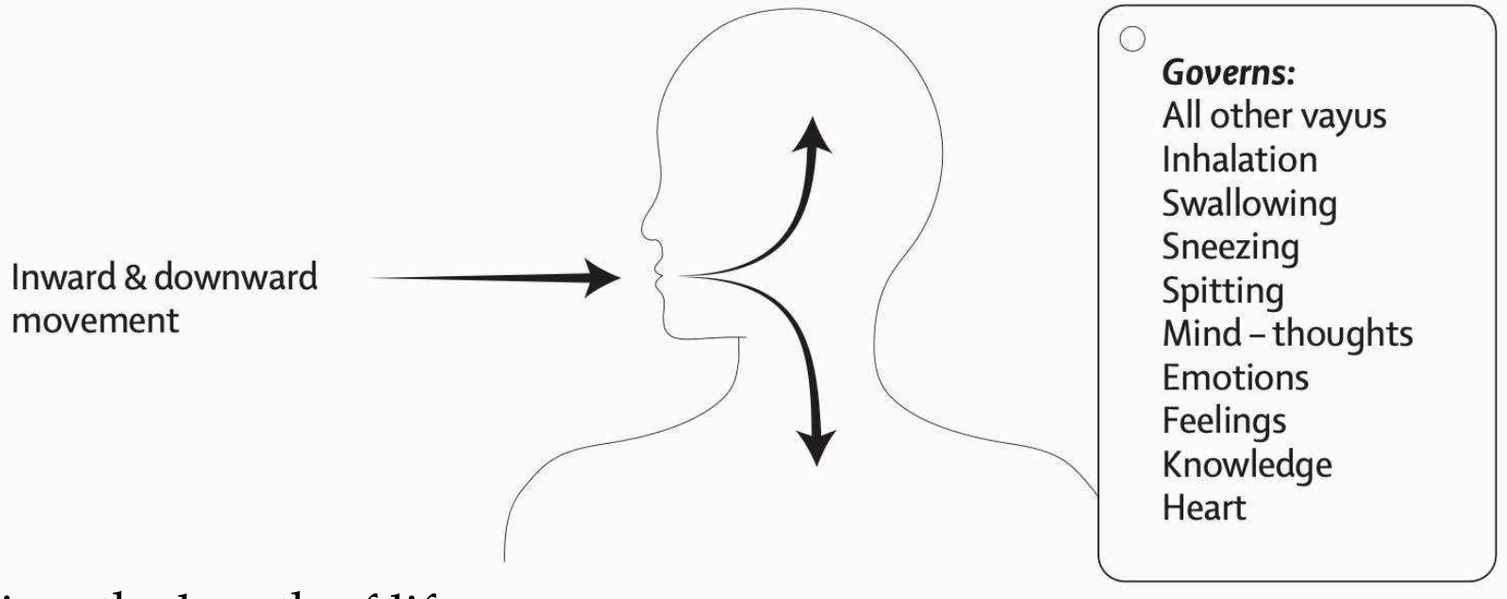
- Air Element (born of ether): All movement within the body, including breathing
- Vata - all movement in the body, including breathing
  Nourishes and vitalizes the nervous system, promotes discharge of impulses and secretions
- Control the breath you can control the mind and the movement of the emotions.





Prana Vayu (Vata)

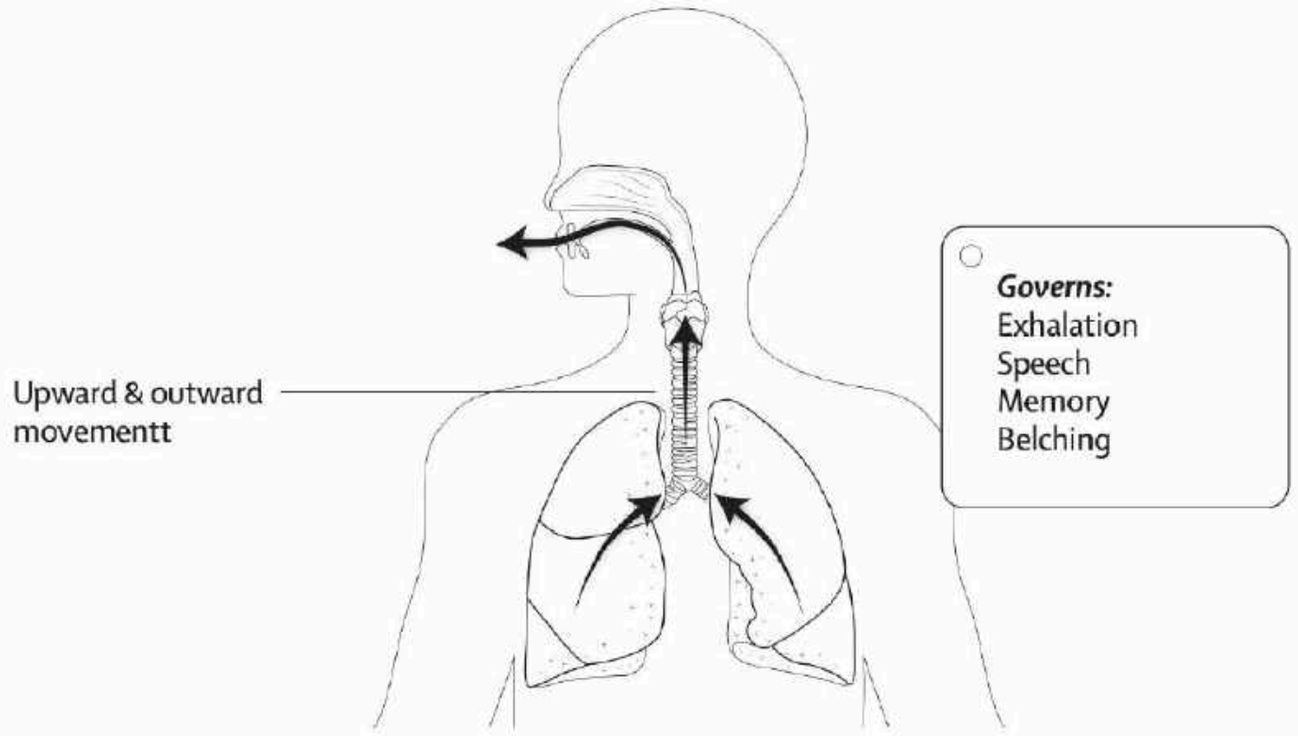
Head / Brain



- Present in the head and controls inhalation, the breath of life.
- Action is inward and downward
- It governs inhalation, swallowing and sneezing.
- Controls the other Vata sub Doshas, the five senses (hearing, touch, sight, taste and smell), thinking, and overall health.
- Prana is the mind; therefore **if one can control Prana then you can control the mind**. Prana is considered the most important of the Vata sub Doshas.
- Nadis carry Prana to every cell
- An imbalance in Prana Vayu includes breathlessness, palpitations, anxiety, nervousness, fear, and inability to focus the mind or concentrate. Diseases associated with Prana Vayu include stroke paralysis, epilepsy, sleep apnea, bronchitis, asthma, pneumonia, hiccoughs, constant burping and the tremors of Parkinson's.

Udana Vayu (Vata)

Diaphragm / Throat



- Controls exhalation, speech, upward movements in the body.
- Located in the diaphragm - moves up through the lungs, bronchi, trachea and throat.
- It can move upward to brain level and support the memory.
- Udana Vayu controls the movement of the diaphragm and muscles around the ribs and helps in getting carbon dioxide out of the body.
- An imbalance would result in symptoms such as difficulty of speech (stuttering and mumbling), lack of memory, lack of creativity, no sense of goal or direction.
- Supressed Udana Vayu can result in depression or discoloration of the skin. Bronchial conditions such as hoarseness of voice, asthma, pneumonia, emphysema are also associated with an imbalanced Udana Vayu.

Pranayama

- The ancient practice of controlling your breath.
- You control the timing, duration, and frequency of every breath and hold.
- The goal of pranayama is to connect your body and mind. It also supplies your body with oxygen while removing toxins. This is meant to provide healing physiological benefits.
- Pranayama involves different breathing techniques - all done through the nose.

Examples include:

- Alternate nostil breathing (brahmari)
- Victorious Breath (ujjayi)
- Female honeybee humming breath (brahmari)
- Bellows breath (bastrika)

These breathing exercises can be practiced in many ways. For instance, you can do them while performing yoga poses. You can also practice them while meditating or on their own.

Nadi Shodhana Pranayama
or Alternate Nostril Breathing

By Biswarup Ganguly, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=60338277

- The ancient Chinese, in passages from the Tao says that “the breath inhaled through the mouth is called ‘Ni Ch’i, adverse breath’ which is extremely harmful.

- “Be careful not to have the breath inhaled through the mouth”. They said that the nose is the “heavenly door”, and that breath must be taken from it. “Never do otherwise for breath would be in danger and illness would set in.”

- The ancient Chinese philosopher Lao Tzu said “the perfect man breathes as if he does not breathing” – regular, calm, light, not from the chest, without sighs, yawns or sniffs.

- In Chinese Medicine, the lungs help to free the spirit and lung issues can often be due to unexpressed grief. They say that the moment between breaths deserves special attention, because it is the moment when time stands still, when anything is possible.

Chinese Medicine

- The Lungs are the receiver of Qi from the heavens
- Qi / Chi is an energy that pervades the whole body and is synonymous with breath (Qi-gong translates to “breath-work)
- Qi warms the body
- The Meridians carry Qi to every cell
- Qi energy must be moving and not stagnant or weak. Weak or stagnant Qi could manifest as shortness of breath, low energy, increased sweating (all low adrenal symptoms)
- Qi is lost through breathing out through the mouth
- **Lung meridian**

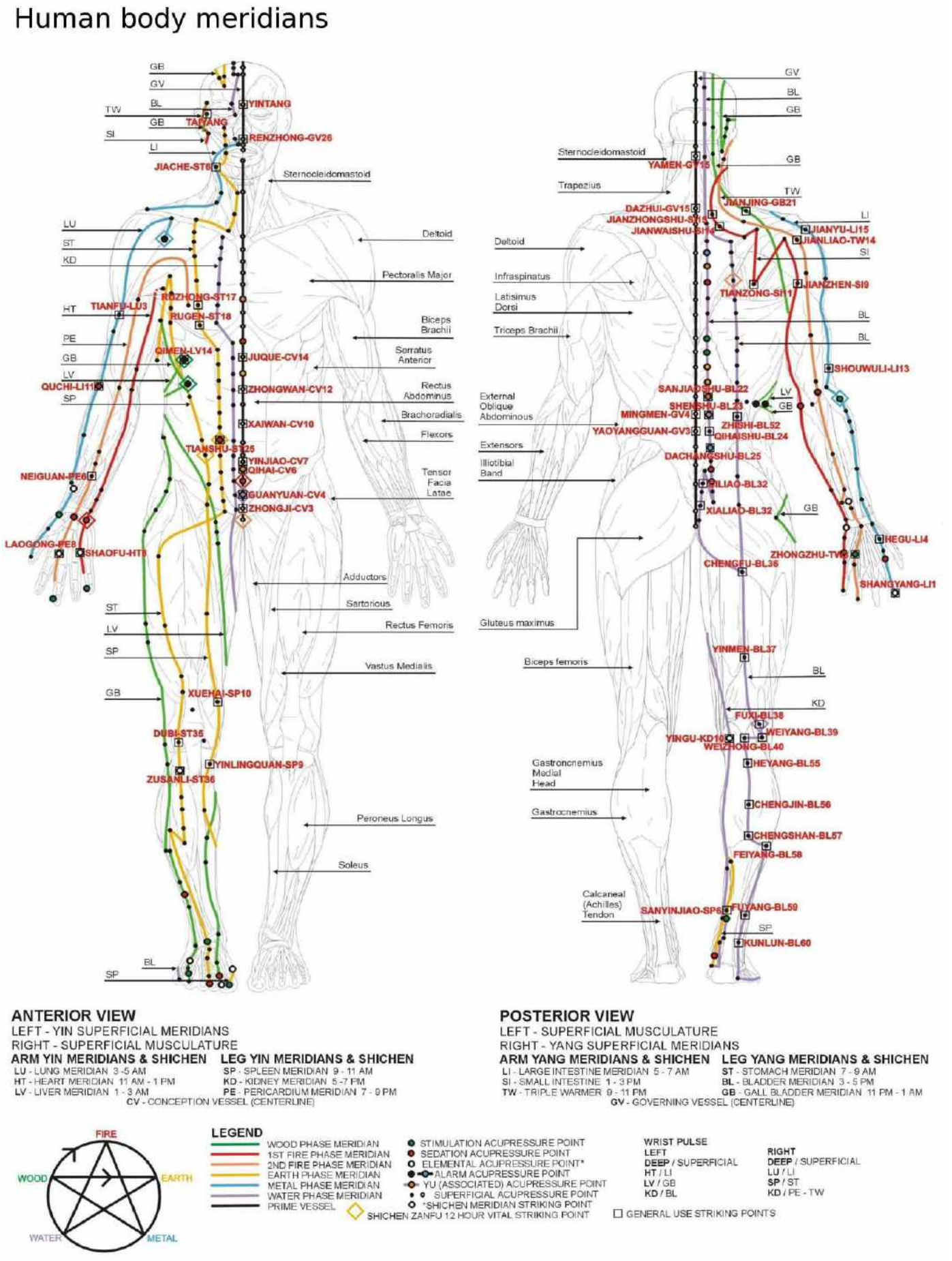


Image: Wikepedia

Chinese Medicine

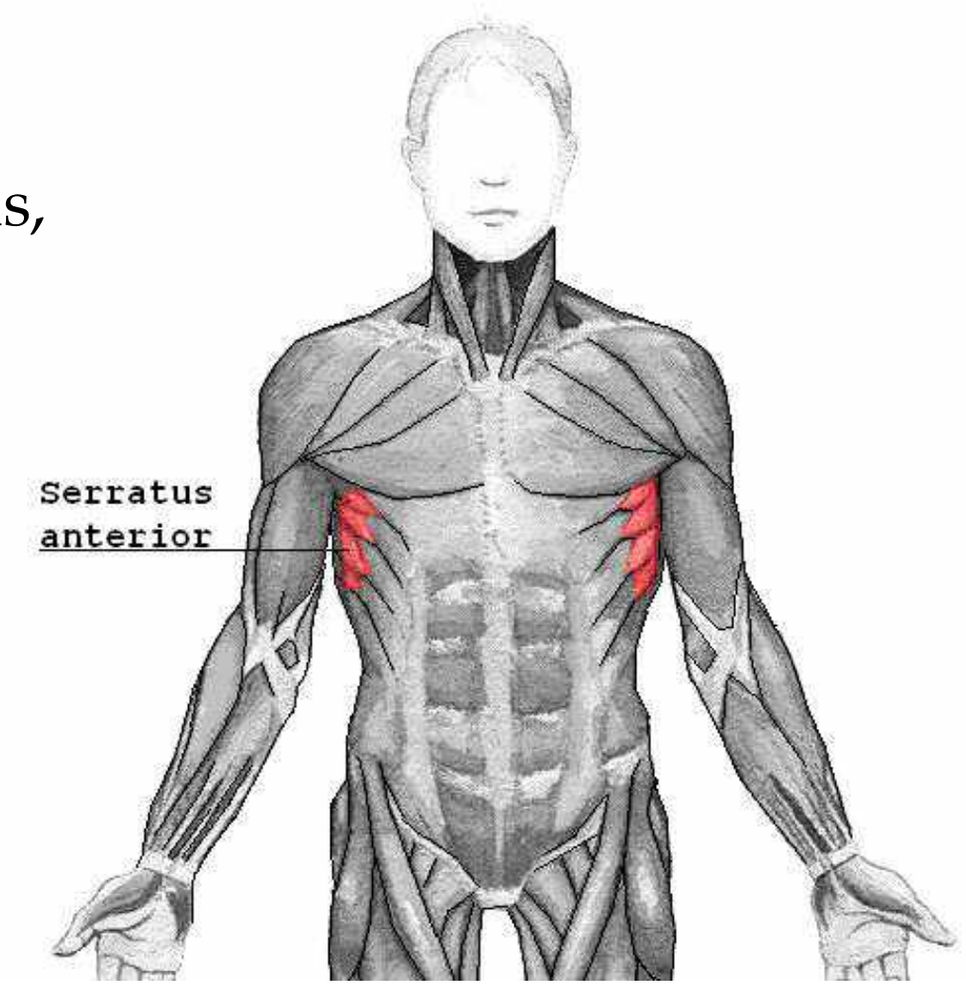
- **Lung meridian** - (Metal Element) associated with grief, sadness, guilt, regret
- If we cannot breathe properly we can start to feel more cut off
- The skin is the "third lung" in Chinese Medicine
- Related muscles in Kinesiology: Anterior Serratus, Corocobrachialis, Middle Deltoid, Diaphragm

METAL
Colour: white
Sound : crying, sighing
Emotion: grief, guild, regret, sadness
Taste : pungent
Fottifies : skin and hair
Odour : rotten
Climate : dryness
Season : Autumn
Meridian : Lung / LI

Metaphor Questions to consider for Anterior Serratus muscles:

- **Do you need to exert your power to reach your goal?**
- **Do you need to push, or punch, or are you poushing so hard that you're giving yourself a pain in the neck or even forgetting to breathe, literally or figuratively?**
- **Have you lost your voice literally or figuratively?**

From Touch for Health by John Thie



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Tibetan Medicine

From **Ignorance**, we have the 3 mental poisons, born of each other: -

- Attachment ->
- Hatred ->
- Delusion

Attachment can give temporary pleasure and happiness but leads to more desire and emotions such as anger, jealousy, dissatisfaction, power, loss and on a physical level affects the Wind humour which resides in the heart, lungs and colon.

Tibetan Medicine

Wind Humour: Lung or Loong (similar to Vata)

- Controls air and movement - respiration
- Vehicle of the mind (moves quickly)
- Active in the heart, small intestine, lungs, colon, nervous system
- Regulates respiration and all movement in the body

1. Life sustaining Wind (Prana)
2. The ascending Wind (Udana Vayu)
3. The pervasive Wind (Vyana Vayu)
4.The fire-like Wind (Samana Vayu)
5. The descending purgative or downward voiding Wind (Apana Vayu)

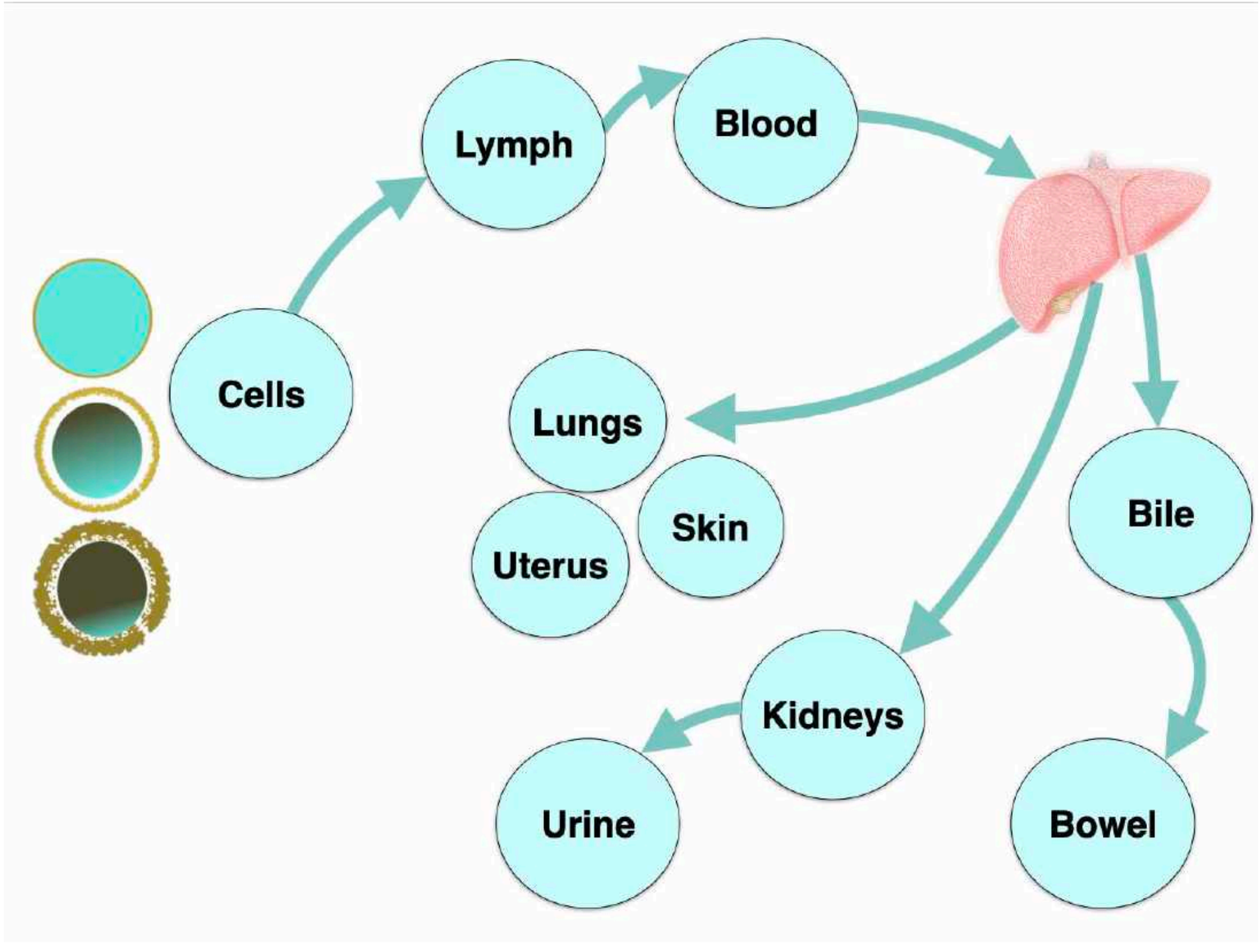
1: Life sustaining wind (Prana) : upper part of the body (neck and chest). Helps swallowing swallowing, breathing, spitting, sneezing. Holds the life force; gives clarity to the mind. Binds mind and body together.

2. Ascending wind (Udana Vayu): Upward moving and gives clarity of mindfulness. Associated with bodily strength and colour and gives energy. It is located in the chest and moves through the nose, tongue and throat. It helps in the production of speech and promotes clarity and strength of memory.

Tibetan Medicine

- Everything in the universe is formed from the Five Elements of Space (Nam-mkha), Air (rLung), Fire (Me), Water (Chu) and Earth (Sa)
- Air (rLung): light, mobile, cold, course, non-oily, dry.
- Aggravates Wind
- Pacifies Phlegm
- Lungs: minister to the King's assistant who rules the wind/breathing function thus governing strength and respiration. Its root is the Large Intestine and its flower is the nose.
- Large intestine: root of the lungs and acts as attendant to the Governor

Detoxification - if the liver is burdened it can send toxins instead to the lungs for excretion



Gut-lung Axis

METAL
Colour: white
Sound : crying, sighing
Emotion: grief, guilt, regret, sadness
Taste : pungent
Fottifies : skin and hair
Odour : rotten
Climate : dryness
Season : Autumn
Meridian : Lung / LI

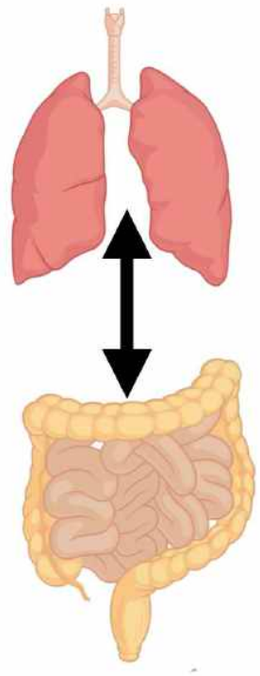
Metal Element
Lung and large intestine Meridians

- The respiratory system does not carry out its physiological function (of gas exchange) until after birth. The respiratory tract, diaphragm and lungs do form early in embryonic development.

- The airways of the lungs are formed by repeated branching of a system of tubes that originated in the embryo from an outpocketing of the gut lining

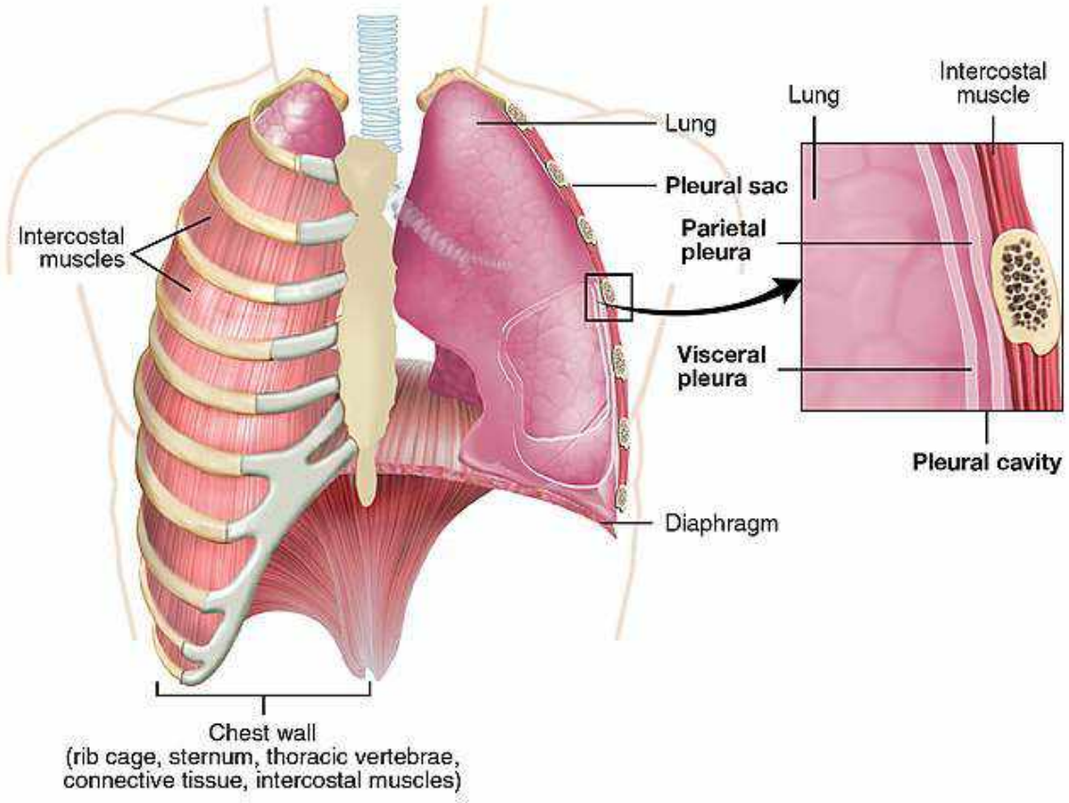
- The lungs go through 4 distinct histological phases of development and in late foetal development thyroid hormone, respiratory motions and amniotic fliud are thought to have a role in lung maturation.

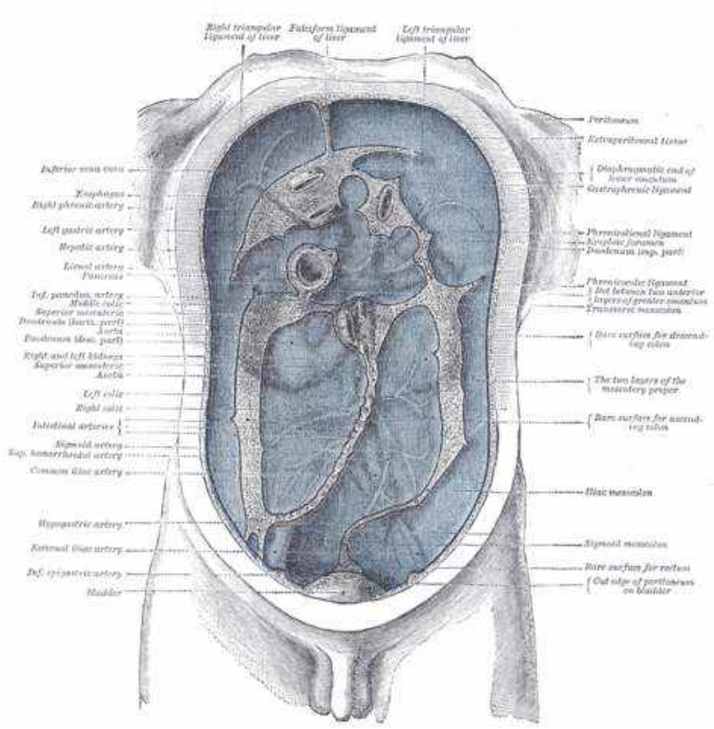
- Development of this system is not completed until the last weeks of Foetal development, just before birth. Therefore premature babies have difficulties associated with insufficient surfactant.



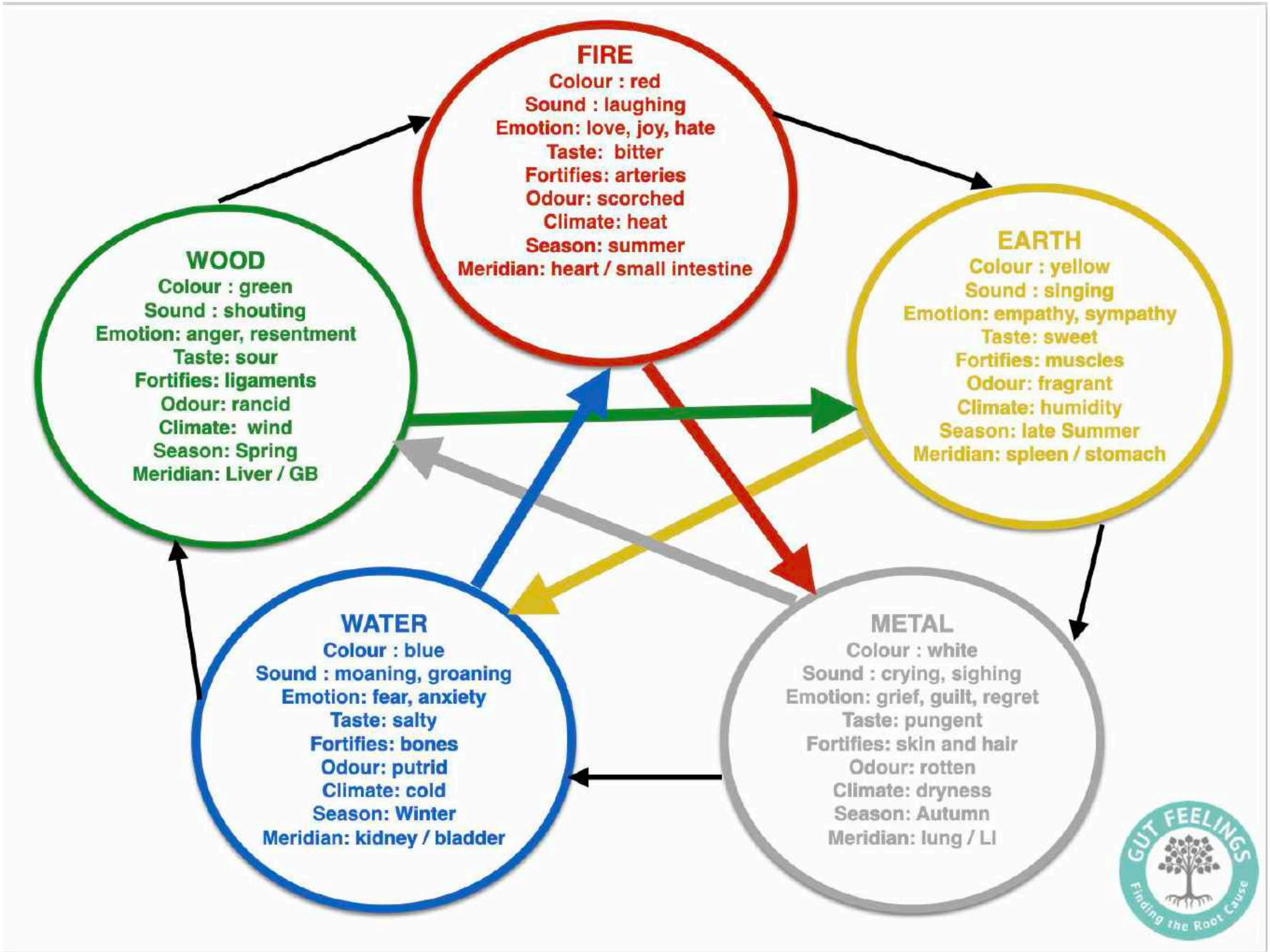
https://embryology.med.unsw.edu.au/embryology/index.php/Respiratory_System_Development
https://www.ncbi.nlm.nih.gov/books/NBK26875/

- The pleura (serous membranes covering the lungs), and the peritoneum (serous membrane forming the lining of the abdominal cavity) used to be **one**.
- Only during development was this divided up.





Images: Wikipedia



More
recent research
however shows that the
lungs produce a lot of
serotonin, possibly even more
than the gut, which fits with the
Eastern Understanding of
the lungs being the seat
of Depression

Bowels:
the great indicator
of hydration levels and
therefore connected to how
well the skin, lungs and
mind can function
Barbara Wren

Colon & Skin ->
liver -> going deeper
kidneys & lungs -> heart
& mind/brain
Barbara Wren

METAL

Lung

Cheerful
Depressed
False Pride
Haughty
Humility
Modesty
Opoenness
Disdain
(In)tolerance
Prejudice
Contempt
Smothered
(Un)fulfilled
Stoical
Scorn

Large Intestine

Guilt
Grief
Regret
Release
Self-worth
Enthusiasm
Depression
Indifference
Apathy
Letting go
(Un)merciful
Compassion
Sadness
Toxic shame
Powerful
Powerless

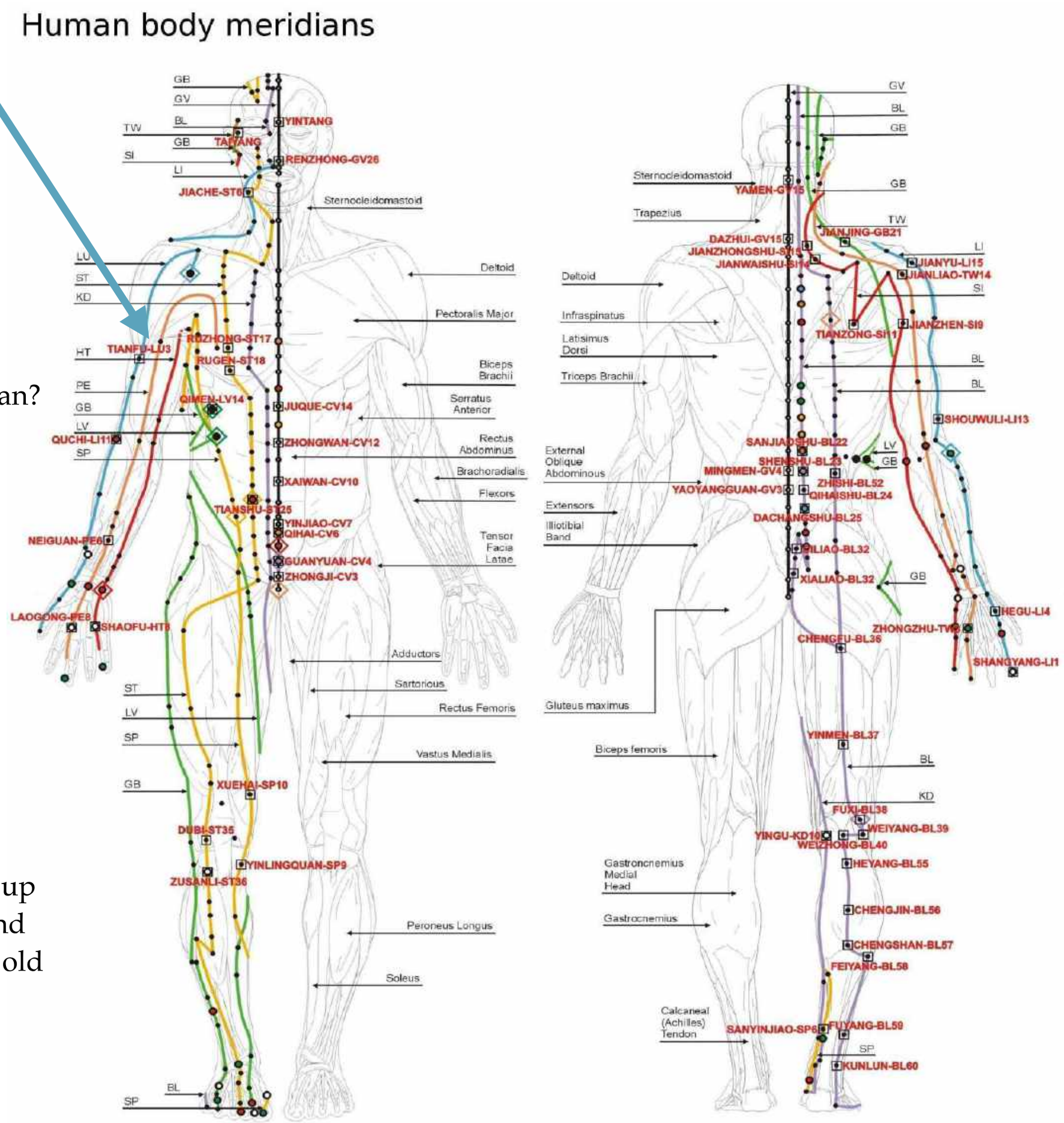
Lung meridian

Lung meridian: from below the clavicle or collarbone, down the inside of the arm to the outside corner of the thumb.

What could block the lung meridian?

- Vaccination
- Other medical injection site
- Scar
- Past accident - bruising
- Broken bone
- Torn muscle / ligament
- Tattoo
- Injury
- Emotions

Kinesiology techniques can break up scars blocking meridians (laser) and “Injury Recall Technique” for any old injury sites that are still causing a disturbance field



Breathing - Chinese

- Over thousands of years a great number of precise breathing exercises have been developed and recorded, designed for medical or psychological purposes or to be used as a tool to expand consciousness for religious purposes.

- The main breathing techniques in the Chinese tradition is called Chi Gong. Chi = life energy, Gong = exercise. The practise of Chi Gong is traditionally referred to as “the method to eliminate illness and prolong life”.

- The Chinese developed a range of highly sophisticated breathing techniques, each evoled for use in a particular area of life.

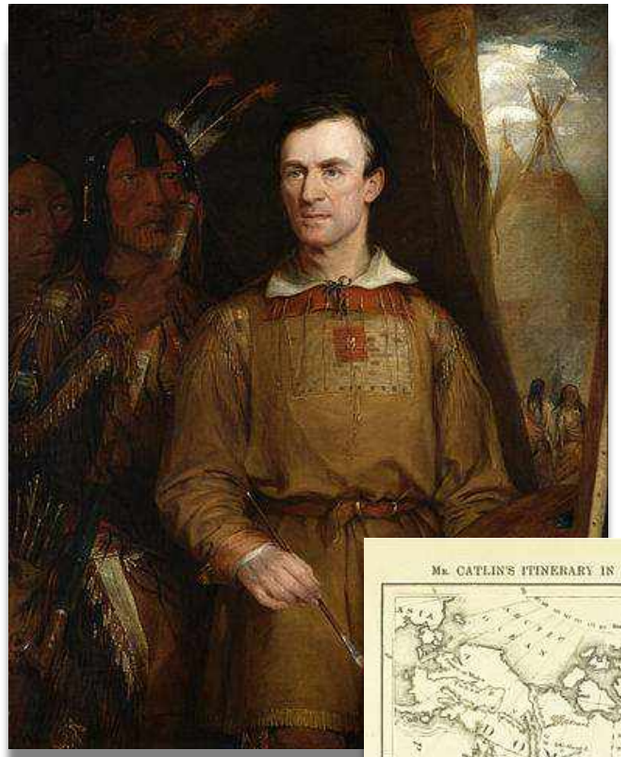
Breathing - Chinese

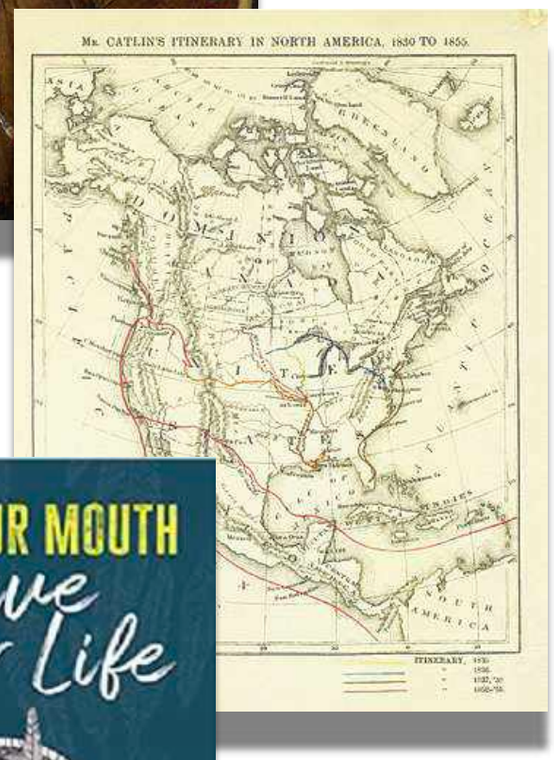
Types of breathing include: -

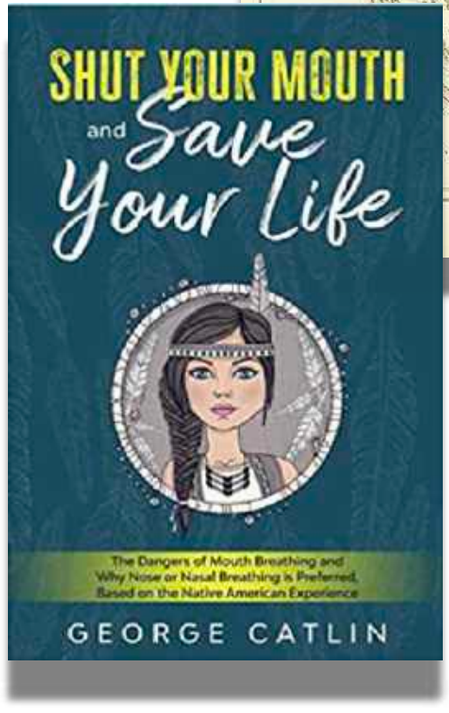
- **Slow breathing**, The breathing of Unselfishness, The Breathing of Harmony, The Breathing of self-Esteem, The breathing of Activity, The breathing of Intelligence, The Breathing of Love
- **Quick Breathing**: effect on the *body* is to sped up thye metabolism, heartbeat and blood cirulation. *Psychologically*, it provides an unstable and more easily affcted state of mind, leading to faster emotional changes. *Spiritually,* it generates subjective and egocentric values and perceptions of the World, with greater emphisis on details
- **Shallow Breathing**: effect on the *body* - metabolism is less active and less integration betwen its various functions. On the *psychological* levels, shallow breathing produces tendency to worry, mental instability and dissatisfaction, leading to fear. *Spiritually*, perception becomes superficial, with many distractions.
- **Deep breathing**: this causes the metabolism to become more active and more efficient and harmonic. *Psychologically,* it creates deep feelings of satisfaction, emotional stability and strong self-esteem. *Spiritually*, it leads to grater thoughtfulness, greater trust and openness and a more loving attitude. An example of deep breathing is The Breathing of Spirituality
- **Short Breaths**: at the *bodily* level, the metabolism becomes faster and more irregular. *Psychologically*, it leads to quicker changes of thought and emotion, with a tendency to greater impatience and short temper. *Spiritually* it leads to greater disharmony with the surrounding world, and to contradictory and subjective opinions

George Catlin

July 26, 1796 – December 23, 1872







- A lawyer-turned-artist and Ethnographer (anthropology and the study of individual cultures)
- George Catlin spent 30 years painting and observing the Native American Indians.
- In 1860, after observing over one hundred fifty tribes of Native Americans in both North and South America, and after completing over five hundred paintings and publishing several books on his travels, George Catlin wrote a short 40 page book of observations on the health practices of the American Indians.
- His book, "The Breath of Life", later retitled "Shut Your Mouth and Save Your Life", in 1862, was a best seller
- Catlin made sure it was kept in print until his death in 1872; yet the book is almost unknown today, even among the historians who oversee his collection, now housed in the Smithsonian Museum.

Image: Wikipedia

George Catlin

- While living amongst the Native American Indians he was curious as to the lack of infant or child deaths, no lunatics, no hunchbacks, no deaf or dumb people.

- They all had strong jaws and healthy straight teeth. One tribe leader said this all changed after they started drinking ”fire water” and Native American Indians living among “civilised” people, had the same disease and infant deaths as they did.

- In his search for answers as to why Native Americans had such strong constitutions, longer and more trouble-free lifespans, and none of the normal handicaps of their more "civilized" counterparts, he drew a direct link between the "closed-mouth" sleeping practices of the "Indians," as he called them, and their superior constitutions and health.

Image: Wikipedia

George Catlin

- Nearly 2 centuries later, Catlin's strong aversion against mouth-breathing (which was deemed "eccentric" by many over the years) are now being corroborated and supported in the medical world.

- All holistic dentists are now aware of the impact of mouth breathing on the shape of the jaw and dental caries and the medical profession is very aware of the effects of sleep apnoea on health.

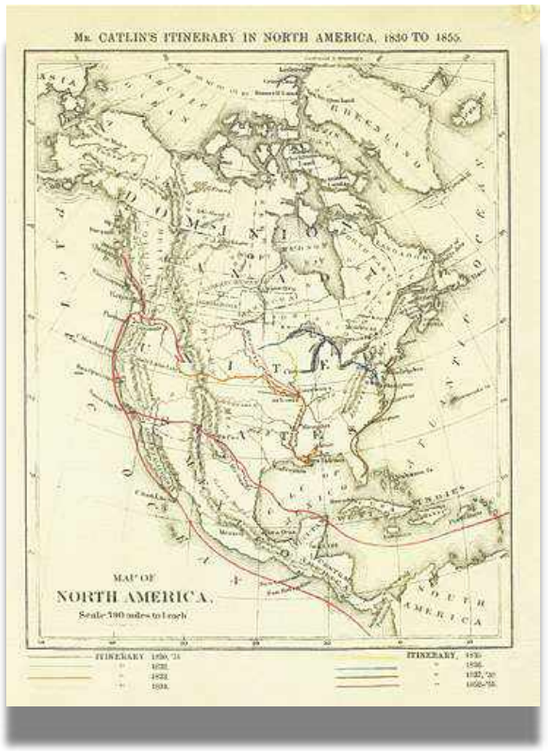
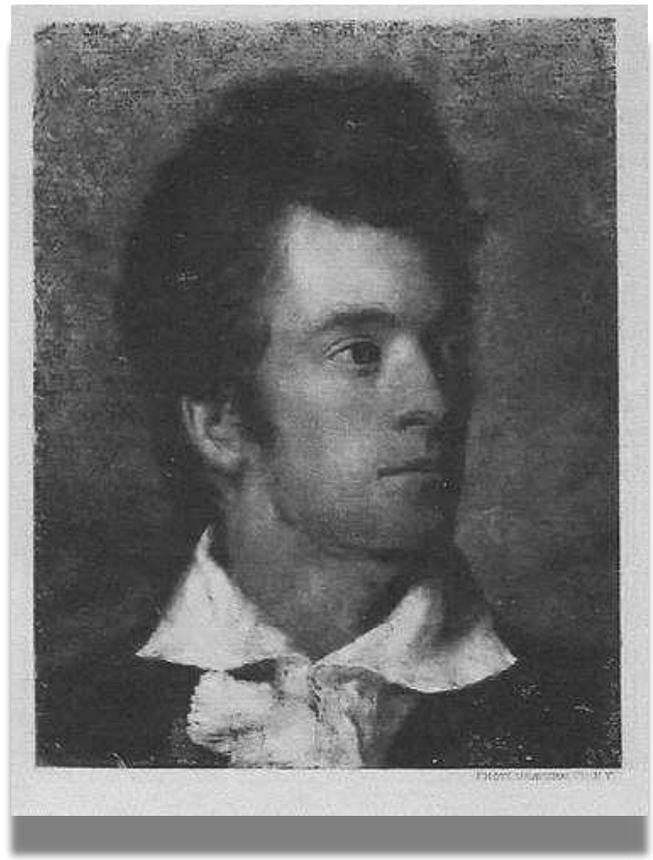


Image: Wikipedia

George Catlin



- He observed that the mothers pinched their infant's lips together straight after feeding from the breast. They did this throughout infancy until it became a habit.

- Their children were not kept in the artificial warmth and smothered like the "civilised" infants but left in a cold environment which snapped their mouths shut on breathing in the cold.

- He drew a direct link between the "closed-mouth" sleeping practices of the "Indians" as he called them and their superior constitutions and health.

- Today, researchers have documented that breathing with the mouth open while sleping can lead not only to snoring, but lower sleep quality and eventually, a decline in health.

Image: Wikipedia

George Catlin

"When I have seen a poor Indian woman in the wilderness, leaving her infant from the breast, and pressing its lips together as it falls asleep in its cradle in the open air, and afterwards looked into the Indian multitude for the results of such a practice, I have said to myself 'glorious education', such a mother deserves to be the nurse of Emperors!"

And when I have seen the careful, tender mothers in civilised life, covering the faces of their infants sleeping in overheated rooms, with their mouths open and gasping for breath, and afterwards looked into the multitude, I have been struck with the evident evil and lasting results of this incipient stage of education.

I never saw an Indian woman withdrawing the nipple from the mouth of a young infant, without carefully closing its lips with her fingers.`

These people, who talk little and sleep naturally have no dentists nor dentifrice (toothpaste), nor do they require either, their teeth almost invariably rise from the gums and arrange themselves as regular as the keys of the piano, and without decay or aches, preserve their soundness and enamel and powers of mastication, to old age."

Image: Wikipedia

George Catlin

"There is no animal in nature, except man, that sleep with the mouth open, and with mankind, I believe the habit, which is not natural, is generally confined to civilised communities.

Lambs, which are nearly as tender as human infants, commence immediately after they are born to breathe the chilling air of March and April, both night and day, asleep and awake, which they are able to do because they breathe in the way nature designed them to breathe."

Image: Pixabay

George Catlin

"The mouth of man, was made for the reception and mastication of food for the stomach and other purposes, but the nostrils, with their delicate and fibrous linings for purifuimg and warming the air in its passage, have been mysteriously constructed and designed to stand guard over the lungs - to measure the air and equalise its draughts.

The air which enters the lungs is different form that which enters the nostrils, as distilled water is different from the water in an ordinary cistern or frog pond."

Image: Wikipedia

George Catlin

"Mouth breathing at night: bronchitis, Quinsey, croup, asthma, and other diseases of the respiratory organs, as well as dyspepsia, gout of the stomach, rickets, diorrhea, diseases of the liver, the heart, the spine and the whole nervous system from the Brian to the toes, may chiefly be atributed to this deadly and unnatural habit.

Man habitually say they don't sleep well because something is wrong with their stomachs, when the truth may be, that their stomachs are wrong because something is wrong with their sleep.

Image: Wikipedia

George Catlin

"Teething: the civilised infant passes 2/3 of its time in sleep with its mouth open, while the teeth are presenting themselves in their tender state, to be chilled and dried in the currents of air passing over them, instead of being nurtured by the warmth and saliva intended for their protetion

A great proportion of individuals carry proof of their mouth-breathing by the shape of their face - long, chin inward, crowded teeth, V shaped pallet.

Long-term mouth breathing then becomes second nature, a matter of necessity to breathe through the mouth which is constantly open, while the nasal ducts, being vacated, like vacated roads that grow up to grass and weeds become the seat of polyps and other diseases.

In all of these instances there is a derangement and deformity of the teeth and disfigurement of the whole face.

Most habits against nature, if not arrested, run into disease.

No man or woman with a handsome set of teeth keeps the mouth habitually open

Christian Bohr

- In 1904, Christian Bohr discovered that the body needs a certain level of carbon dioxide in the blood in order to easily use the oxygen.

- This phenomenon is now called the *Bohr Effect* whereby hydrogen ions and carbon dioxide heterotopically decrease hemoglobin's oxygen-binding affinity.

- This regulation increases the efficiency of oxygen release by hemoglobin in tissues.

- When carbon dioxide levels drop, the blood gets sticky and blood vessels narrow and it becomes harder for the blood to reach the arteries and stamina diminishes.

- In 1998, three US scientists were awarded the Nobel Price in Physiology and Medicine for describing the role of Nitric Oxide with cardiovascular and nervous system signalling.

Carbon Dioxide

"Fire trucks at one time in the major cities in the US carried CO_2 because it was so effective for victims of stroke and heart attacks and asphyxia"

– James Nestor, Breathe

Image: Pixabay

Blood-Air Barrier

- The blood–air barrier (alveolar–capillary barrier or membrane) exists in the gas exchanging region of the lungs. It exists to prevent air bubbles from forming in the blood and from blood entering the alveoli.

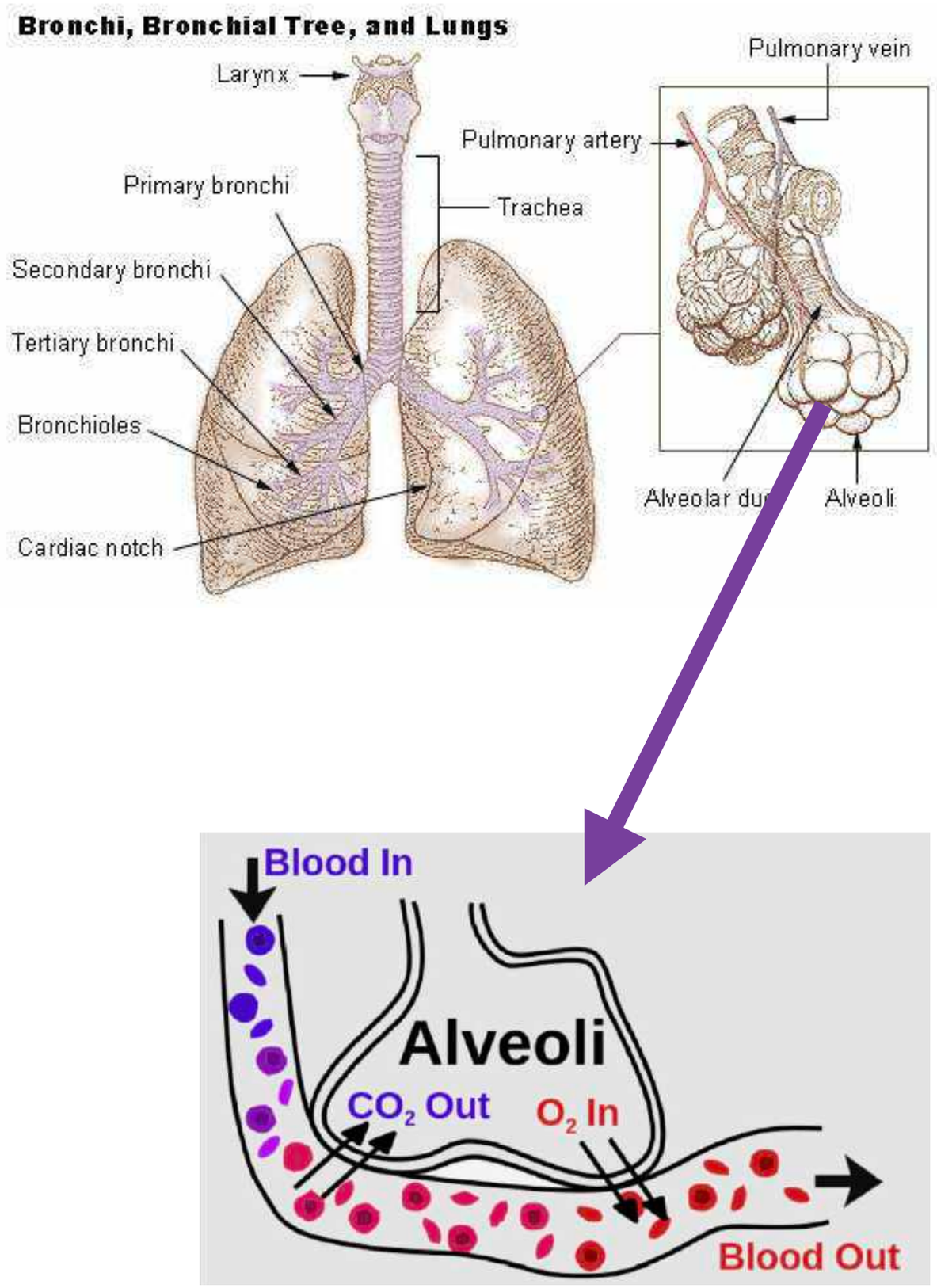
- The barrier is permeable to molecular oxygen, carbon dioxide, carbon monoxide and many other gases.

- The blood-air barrier in the alveoli is 50 times thinner than a sheet of tracing paper. This thinness facilitates faster oxygenation.

- This blood–air barrier is extremely thin (approximately 600 nm-2µm; in some places merely 200 nm) to allow sufficient oxygen diffusion, yet it is extremely strong.

- This strength comes from the type IV collagen in between the endothelial and epityhelial cells.

- Damage can occur to this barrier at a pressure difference of around 40 millimetres of mercury



1. https://en.wikipedia.org/wiki/Blood%E2%80%93air_barrier
2. https://bodytomy.com/labeled-diagram-of-human-lungs

Breathing

- Breathing therapy / training is very “in” at the moment which sounds strange as it is fundamental to life. It is of special interest to the sporting world due to the effec that nitric oxide can have on performance.

- The important role of the sinuses in nitric oxide creation helps explain why the nose is so important. Nitric Oxide, which increases oxygen uptake in the lungs, is a gas that dilates blood vessels. Becaue nitric oxide is made in the sinuses, circumventing the nose (by breathing through the mouth) results in a reduction of 10-20% oxygen intake

- In order to compensate for this lack, and a feeling of breathlessness that results, mouth-breathers are prone to engage in shallow, more rapid breathing, otherwise known as Hyperventilation.

Image: Pixabay

Breathing

Shallow breathing - a defense against underlying anxiety

- Breathwork therapies are based on what the pioneer of psycosomatic medicine, Wilhelm Reich, M.D. (1897-1957), discovered in the early and mid 1900s - that shallow breathing is a chronic body defense used to reduce subconscious anxiety. After extensive research, he found that breath therapy could not only cure certain neurotic symptoms, but through the “liberation of powerful suppressed emotions”, also “produce a condition of joyous inner freedom”.

- Another pioner in this field, Stanislav Grof, a psychiatrist who has done extensive clinical research in Big Sur and the San Francisco Bay Area, found that by encouraging both the depth and rate of breathing, breathwork most effectively “loosens the psychological defenses and leads to release and emergence of the unconscious (and superconscious)” material.

- The majority of participants in Grof’s seminars and workshops reported that this powerful healing tool waws “far superior” to other forms of verbal therapy that they had esxperiencd in the past such as counseling, psychoanalysis, or traditional psychotherapy.

- Radical Medicine, Louisa Williams

Image: Pixabay

Breathing

Parasympathetic Deep Breathing Rescues Sympathetic Stress

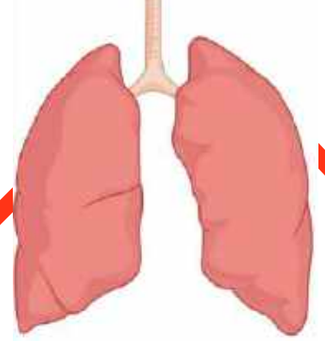
- These charged and significant memories that do not heal over time simply remain. Initially, they are laid down in the body by the flooding of the ACTH hormone. However, they continue to exist in the psyche through the strong neuromusculoskeletal freeze response and chronic holding patern that was established in reaction to the original shock of the trauma and overwhelming threat. Without significant therapeutic intervention, these memories remain for the most part just below conscious awareness, intermittently exacerbated by life's inevitable struggles.

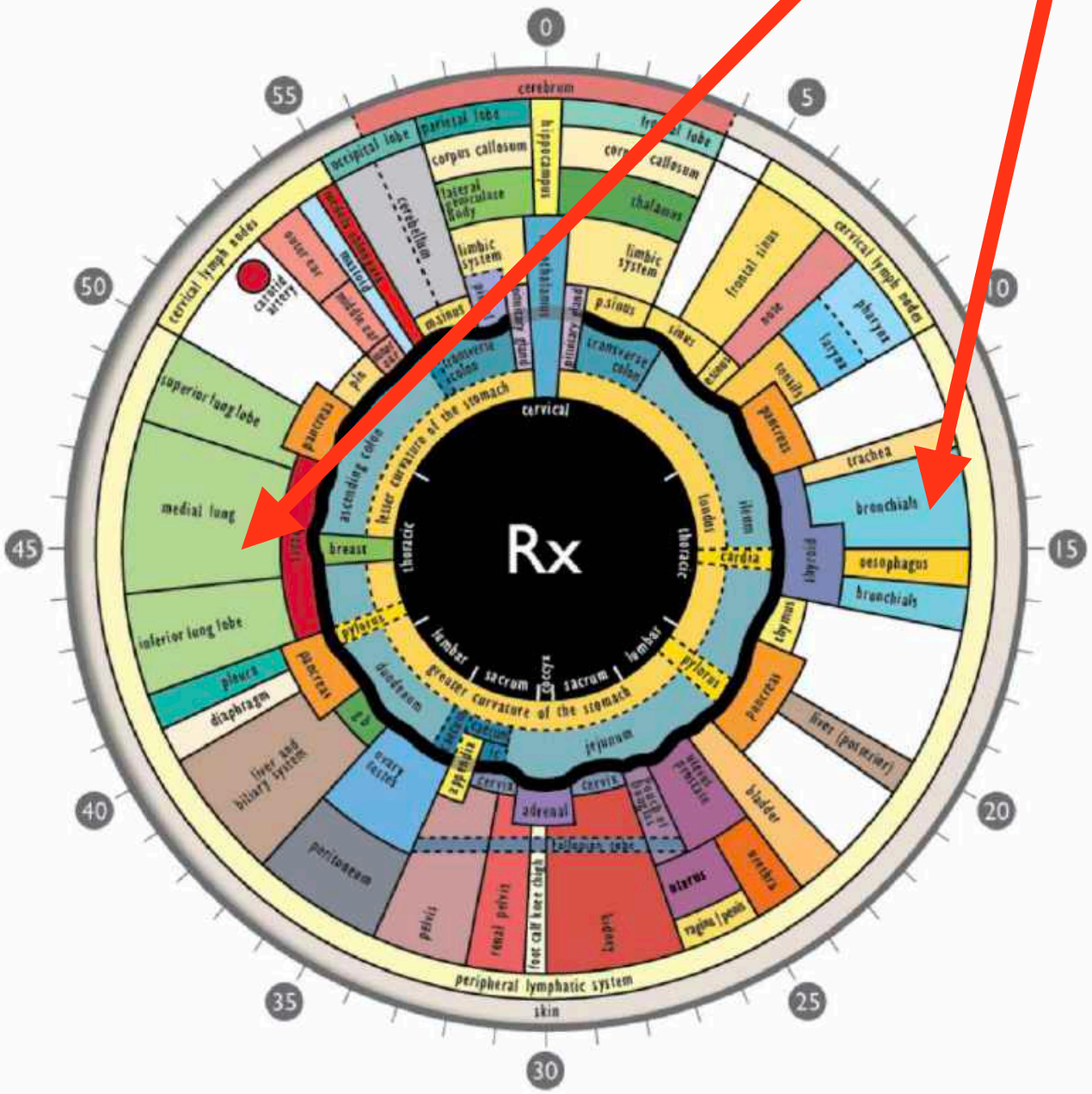
- However, during breathwork, this overlay of chronic sympathetic nerve stress can be brought to one's attention by the opposite action - the parasympathetic action of breathing deeply. In fact, Wilhelm Reich believed so fully in the healing effecs of this "rest and relax" portion of the autonomic nervous system (as opposed to the "fight or flight" sympathetic nervous system) that he even asserted that "the Unconscious is located in the parasympathetic nervous system".

  - *Radical Medicine, Louisa Williams*

- Note: breathing light still involves deep slow breathing, it is a BIG intake of breath that one wants to avoid, as opposed to deep.

Image: Pixabay





© Gut Feelings

John Andrews Iris Charts

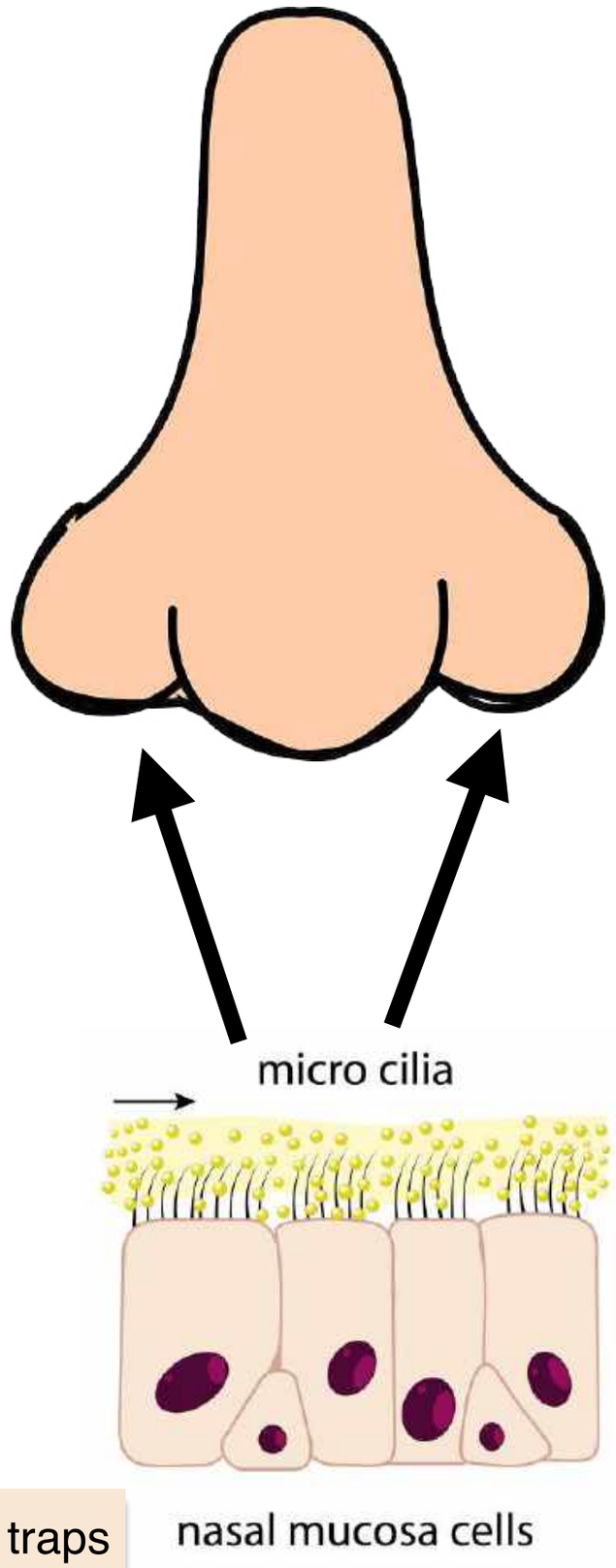
Rhinopathologies

Functions of the nose and nasal mucus membrane

- Cleaning / filtering the air
- Moistening the air
- Warming the air
- Sense of smell
- The nasal cavity as a sound box

The nasal physiological functions, such as warming and humidification, are vital for upper airway function. It has been estimated that an adult inhales/exhales up to 10,000 liters of air daily (Kerr, 1997).

Nasal breathing is healthy breathing, as the air is treated in many ways by the structures of the nasal cavities, paranasal sinuses and the peculiarities of their lining mucosa



Nasal mucus traps incoming particulate matter

Image: Pixaxay

Rhinopathologies

Functions of the nose and nasal mucus membrane

- Cleaning / filtering the air - nasal mucus traps incoming particulate matter

- Moistening the air - highly vascular mucosa warms and humidifies incoming air, increasing the relative humidity to 95% before air reaches the nasopharynx.

- Warming the air - Inhaled air must be between 33 and 35 degrees C to avoid pathological reactions at the level of the alveoli. Cold air imakes contact with the warm surface of the mucosa and is heated. Underlying capillaries dilate and warm up upper laying mucosa, imparting more heat to passing air.

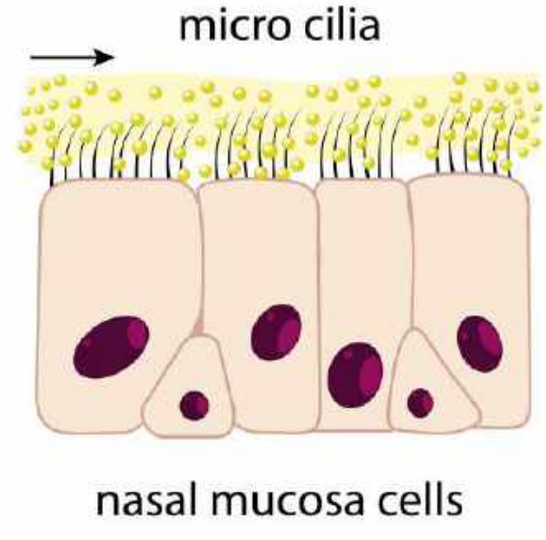
- Sense of smell - Sniffing allows environmental particles to reach the olfactory system located at the base of the skull. Olfactory receptors can detect minute which warn us of impending danger, from food, fire, etc.

- The nasal cavity as a sound - nasal aerodynamics may have a role in modifying high-frequency sounds and consonants (Kerr, 1997). The resonance created within the nasal cavity is similar to a finger print, different for each person(except identical twins). Nasal pathologies such as polyps or rhinitis directly influence the resonance spectrum.

If we breathe through the mouth, the above does not happen.

Source: Heel

Rhinopathologies



2 types

- Rhinitis
- Sinusitis

Both are very common pathologies seen in general practice and antihomotoxic therapy has shown to be very effective in treating them.

The nasal cavity is covered with a highly vascular mucosa which will warm and humidify incoming air. Polyps may also develop between the turbinates, often in association with allergy, asthma, cystic fibrosis or even with aspirin use/abuse.

Source: Heel

Rhinopathologies

Acute Rhinitis (common cold) - inflammation of the nasal mucosa
Redness – swelling – hypersecretion Subjective: nasal discharge (rhinorrhea) – sneezing – congestion –discomfort etc. depending on the cause.

Causes: Rhinoviruses (over 100 serotypes) (in about 50% of 'colds'). Other viruses may include: coronaviuses, influenza, parainfluenza and syncytial viruses (these may present initially as common 'cold') Bacterial infections: include staphylococcal, streptococcal and pneumococcal. Upper respiratory infection

Causes: -

- Upper respiratory infection
- Common cold
- Hay Fever
- Bacterial Infections
- Medications (rhinitis medicamentosa")
- Influenza

Allergic rhinitis

- From an allergen, dust, pollen, food intolerance
- Non purposeful inflammation (unlike acute rhinitis e.g. cold)
- TH2

Source: Heel

Acute Rhinitis

Symptoms:

- Stuffiness
- Sore throat
- Laryngitis, tracheitis, bronchitis all of which may follow.
- Headache
- Runny nose
- Dry nose - after a few days the nose can “dry up”, causing breathing difficulties.
- Cough - not directly related to the inflammation of the nasal mucosa but a consequence of the type of micro-organism infecting the body or to a progressive respiratory infection that reaches the nasopharynx and beyond.
- Malaise, tiredness
- Loss of appetite

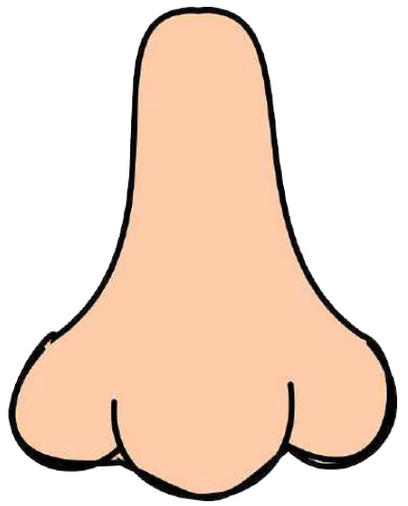
Source: Heel

Breathlessness

Worth noting that the following may also cause breathlessness which should become clear in a detailed history taking, and especially with muscle response testing (kinesiology): -

- Low Vitamin B12
- Low folate
- Low iron
- Respiratory conditions
- Heart conditions
- Hypoglycaemia
- Hyperthyroidism
- Hypothyroidism
- Severe Sepsis
- Hypoadrenalism / Addison's disease
- Medications
- Breathlessness on exertion - decreased Rakta Dhatu, increased Meda Dhatu
- Sudden breathlessness: red flag condition

Common Cold Metaphor



- A cold serves to tell you that external forces too easily influence you
- Message from the body that it is time to let go
- Will often manifest as a result of congestion on a mental level, especially when there is so much going on in your head that you don't know which way to turn
- Feel someone or a situation is walking all over you / thrust upon you
- Tend to get caught up in unimportant details
- You want to see everything completed before you have begun
- You have become "a-head" of yourself
- Mental confusion blocks your view of your needs - unable to live in the moment
- Perhaps there is someone you dislike and the cold is your body's way of keeping the person away from you

From Your Body's Telling you to love yourself by Lise Bourbeau

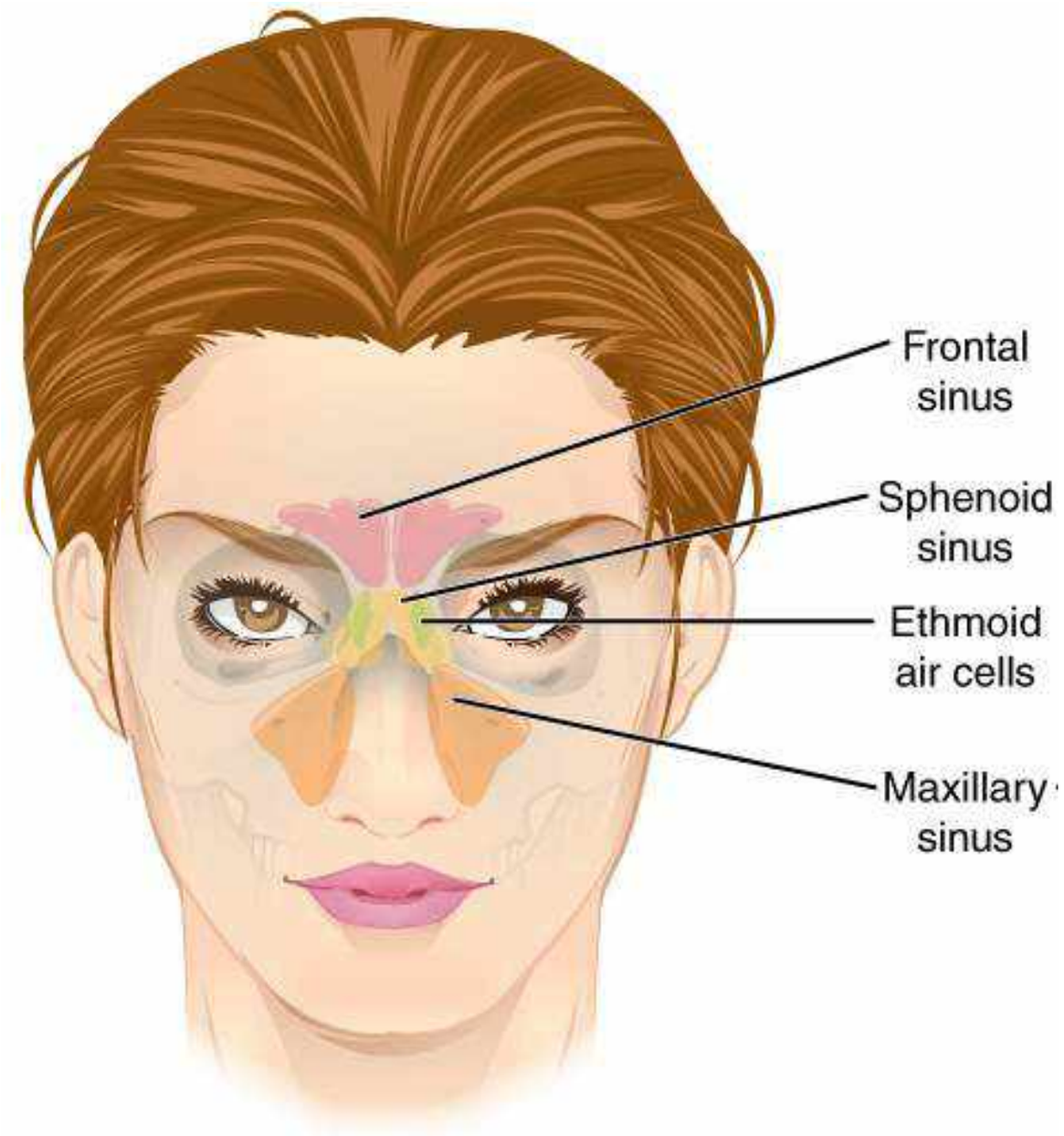
Nose Image: Pixabay

Paranasal Sinuses

Sinus is a sac or cavity in any organ or tissue

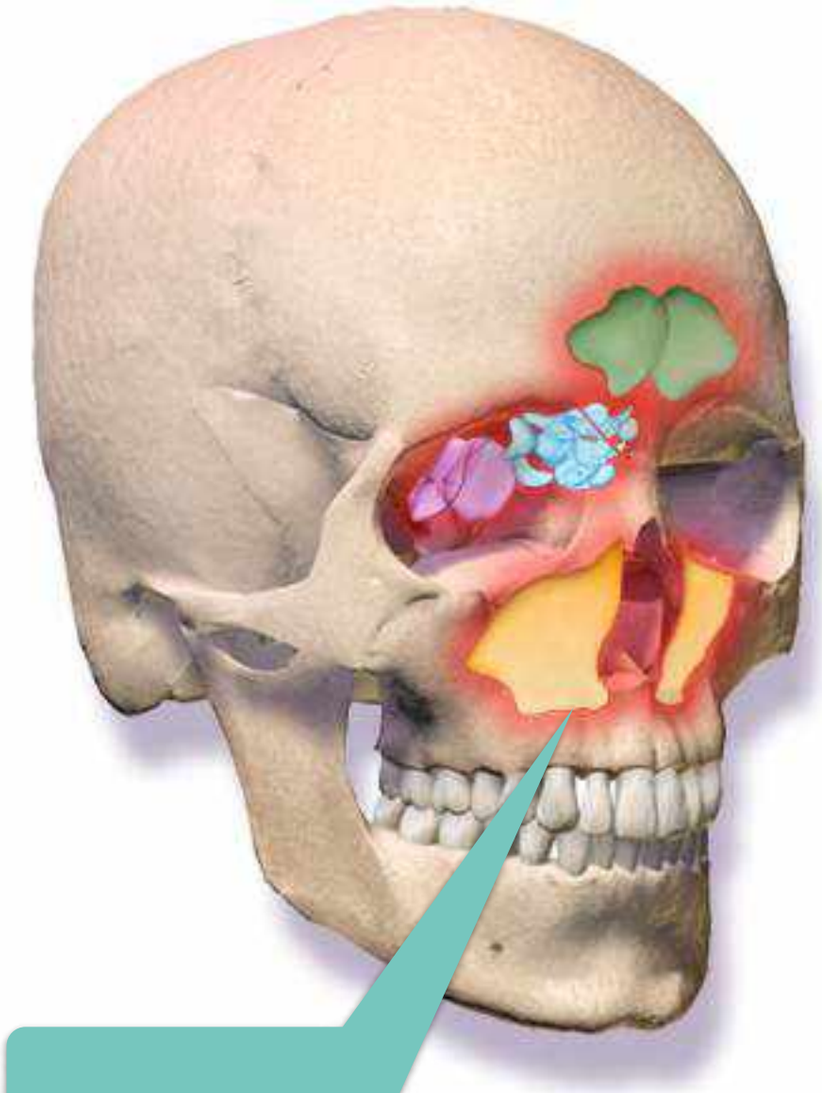
- **Paranasal sinuses** are a group of four paired air-filled spacesthat surround the nasal cavity The maxillary sinuses are located under the eyes, the frontal are above the eyes; the ethmoidal sinuses are between the eyes and the sphenoidal are behind the eyes. The sunyses are named for the facial in which they are located.

- The physiological functions of the nose nasal such as warming and humidification, are vital for upper airway function. It is estimated that an adult inhales/exhales up to 10,000 litters of air daily (Kerr, 1997). As the air is treated in many ways by the structures of the nasal cavities, paranasal sinuses and the peculiarities of their lining mucosa, nasal breathing is healthy breathing.



By OpenStax College - Anatomy & Physiology, Connexions Web site. http://cnx.org/content/col11496/1.6/, Jun 19, 2013., CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=30850944

Sinuses



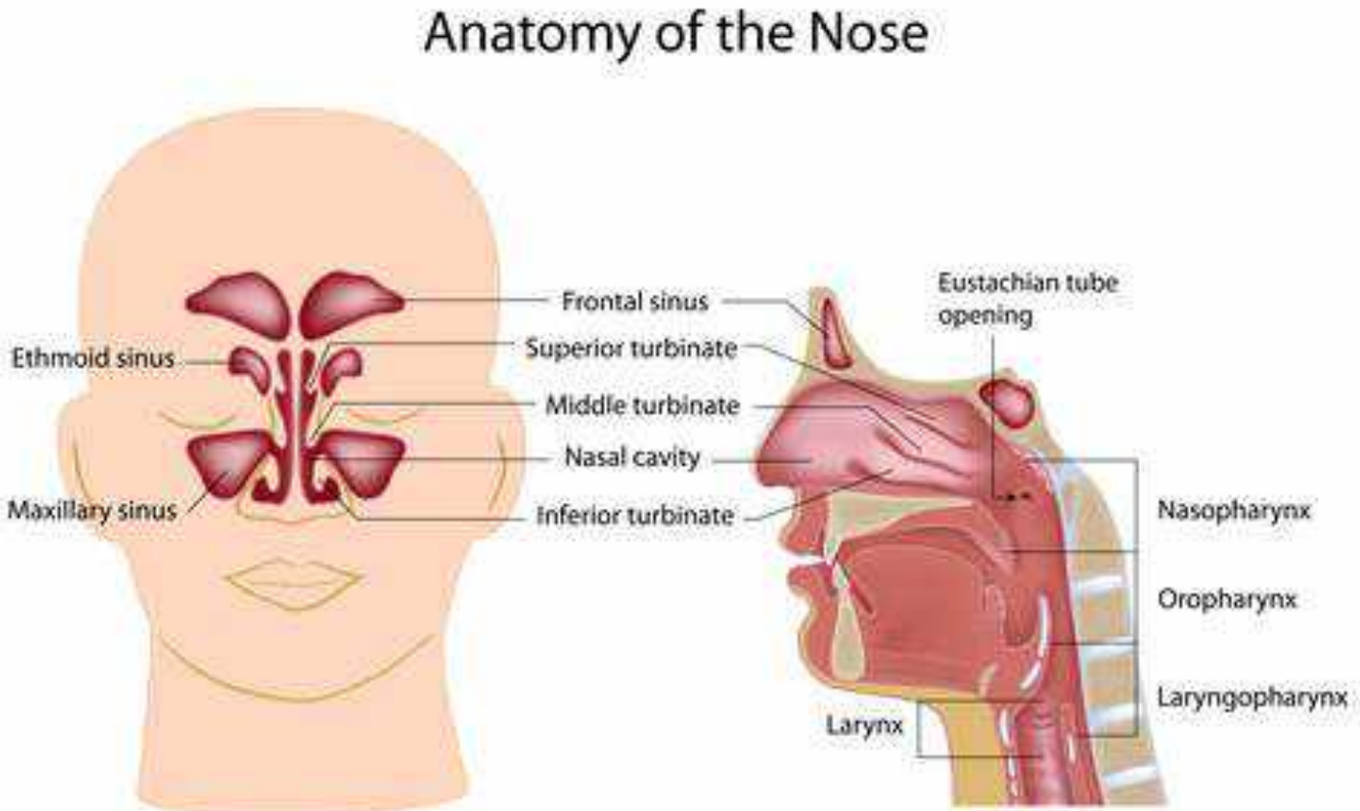
Note how close the **maxillary sinuses** are to the front teeth

Chronic Sinusitis

Most cases of acute, short lived, sinusitis are viral, and not bacterial - antibiotics therefore having no effect - and generally begin with a cold or seasonal allergies. However, it could also be fungal.

Chronic Sinusitis is when it lasts for more than 12 weeks with usually several of the following symptoms

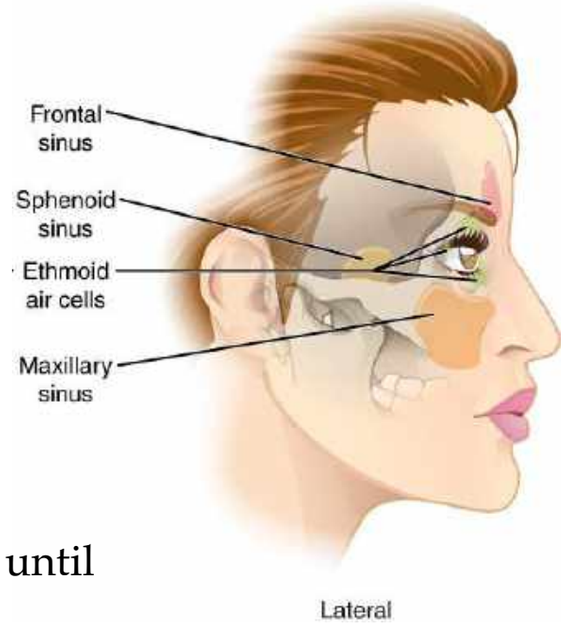
- Nasal / Facial congestion
- Pain / tenderness
- Nasal obstruction
- Swelling around the eyes
- Reduced sense of smell and taste
- Discharge from the nose - thick, green / yellow
- Sore throat
- Upset stomach



Chronic Sinusitis vs. TMJ: How to Tell the Difference
https://www.beyondexceptionaldentistry.com/blog/sinusitis-vs-tmj/

Peppermint: 1 drop on the tongue or in water helps respiration and lowers blood pressure and helps to open up the sinus cavity - *TSOH course notes*

Sinusitis - Potential contributing factors

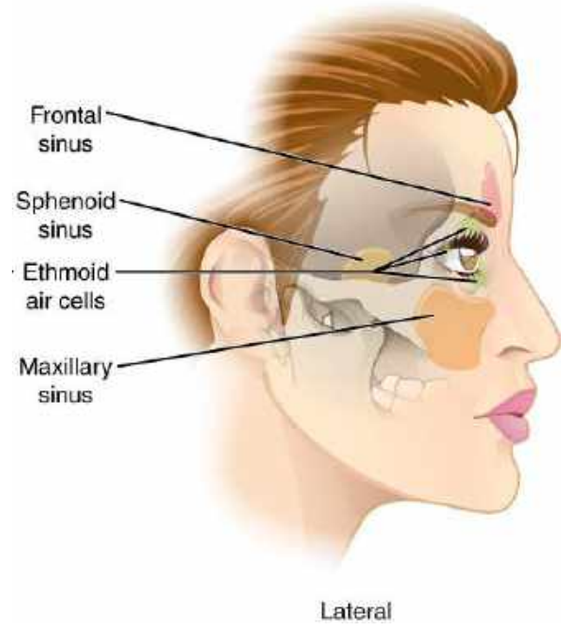


Lateral

- Tubercular miasm
- Food Allergies
- Dairy and sugar (Kapha)
- Sluggish liver detox - peroxides spilling into lymph - faster Phase I than Phase II
- Sinus pain may actually be a type of migraine (referred pain)
- Displaced vertebrae (the 2nd vertebra of the neck) or atlas misalignment
- Forward head position
- Mouth breathing
- Large adenoids
- Dental focus
- Tonsil focus
- Sluggish lymphatic system
- TMJ problem (TMJ & sinus issues can cause overlapping symptoms
- Trauma to the nose
- Abnormal nose structure / deviated septum
- HIV, cystic fibrosis
- Smoking
- Cleft pallet
- Low stomach acid
- Pancreatic enzyme deficiency
- Dysbiosis
- Oral Candida
- Mercury fillings - oral candida may not go until amalgams removed
- Allergies (TH2 rigidity)
- Exposure to mould
- Exposure to allergens at work / home
- Foreign objects in the nose
- Zone of disturbance in the head region of the bed may play a part (energy lines, electricity, Fung Shui, water veins, Curry or Hartmann lines, ground radiation etc. - Moon Time by Johanna Paungger & Thomas Poppe
- Lung meridian - exploure emotions, sometimes unconscious. Connection with lungs and large intestine - Metal Element. Emotion = grief, guilt, sadness, regret. May be worse in Autumn / Metal season
- Sinus problems are often associated with the large intestine.
- When we are unsure of ourselves or lose confidence, the sinuses are the first body function to suffer (Diana Mossop). **Indigo is the colour of the sinus pathway - Third Eye / Brow Chakra Colour**

Image: Pixabay

Sinusitis

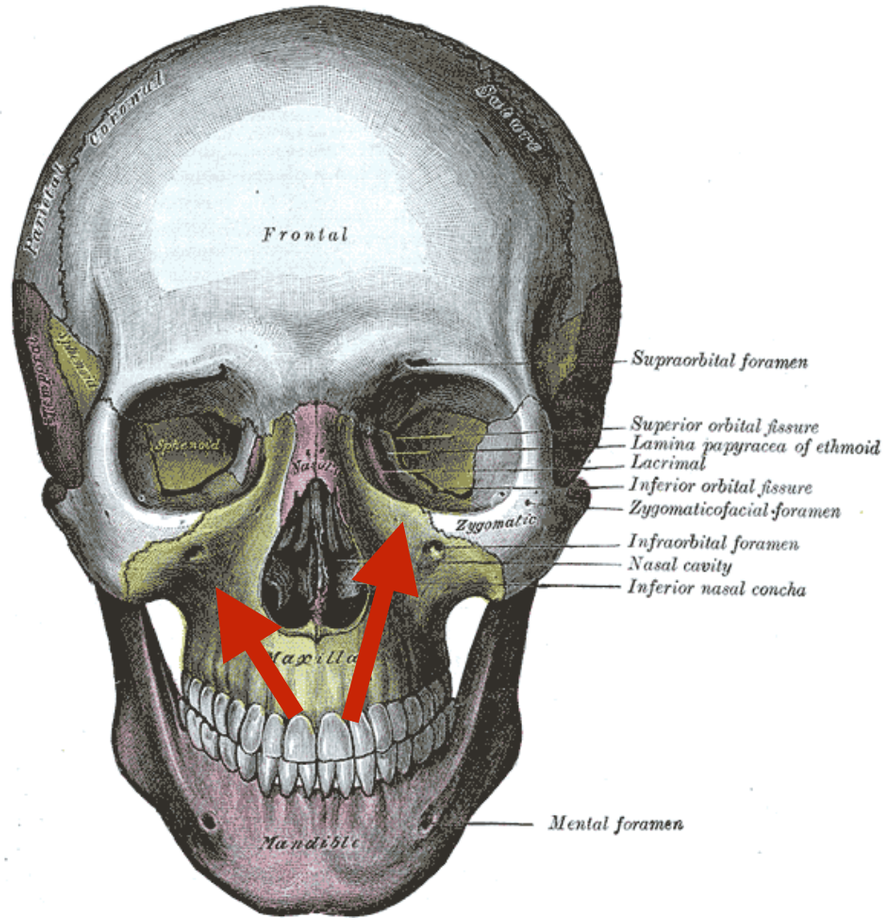


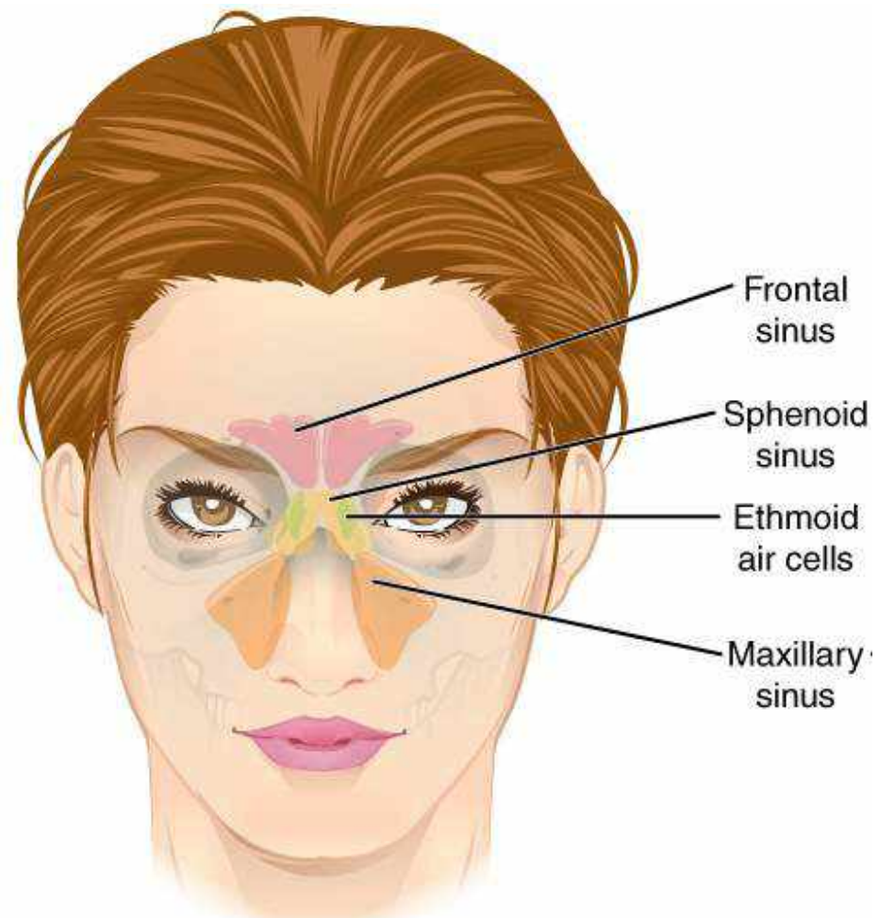
Lateral

Supplements / therapies that may help - depends on the root cause

- Ginger (anti inflammatory)
- Echinacea (antiviral)
- Elderberry / Elderflower (antiviral)
- Garlic
- Mastic Gum (Bionutri) - chew
- Vitamin C
- Bromelain (Ecogest)
- NAC (N-Acetyl Cysteine)
- Kali mur tissue salts (mucus membrane tonic) to help the lungs and sinuses
- Silica tissue salts for sinus infections - inflamed, painful
- Rosemary (tea / inhalation) - not with epilepsy
- Thyme (tea / inhalation)
- Garlic
- Horseradish to clear nasal passages
- Grapefruit seed extract spray inhalation
- Humidifier
- Neti pot / sinus flush
- Nasal strips - help to open the nasal passages
- Atlas or TMJ realignment
- Check dental
- Consider allergies
- Unblocking the nose Buteyko exercise
- Nasal sprays (inc Homotoxicology sprays)
- Emotional support - Bach Flower Remedies, Phytobiophysics FF6 (Indigo specrum) and FF10 (Nicotania “Breath of Life:)

- **Steam inhalation: a few drops of oregano, peppermint, eucalyptus in boiling water. Towel over head and breathe in the steam.**
- **Rub 1 drop peppermint or eucalyptus on roof of the mouth (food grade). Then drink water, or diffuse these and breathe in.**
- **Triple water enema to aid movement in the body**
- **Short Hot “stimulating heating: wet pack - less than 5 minutes (over this time > 5 mins it becomes a long hot and is “depressive” - opposite effect). Ideal hot application is 38 °C**





Chronic sinus conditions that do not respond to a treatment protocol suggests that a chronically infected tooth or implant is possibly causing the condition. Chronically infected sinuses are often adjacent to a chronically infected tooth in the upper jawbone, or maxilla

In many the sinuses are not the primary focus but the disturbed field of an upper dental focus (maxillary jawbone) - a spread from a dental focus into the sinuses.

Hay Fever (Allergic Rhinitis) - Inflammation stage of DET

HEALTH ← **Status of Regulation / Deregulation** → **DISEASE**

		Humoral Phases		Matrix Phases		Cellular Phases	
	Organ System/Tissue	Excretion Phase	Inflammation Phase	Deposition Phase	Impregnation Phase	Degeneration Phase	Dedifferentiation Phase
ECTODERMAL	1. EPIDERMAL	Increased Sweating, Cerumen, Sebum, Smegma	Dermatitis, Impetigo, Abscess, Furuncle, Otitis externa	Hyperkeratosis, Seborrhoic eczema, Naevus, Skin Tags (soft wart)	Atopic eczema, Urticaria, Warts, Fissura ani, Acne rosacea, Hirsutism	Psoriasis, Decubitus ulceration, Radiation injury, Pemphigus vulgaris	Squamous cell carcinoma, Basal cell carcinoma, Melanoma
	2. ORODERMAL	Hypersalivation, Hyperlacrimation	Otitis media, Pharyngitis, Stomatitis, Gingivitis, Apthous ulceration, Glossitis, Rhinitis (acute), Sinusitis (acute), Laryngitis, Dental abscess	Nasal polyp, Eustachian tube catarrh (serous otitis media), Dental granuloma	Atopic Rhinitis, Hay fever, Sinusitis (cheonic), Rhinitis (iatrogenic), Anosmia, Menière's syndrome, Hypoacusis	Otosclerosis, Deafness (transmission), Ozaena, Atrophic rhinitis, Dental caries, Parodontosis	Leucoplakia (orodermal), Cancer of the tongue, Laryngeal cancer, Nasopharyngeal cancer, Tracheal cancer
	3. NEURODERMAL PNS and CNS	Increased secretion of neurotransmitters	Neuralgia, Neuritis, Polyneuritis, Meningitis, Encephalitis, Trigeminal neuralgia (acute)	Neuroma, Amyloid deposition, Heavy metal deposition	Epilepsy (petit mal), Paresis, Tics, Neuritis (toxic), Attention-Deficit/Hyperactivity Syndrome (ADHS), Guillain Barré syndrome, Poliomyelitis (acute), Trigeminal neuralgia (chronic)	Parkinson disease, Epilepsy (grand mal), Alzheimer's disease, Multiple Sclerosis, Amyotrophic Lateral Sclerosis, Peripheral Neural Atrophy, Diabetic neuropathy, Neurofibromatosis	Glioma, Meningioma, Astrocytoma
	4. EYE		Conjunctivitis (acute)	Pterygium, Mouche volante (floaters), Iris spot (initial)	Uveitis, Allergic conjunctivitis, Iris spots (chronic) Iritis, Astigmatism, Myopia, Presbyopia, Keratoconus, Pannus, Arch (senile)	Glaucoma, Cataract, Hemianopsia, Macular degeneration, Paralytic mydriasis	Retinal cancer, Retinoblastoma
	5. SYMPATHICODERMAL	Increased adrenalin and noradrenaline secretion	Flushes, Hypervagotony, Hypersympathicotonus	Ganglion neuroma	Dysautonomia (including Orthostatic hypotension)	Addison's disease, Reflex sympathetic dystrophy (RSD) or (Sudek's syndrome), Horner's syndrome	Pheochromocytoma, Neuroblastoma
ENDODERMAL	6. MUCODERMAL 1. Respiratory	Sputum	Bronchitis (acute), Tracheitis	Nasal polyp	Bronchitis (asthmatic), Chronic tracheitis (viral), Cystic fibrosis	COPD (cheonic obstructive pulmonary disease), Atrophy of bronchial mucosa	Tracheal cancer, Bronchial cancer
	6. MUCODERMAL 2. Digestive	Increased digestive juices	Oesophagitis (acute), Gastritis (acute), Gastroenteritis (acute), Colitis	Gastric polyps, Intestinal polyps, Obstipation, Melanosis of the colon	Gastric ulcer, Duodenal ulcer, Gluten enteropathy(mild), Leaky Gut Syndrome, Dysbiosis	Crohn´s disease, Colitis ulcerosa, Atrophy of the small intestinal villi, Gluten enteropathy (severe)	Barret's esophagus, Esophageal cancer, Gastric cancer, Duodenal cancer, Rectal cancer
	6. MUCODERMAL 3. Urogenital	Increased mucous production	Bartholinitis, Cystitis, Urethritis, Infections of the urogenital mucosa	Bladder polyps, Uterine polyps	Interstitial cystitis	Atrophy of the urogenital mucosa	Bladder cancer, Cervical carcinoma
	7. ORGANODERMAL 1. Exocrine Sexual	Lactorrhoea	Mastitis	Mammary cysts, Breast calcifications	Mammary fibroadenoma, Fibrocystic mastopathy	Breast atrophy, Gynecomastia	Mammary carcinoma
	7. ORGANODERMAL 2. Exocrine Digestive	Increased bile salt secretion, Increase gastric acid secretion	Pancreatitis, Sialitis	Cholelithiasis, Steatosis hepatica, Pancreatic calcifications, Pancreatic cysts, Liver cysts, Wilson's disease, Salivary gland calcifications	Chronic hepatitis, Chronic pancreatitis, Viral pancreatitis (e.g. Mumps), Alcoholic hepatitis, Cystic fibrosis	Hepatic cirrhosis, Hepatic iatrogenic disease	Liver cancer, Pancreatic cancer
	7. ORGANODERMAL 3. Respiratory		Acute pulmonary abscess, Pneumonia	Bronchiectasis, Pneumoconiosis	Bronchial asthma, Cystic fibrosis	Emphysema, Chronic pulmonary abscess, Interstitial fibrosis of the lung, Fungal balls	Pulmonary cancer
	4. Endocrine	Increased thyroid hormones, Parathyroid hormones, Thymic hormones, Insulin, Glucagon, Enteric hormones, Cortico suprarenal hormones, Adeno hypophyseal hormones	Thyroiditis , e.g. de Quervain's thyroiditis	Thyroid cysts, Adrenal cysts, Adrenal adenoma Hypophyseal adenoma , Thymoma, Insulinoma, Parathyroid gland adenoma, Thyroid goiter, Adrenal adenomas	Grave's disease, Hashimoto's disease (1st stage), Puerpural thyroiditis, Cushing's syndrome, Precocious puberty, Adrenal exhaustion	Hashimoto's disease (2nd stage), Riedel's thyroiditis, Parathyroid atrophy	Thyroid cancer, Parathyroid cancer, Adrenal cancer, Carcinoid syndrome

DIFFERENTIATION DIVISION

Hay Fever Metaphor

- Tends to occur annually in the spring, indicating the reawakening of an old wound that occurred during that season when the hay fever first began

- You refused to address a difficult experience that occurred at that time.

- Relelase of pollen every spring triggers the memory and reopens the emotional wound

- Body telling you it is time to go through the process of forgiviness

- The other person is not responsible for your pain, you can choose your reaction

- Only true forgiveness will transform what you are experencing

From Your Body's Telling you to love yourself by Lise Bourbeau

Acute Bronchitis - Inflammation Stage of DET

Bronchitis (asthmatics) Impregnation stage of DET

HEALTH ← Status of Regulation / Deregulation → DISEASE

		Humoral Phases		Matrix Phases		Cellular Phases	
	Organ System/Tissue	Excretion Phase	Inflammation Phase	Deposition Phase	Impregnation Phase	Degeneration Phase	Dedifferentiation Phase
ECTODERMAL	1. EPIDERMAL	Increased sweating, Cerumen, Sebum, Smegma	Dermatitis, Impetigo, Abscess, Furuncle, Otitis externa	Hyperkeratosis, Seborrhoic dermatitis, Naevus, Skin Tags (soft fibroma)	Atopic eczema, Urticaria, Warts, Fissura ani, Acne rosacea, Hirsutism	Psoriasis, Decubitus ulceration, Radiation injury, Pemphigus vulgaris	Squamous cell carcinoma, Basal cell carcinoma, Melanoma
	2. ORODERMAL	Hypersalivation, Hyperlacrimation	Otitis media, Pharyngitis, Stomatitis, Gingivitis, Apthous ulceration, Glossitis, Rhinitis (acute), Sinusitis (acute), Laryngitis, Dental abscess	Nasal polyp, Eustachian tube catarrh (serous otitis media), Dental granuloma	Atopic Rhinitis, Hay fever, Sinusitis (cheonic), Rhinitis (iatrogenic), Anosmia, Menière's syndrome, Hypoacusis	Otosclerosis, Deafness (transmission), Ozaena, Atrophic rhinitis, Dental caries, Parodontosis	Leucoplakia (orodermal), Cancer of the tongue, Lacryngeal cancer, Nasopharyngeal cancer, Tracheal cancer
	3. NEURODERMAL PNS and CNS	Increased secretion of neurotransmitters	Neuralgia, Neuritis, Polyneuritis, Meningitis, Encephalitis, Trigeminal neuralgia (acute)	Neuroma, Amyloid deposition, Heavy metal deposition	Epilepsy (petit mal), Paresis, Tics, Neuritis (toxic), Attention-Deficit/Hyperactivity Syndrome (ADHS), Guillain Barré syndrome, Poliomyelitis (acute), Trigeminal neuralgia (chronic)	Parkinson disease, Epilepsy (grand mal), Alzheimer's disease, Multiple Sclerosis, Amyotrophic Lateral Sclerosis, Peripheral Neural Atrophy, Diabetic neuropathy, Neurofibromatosis	Glioma, Meningioma, Astrocytoma
	4. EYE		Conjunctivitis (acute)	Pterygium, Mouche volante (floaters), Iris spot (initial)	Uveitis, Allergic conjunctivitis, Iris spots (chronic) Iritis, Astigmatism, Myopia, Presbyopia, Keratoconus, Pannus, Arch (senile)	Glaucoma, Cataract, Hemianopsia, Macular degeneration, Paralytic mydriasis	Retinal cancer, Retinoblastoma
	5. SYMPATHICODERMAL	Increased adrenalin and noradrenaline secretion	Flushes, Hypervagotony, Hypersympathicotonus	Ganglion neuroma	Dysautonomia (including Orthostatic hypotension)	Addison's disease, Reflex sympathetic dystrophy (RSD) or (Sudek's syndrome), Horner's syndrome	Pheochromocytoma, Neuroblastoma
ENDODERMAL	6. MUCODERMAL 1. Respiratory	Sputum	Bronchitis (acute), Tracheitis	Nasal polyp	Bronchitis (asthmatic), Chronic tracheitis (viral), Cystic fibrosis	COPD (chronic obstructive pulmonary disease), Atrophy of bronchial mucosa	Tracheal cancer, Bronchial cancer
	6. MUCODERMAL 2. Digestive	Increased digestive juices	Oesophagitis (acute), Gastritis (acute), Gastroenteritis (acute), Colitis	Gastric polyps, Intestinal polyps, Obstipation, Melanosis of the colon	Gastric ulcer, Duodenal ulcer, Gluten enteropathy(mild), Leaky Gut Syndrome, Dysbiosis	Crohn´s disease, Colitis ulcerosa, Atrophy of the small intestinal villi, Gluten enteropathy (severe)	Barret's esophagus, Esophageal cancer, Gastric cancer, Duodenal cancer, Rectal cancer
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DIFFERENTIATION DIVISION

Bronchitis Metaphor

- Metaphysically, the bronchia are representitive of family
- Often occurs when goiong through family crisis, quarrelling
- Feel a violation of your space, irritated with the situation around you
- Want to cut off contact with others who are irritating you
- Guilt stops you from branching out on your own
- Life is not what you want it to be, but don't want to share it with anyone
- Important for you to take your rightful place in the family
- Realise that no family lives in complete harmony all the time
- You do not have to share your family's opiinions
- Branch out, be true to yourself, react to others honestly

From Your Body's Telling you to love yourself by Lise Bourbeau

Asthma

Potential contributing factors / Root causes

- Adrenal Fatigue
- Excess vata - dryness in lungs
- Blood sugar imbalance - hypoglycaemia (Spleen Meridian - Earth Element)
- High histamine - low glucose = high histamine = methlation needed to clear histamine
- Low Vitamin B6
- Low magnesium
- When histamine increases, so does asthma, hay fever and skin rashes. Histamine abd glucose are on different ends of the sea saw. If glucose drops, histamine rises, and vice versa
- Dysbiosis
- Low stomach acid: Sir John Floyer, in his 'A Treatise of the Asthma', who made the connection between asthma and low stomach 'juices' (acid). Sadly, this observation has been largely forgotten or ignored in the quest for stronger drugs to alleviate asthma. More recent research, in 1931 by Dr George W. Bray, confirmed that children who have asthma have lowered stomach acid.
- Leaky Gut
- Most will have a thyroid imbalance
- Chronic asthma - unexpressed grief (metal element - lung meridian)
- Underfunctioning detoxification system
- SIBO

Asthma

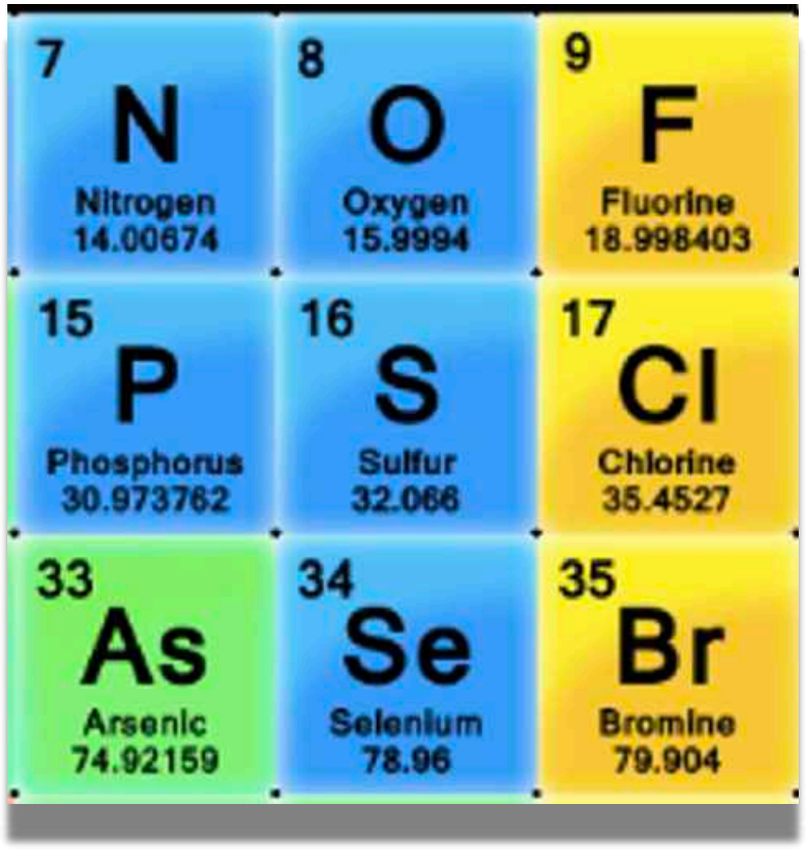
Potential contributing factors / Root causes

- Gluten (a grass) sensitivity, Cow's dairy (casein), other food intolerance / allergy
- Eggs (high in sulphur) can be a problem for some with asthma, depending on the root cause
- Low Vitamin D
- Atlas misalignment
- Mercury
- Aspirin (Acetasalicylic acid / ASA) and Iboprufen both inhibit COX enzymes reducing the eicosanoids that create pain. Since they do not block LOX enzymes, however, these drugs can result in more arachidonic acid being turned into leukotrienes and make someone more prone to asthma, allergies and anaphylactic shock.
- Sub-clinical Hiatus Hernia pushing upwards to the lungs - tight diaphragm due to stress, overweight, chronic constipation
- Low thymus gland - test in kinesiology is a weak infraspinatus muscle
- TH2 Rigidity
- Slow Oxidiser on a Hair Tissue Mineral Analysis
- If the lungs or kidneys are compromised look to the liver and before that, the colon – elimination - *Barbara Wren*
- Hyperventilation / overbreathing : there have been quite a few trials on Buteyko Breathing and Asthma which is mentyioned in the Buteyko Slides. People breathe harder when they have Asthma but when cured due to habit they carry on breathing hard = over-breathing and may need breathing retraining.
- See Saffron and Asthma research trial in the Brain slides in the herbal secdtion and Saffron slides and research which makes sense as saffron helps to calm the nervous system

Asthma & Sulfites / Sulphur

One of the first recorded adverse reactions triggered by sulphites dates back to the eruption of Mt Vesuvius in 79 AD, when Pliny the Elder, whose airways were "constitutionally weak and narrow and often inflamed", collapsed and died after inhaling the sulphurous gases emanating from the volcano

- Consider Sulfite sensitivity / sulfation pathway / molybdenum (excess copper) with asthma in a history taking.
- There are sulfites in many foods - processed meats, wines, dried fruits, but also hidden in things such as contact lenses.
- Sulfites can reduce Vitamin B1.
- There is an affinity of sulfite with heavy metals.
- SUOX gene: Sulfite oxidase converts sulfite to sulfate - requires Molybdenum and B1 as co- factors.
- Selenium, Vit D - cofactors for glutathione peroxidase, reduces sulfite induced mast cell degranulation.
- It is interesting to see that selenium is next to sulphur in the periodic table and perhaps one can also perhaps consider the levels or interactions between the other minerals close by such as floride or arsenic levels (my own assumptions). A hair tissue mineral analysis can be useful for looking at arsenic levels - selenium is needed to remove arsenic and can be low when arsenic is high. Selenium is also needed to produce glutathione.
- Maybe removing chlorine (17) from water - filtering water.
- We can also consider breathing and oxygen (8)

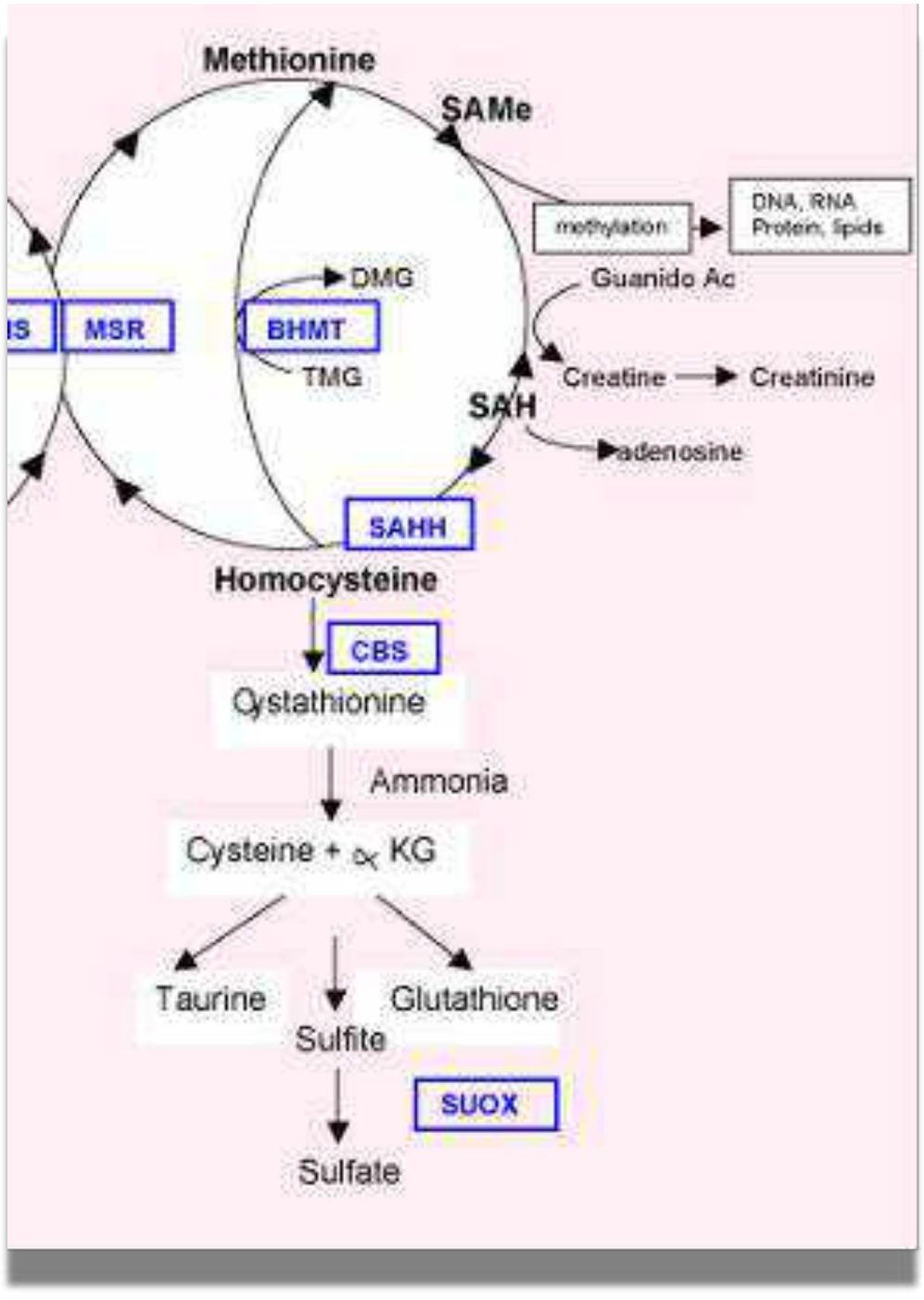


Asthma & Sulfites / Sulphur

- Boron, is an important mineral, especially for the bones, but it is also one of the key nutrients required by the sulfite oxidase enzyme. A test for boron on a hair tissue mineral analysis with Mineral Check can be added on for an extra few £ if requested.

- SAMe and other methylation support (possibly)

- Epsom salt baths (Magnesium sulfate) - may not always be helpful depending on what is going on with sulfation but fine for most clients.



Asthma & Sulfites / Sulphur

Symptoms

Sulfoxidation
Adverse reactions to sulfite additives, garlic, asparagus smelling urine
Extreme sensitivity to alcohol
Flushing
Headaches
Swelling
Ammonia smell, rotten egg smell
Burning pain/body pain (H_2S)
Bladder pain (H_2)
Hydrogen sulphate can be produced by bacteria in the large intestine and small intesting, which can be hyper-absorbed. A person can become sensitive to this, so not an actual sulplur sensitivity as such, they are sensitive to the high levels of hydrogen sulphide. The treatment means we have to reduce sulphur-containing substrates for these bacteria. Bladder pain think of oxalates and also sulphur.
Weight gain
Feeling "toxic"
Gas, bloating

Some Causes
High hydrogen sulfide from Sulfate reducing bacteria
Sulfur clearing pathway issues (often homozygous CBS) producing too many sulfites and ammonia.
Cystathionine-Beta-Synthase (CBS) is an enzyme which converts homocysteine into cystathionine, the first step of the transsulfuration pathway, and is encoded for by the *CBS* gene.
Heavy metal toxicity (affinity of sulfites to Heavy metals)
Symptoms often caused by mast cell degranulation from sulfites in preservatives
Some patients are sensitive to thiols (sulfur bonded to hydrogen)– in foods like kale, supplements NAC, cysteine, GSH

Sulphites and Vitamin B1 (thiamine)

- When sulphur dioxide dissolves, the disulphide chemical bonds that result break up certain protein molecules in food. Enzymes are proteins, and it is this ability of sulphites that enables it to preserve foods and prevent them browning.
- However, it also has a negative effect on the food in that it destroys thiamin which is essential to the nutrient value of the food.
- In the US government regulations forbid the use sulphites in high-protein foods that are a significant source of thiamin, especially meat of all types, cereal grains, and milk products. (Meats may be “washed” with a sulphite solution to prevent browning, but sulphites cannot be used as an additive.)
- Vitamin B1 is a sulphur containing vitamin.
- Biotin (Vitamin B7) is the second vitamin that contains sulfur.
- Methionine, cysteine, homocysteine and taurine are 4 of the common sulphur-comntaining amino acids.

Sulphite containing foods and food components

Sulphur dioxide (E220)
Occurs naturally, though may be produced chemically. Prevents browning by destroying plant enzymes.

Foods likely to contain E220:
Fruit juices, fruit pulp, fruit syrup, fruit salad, fruit spreads, fruit fillings
Glacé cherries, candied peel, dried bananas and apricots, jams and jellies, desiccated coconut, candied peel, dry ginger root
Dehydrated vegetables
Beer, wine, cider
Cider vinegar
Canned crabmeat
Fruit-based milk and cream desserts
Flavorings
Powdered garlic
Gelatin
Glucose
Soft drinks
Frozen mushrooms
Sausage meat

Sulphites

- We make sulphite from protein. Some amino acids contain sulphur. From these we make a chemical called homocysteine, which can damage arteries and unborn babies. From that we make cysteine, which is useful in fighting viruses, is part of a major antioxidant, and is needed to make other compounds which keep the heart beating smoothly. However, cysteine over-excites the brain, and is involved in asthma. Having made cysteine, we convert it to sulphite. In the past, sulphite was something we made in our bodies, but it was only one of the steps towards producing the sulphate we needed. Now many people consume sulphite from various foods and drinks, and their capacity to process it is inadequate.

- Respiratory symptoms caused by sulphites are thought to be caused by sulphur dioxide, which acts as a direct irritant on hypersensitive airways. Sulphur dioxide is released from sulphurous acid, which forms when sulphites dissolve in water. This effect is enhanced when the sulphite is present in an acidic food. People with asthma can suffer a severe bronchospasm after inhaling as little as one part per million of sulphur.

- Wheezing, flushing, and other symptoms of asthma have been caused by inhaling the vapours from a bag of dried apricots in which sulphur dioxide had been used as a preservative.

- Sulphate is good in the right place, and harmful in the wrong one.
  Some undigested protein reaches the large intestine. Those amino acids that contain sulphur provide sulphate for certain bacteria, which make hydrogen sulphide out of it.

- An enzyme called rhodenase should remove this hydrogen sulphide. If you are short of rhodenase, the hydrogen sulphide can damage the cells of the colon wall, causing ulcerative colitis.

Sulfites

Sodium sulphite (E221)
Sodium hydrogen sulphite (E222)
Sodium metabisulphite (E223)
Potassium metabisulphite (E224)
Used in food manufacture to sterilize fermentation equipment and food containers, and as preservatives to prevent browning especially of pre-peeled and sliced apples and potatoes. In some countries used to control microorganisms such as enterobacteria, especially salmonella. They are used for the preservation of the red colour of meat and shellfish, and as anti-microbial preservatives for alcoholic beverages. They are also an anti-oxidant and bleaching agent.
Foods likely to contain E221-4:
Preserved egg yolk
Caramel
Alcoholic beverages (beer, wine, cider)
Bleaching of cod
Bleaching of sugar
Quick-frozen shrimp, prawn, lobster
Quick-frozen French fries
Dehydrated instant mashed potatoes
Fruit and vegetable juices
Relishes and some condiments
Gelatin-containing puddings
Soft drinks
Pickled onions / red cabbage
Packet mashed potatoes
Dried fruits and nuts

Sulfites

Calcium sulphite (E226)
Calcium bisulphate (E227)

Used as preservatives, as firming agents in canned fruits and vegetables, as disinfectants in brewing vats. They prevent secondary fermentation in brewing, and are used in washing beer casks to prevent the beer becoming cloudy or sour. They are also firming agents in canned fruit and vegetables.

Foods likely to contain E226, E227:
Beer and cider
Fruit juices
Canned fruits and vegetables
Jams and jellies

Carageenan also contains sulphur

Sulfites

- Food-processing equipment and food packaging materials (e.g., plastic bags) may be sanitized with sulphites but these will not be listed on any labels. Sulphite-sensitives should avoid opening any packages likely to contain sulphites, especially sealed plastic bags containing dried fruits and vegetables.
- The ingredients in manufactured foods and pharmaceuticals change frequently so those with sulphite sensitivity should check the information for updates regularly.
- Cooking foods does not cause sulphites to lose their effect. Nor will washing, even with a detergent, remove all traces of sulphites because they bind to several substances in foods, such as protein, starch, and sugar.
- Sulfation is widely used in the production of consumer products such as detergents, shampoos, and cosmetics. Since the sulfate group is highly polar, its conjugation to a lipophilic "tail" gives surfacant-like properties. Well known sulfates are sodium lauryl sulfate and sodium lauryl sulfate.

Sulfites

- **Medications:** Sulphites are used in a wide range of medications and pharmaceuticals. The Compendium of Pharmaceuticals and Specialties (CPS) provides a list of sulphite-containing products. A pharmacist should be consulted about the possible sulphite in any medications as formulations change frequently.

- Steroids-containing inhaler. Steroids can make you more prone to react to sulfites, the same with oral steroids. Steroids will affect the adrenals. Those that "need" steroids, usually have adrenal fatigue.

- Sulphites are also used as preservatives in some medications, including inhalable and injectable drugs, where they act as antioxidants and prevent browning. Some forms of epinephrine (adrenaline) contain sulphite as a preservative. However, the action of epinephrine appears to overcome any adverse effects of sulphite, and administration of epinephrine in anaphylactic emergencies remains the recommended treatment.

- Very useful article on Sulfite sensitivity https://sulfitesabc.com/2017/05/03/5-key-supplements-for-suoxcbs/

Sulfites

Sulfite sensitivity

- In a few studies, sulphite-sensitive individuals have exhibited a positive skin test to sulphite which suggests an IgE-mediated reaction to the sulphite.
- Because the sulphite molecule is nonprotein and is too small to elicit an immunologically mediated reaction on its own, it has been suggested that sulphite acts as a hapten, combining with a protein in food to form a neoantigen that elicits antigen-specific IgE.
- Kinesiology can test for sulfite sensitivity if the Kinesiologist has vials for this in their test kit

Asthma

Potential contributing factors / Root causes

- Asthmatics cannot breathe deeply and to compensate will try to breathe faster. The result is that they may blow out half of the carbon dioxide they inhale instead of one-fifth. In many, this is a permanent state and a sort of acclimatisation takes place, with the body getting used to the lower level of carbon dioxide. But if they are then cured of their asthma, so that deep breathing becomes possible again, the faster breathing rate begins to cause serious problems as increased hyperventilation makes the carbon dioxide levels fall even further.

- Sleep apnoea / snoring / mouth-breathing/ hyperventilating will increase the sympathetic nervous system and imbalance blood sugar so will likely exacerbate symptoms.

Asthma

Suppression

- Predisposition to asthma, suppressed, can lead to ME

- If eczema is suppressed (e.g. corticoid ointment locally), the homotoxins that cause the eczema – the eczema is the biologically efficient defence against homotoxins expressed at the level of the skin – will be moved by the body to an alternative elimination channel. If these homotoxins are deposited in the bronchial cells with the intention of eliminating them via the respiratory tract, they will affect the respiratory system and can, for example cause bronchial asthma.

- Psoriasis and asthma often go together, when one is suppressed, it may lead to the other

- Triggers: cold air, physical exercise, air pollution, pollen, animals, chemmicals, tobacco smoke, moud, dust, viruses, stress

Asthma

Considerations: -

- Liquorice
- Lobelia tincture
- Passionflower (Passiflora) may relax muscular spasms in the lungs
- Homeobotanics R: Respiratory Remedy (if trained in them)
- Histamine clearance: liver, methylation
- Address any candida - candida and histamine share the same pathway
- Consider the emotional element and support: Bach Flower remedies, Australian Bush Remedies, Jan de Vries Flower Remedies, Phtobiophysics
- Adrenal support
- Gut microbiome support
- Blood sugar balance
- Hydration
- Support the metal element / lung meridian, spleen meridian as appropriate
- Vitamin D can halve the risk of a severe asthma attack, although the research is not yet clear if it benefits only those asthma sufferers who are already deficient in the vitamin. - Cochrane Database Syst Rev, 2016;9:CD011511

Asthma & Molybdenum

- Consider low molybdenum because it is needed for the sulfation pathway and clearance of sulfites, but it also lowers excess copper (also under the control of the adrenals), which is associated with insulin, candida, and mercury. Excess toxic copper is also a thyroid toxin. So we can see the potential connections here.

- To reduce excess toxic copper one needs wholefood vitamin C such as Cytoplan's Cherry C, or Bionutri's Vitamin C (not "ascorbic acid" in this particular instance) and zinc citrate, rather than piccolinate, according to Maria Allerton on her Hair Mineral Test course (from her own experience of lowering excess copper - she has Pyroluria and Gilbert's).

- Copper, insulin, histamine, candida, mercury and oestrogen tend to rise and fall together. Copper and zinc antagonise each other, so any kind of stress, emotional, environmental, structural, pain, infections, viruses, pain, low stomach acid, will contribute to lower zinc and higher copper. Those with PCOS usually have a slower sulfation pathway.

- Molybdenum is important for liver detoxification; in particular, for the pathway that detoxifies certain chemicals. If you have a client that complains of chemical sensitivity (e.g. they are affected by strong smells) then consider whether they may be lacking molybdenum. May be low with sulfite sensitivity, or methane SIBO (small intestine bacterial overgrowth).

Asthma & Molybdenum

- Molybdenum is a co-factor for the enzyme sulfite oxidase, which is necessary for the conversion of sulfite to sulfate - a metabolic elimination process that some people cannot do efficiently due to either genomic issues or molybdenum deficiencies. When this conversion is impaired, your patients can be more reactive to hydrogen sulfide and start to react to sulfur-containing foods .

- When molybdenum is insufficient, the body's xanthine oxidase function can be impaired, which can lead to low levels of uric acid in the blood and urine

- If you use Mineral Check for a Hair Tissue Mineral Analysis (HTMA), they will do a proper reading of molybdenum (ARL states that it does not although it does appear on a test, they say not to refer to it). I will very often see excess copper and low molybdenum on an HTMA because molybdenum is used up in the cleareance of copper. High calcium is a sign of hidden copper. Sometimes the copper does not appear on an HTMA until someone starts to follow a nutritional therapy programme and the toxic copper is dumped out of the tissues into the hair. Worth noting that high copper on a test is usually biounavailable, so a person could be low in biounavailable copper but high in excess toxic copper, and so going in too fast with zinc could imbalance this ratio too much. The zinc : copper ratio is known as the "mental" ratio.

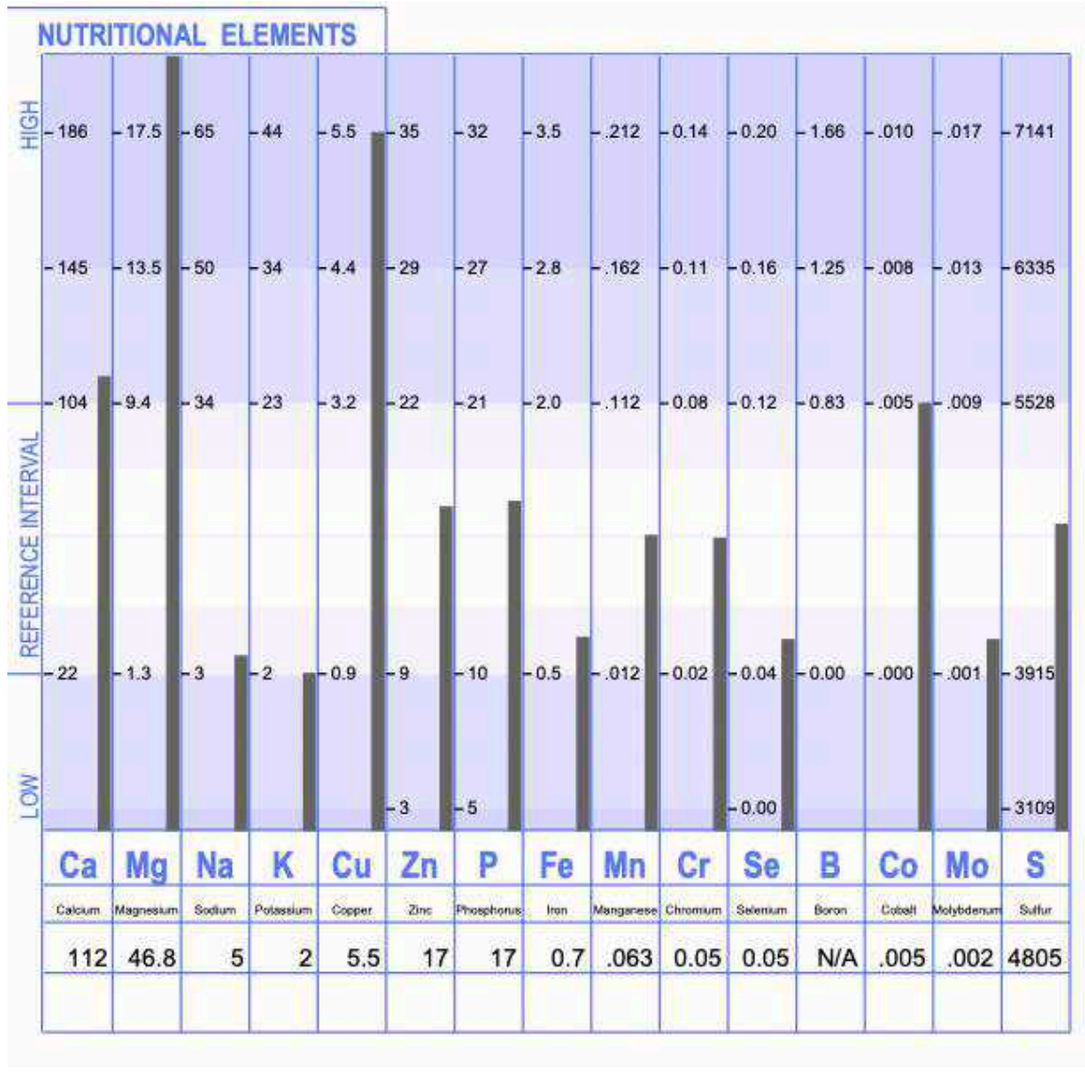
Asthma & Molybdenum

Ingredients: Purified Water, Sodium Molybdate, Acid (Citric Acid)

- If clients suffer from an over-production of hydrogen sulfide, considered that this trace mineral (molybdenum) could be part of the solution.
- A deficiency of molybdenum can greatly impact the microbiome.
- Molybdenum is a co-factor for the enzyme sulfite oxidase, which is necessary for the conversion of sulfite to sulfate - a metabolic elimination process that some people cannot do efficiently due to either genomic issues or molybdenum deficiencies.
- When this conversion is impaired, your clients can be more reactive to hydrogen sulfide and start to react to sulfur-containing foods.
- Molybdenum is chelated by glyphosate, which we know is unfortunately found in many foods because of its use as a herbicide, especially on wheat.
- Because such small amounts are needed, the small amount in the body can quickly become chelated, leading to poor sulfate conversion.
- This can be a cause of hydrogen sulfide SIBO.
- For clients who are deficient or suffering from hydrogen sulfide SIBO, consider molybdenum levels and supplementation (Biocare do a Nutrisorb , BioNutri's Taracyn contains Molybdenum).

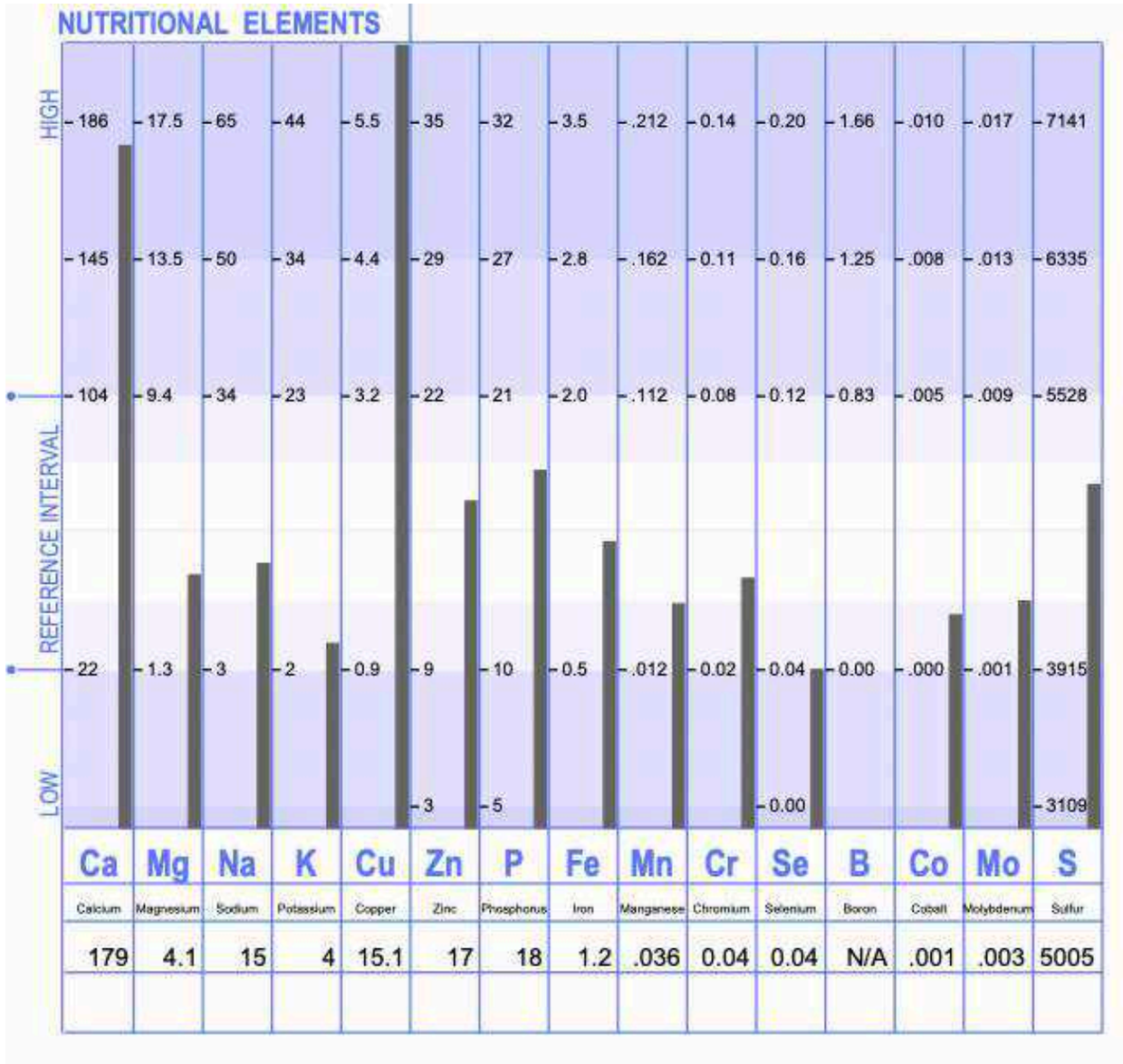
Asthma & Molybdenum

- You can see the excess copper (Cu) and low molybdenum (Mo) on this HTMA (hair tissue mineral analysis).
- There is also high magnesium (Mg) which is a LOSS of magnesium from the tissues.
- This is a classic HTMA picture of pyroluria because of the high copper compared to the low zinc. However, as well as Vitamin B6 being needed for zinc utilisation, B6 is also required for magnesium utilisation. Pyroluria therefore results in a loss of magnesium (similarly high zinc would usually indicate a loss of zinc into the tissues). This client actually needs magnesium - they are losing it.
- The high levels of cobalt likely indicate a loss of cobalt which usually corralates to a loss of Vitamin B12 (cobalamin).
- Selenium is low. Selenium is needed to produce glutathione and many of these clients had heavy metals, so glutathione and selenium can get used up in heavy metal detoxification



Asthma & Molybdenum

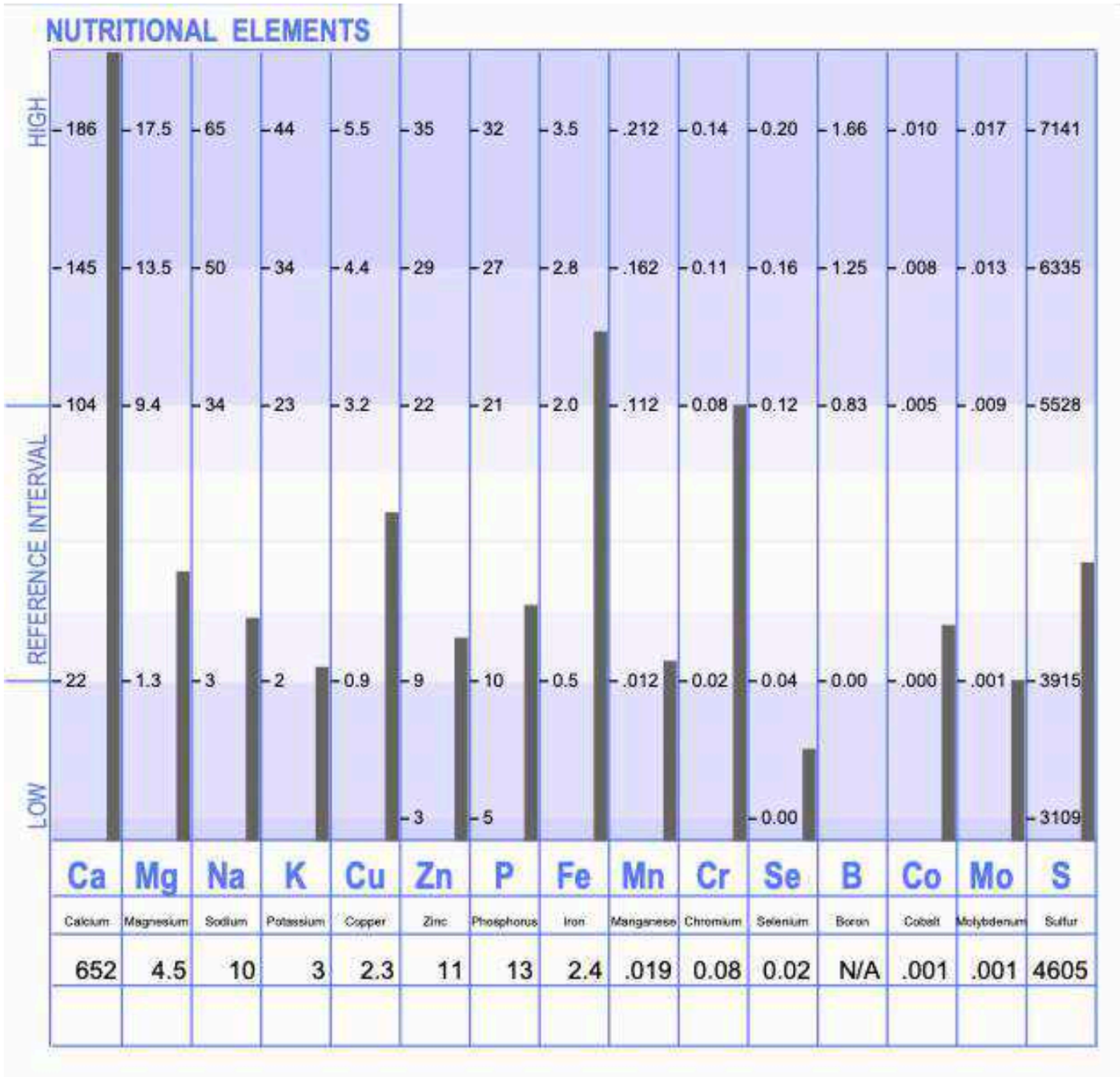
- Looking at this same scenario, this client has extremely high levels of copper, low molybdenum, high calcium, and low selenium



Asthma & Molybdenum

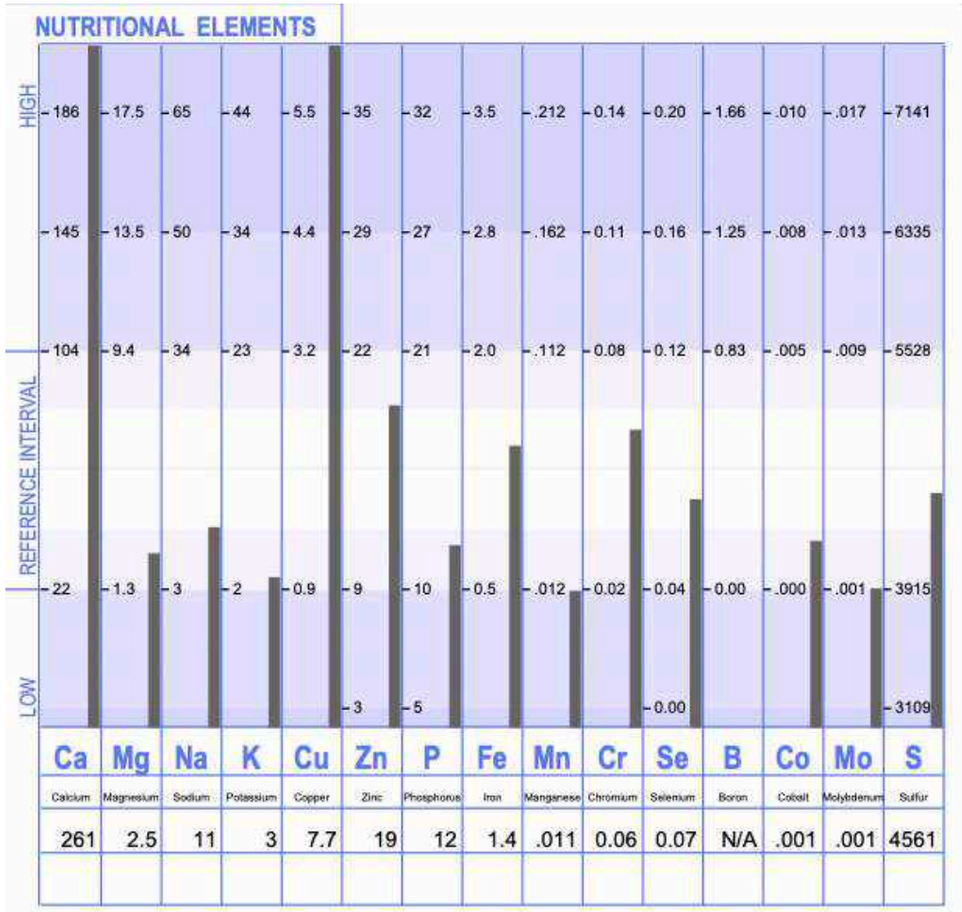
- Huge levels of calcium here, indicating hidden copper, low molybdenum and low selenium.

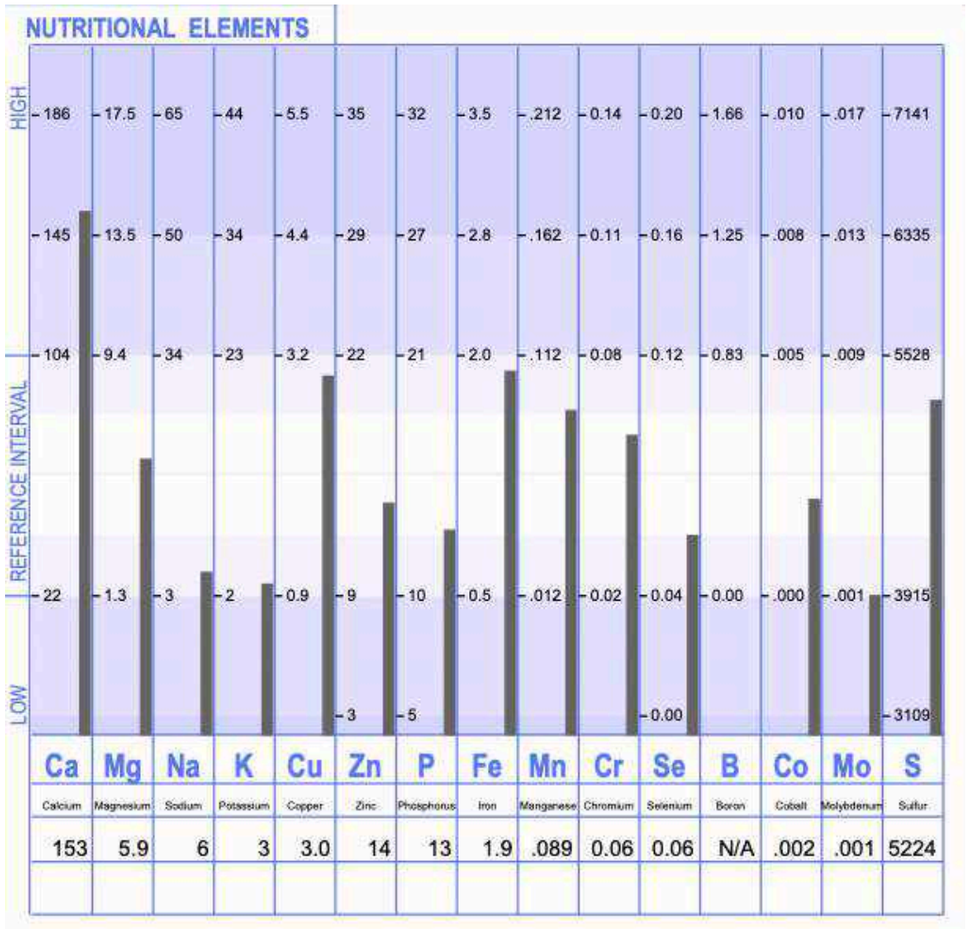
- This 16 year old female has “ADHD” - her mother was exposed to a lot of chemicals and pesticides from the horticulture industry



Asthma & Molybdenum

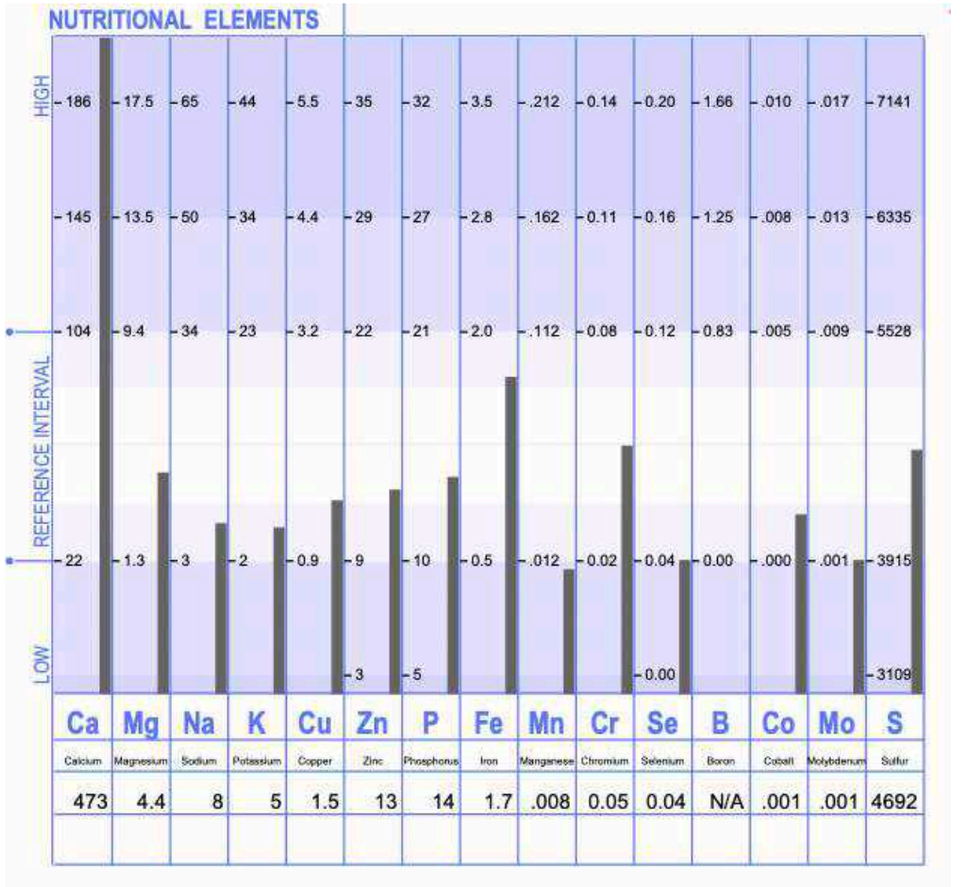
- Two more clients with high calcium, high copper and low molybdenum.
- This is an increasingly common picture with clients, not necessarily with asthama, but with a plethora of different symptoms, especially anxiety. Zinc. : copper is the “mental” ratio

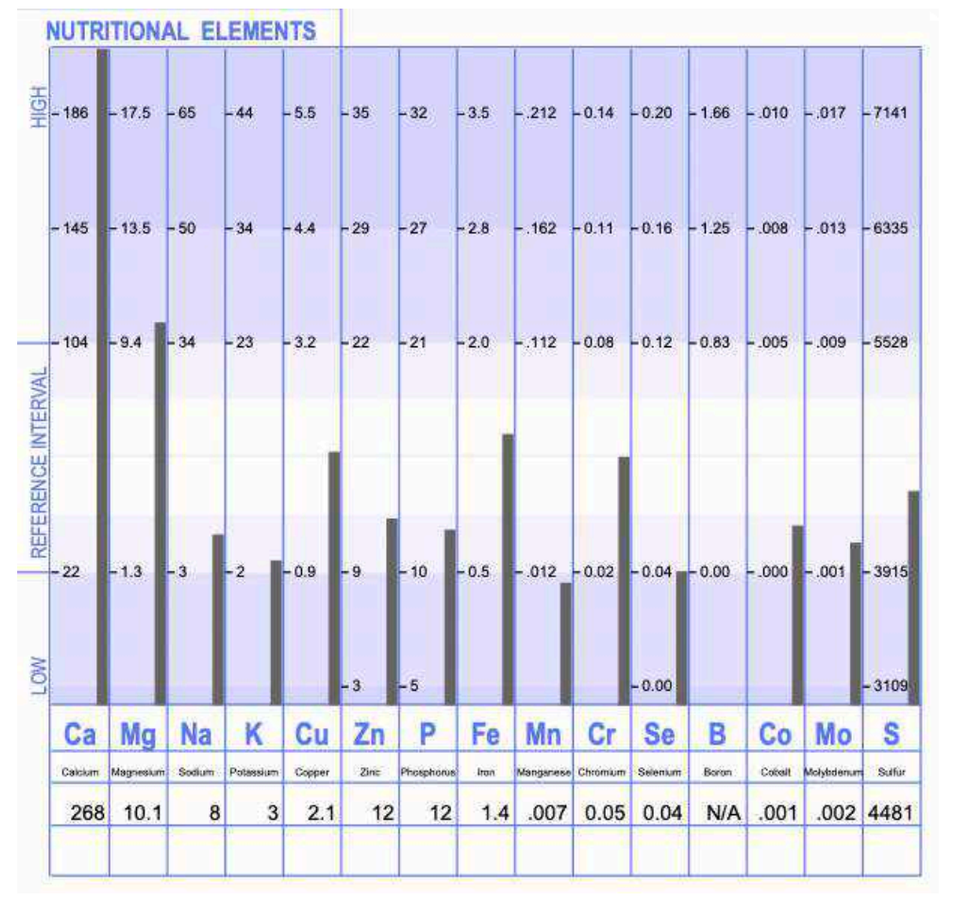




Asthma & Molybdenum

- In both of these HTMAs, they show low molybdenum, but copper in the tissues (an HTMA shows what is going on in the tissues) is not showing high yet. However, calcium is very high which indicates hidden copper toxicity.
- We may therefore see copper released from deep within the organs into the tissue (hair) oon a retest after a nutritional therapy balancing programme.
- Similarly, high copper can go even higher with a nutritional balancing programme as the toxic copper is dumped into the hair - this can cause some symptsome if done too quickly. Even more copper on a retest is therefore usually a good thing as the copper is coming out.
- Selenium is low in both
- Mineral check also shows **sulphur** levels (S) which may be helpful for some





Asthma

Dental Foci, tonsil foci, tonsillitis, focus, appendix scars, oral microbiome

- Bacteria that commonly reside in dental, tonsil and other focal infections are often of low virulence however in the right conditions (e.g. stress, trauma or toxicity) the number and pathogenicity of these bacteria can potentiate and can migrate to other environments in the body that are favourable for bacterial growth – pleomorphism.

- Rosenow and Billings confirmed the previous work of Schottmuller - found that streptococcus viridians, when isolated from patients with chronic heart disease (endocarditis), would transmutate into pneumococcus bacteria and cause acute (and more imminently life-threatening) pneumonia as these strains of bacteria increased in virulence through successive inoculations in lab animals.

- Rosnow proved this pleomorphic phenomenon of bacteria time and again through his research studies and with a multitude of diseases and syndromes including ulcers, arthritis, cholecystitis, appendicitis, pneumonia, bronchitis, **asthma.**

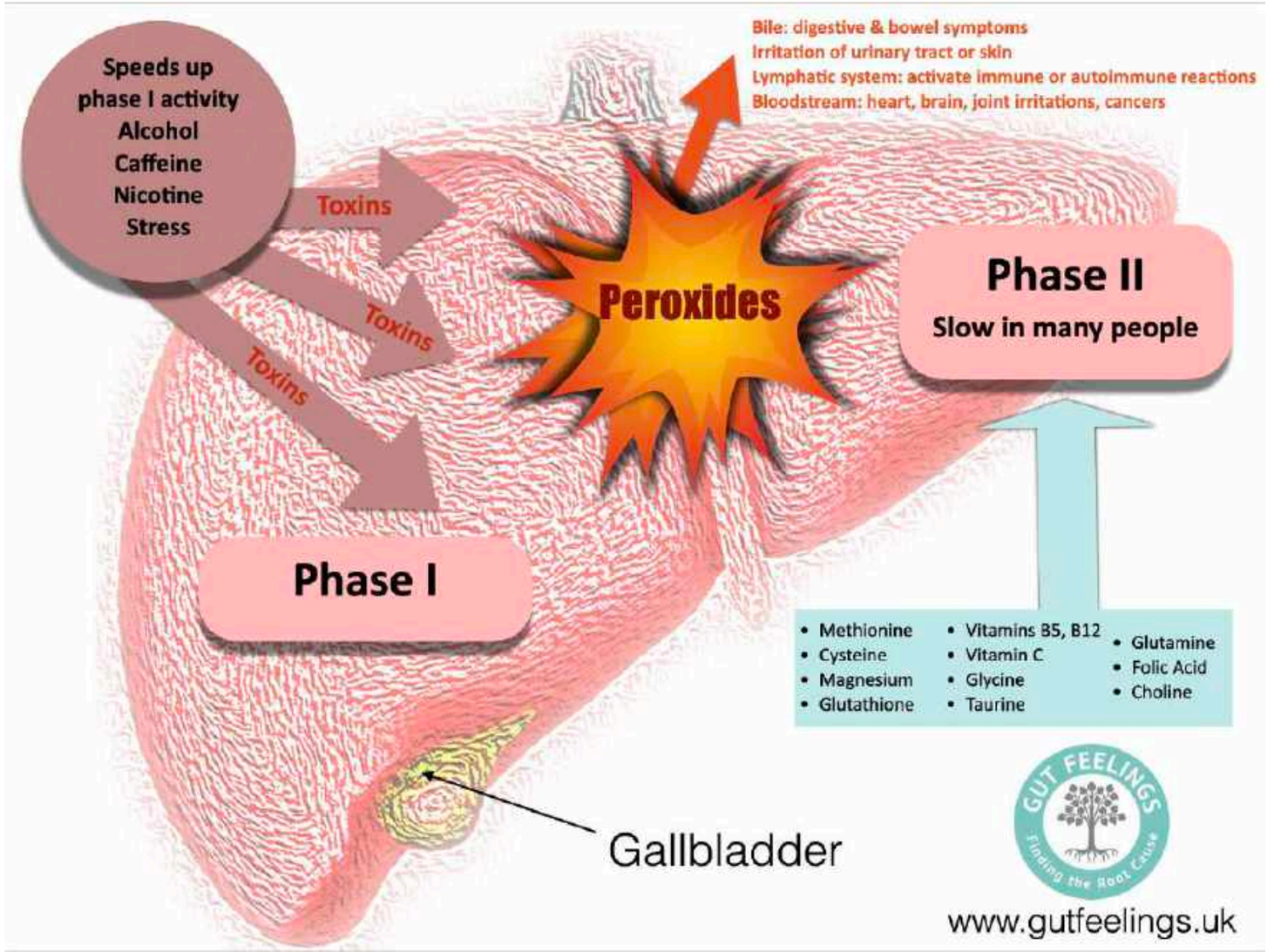
From Your Body's Telling you to love yourself by Lise Bourbeau

Asthma

When the liver spills peroxides and proteins into the lymph, the immune system attacks them as if they were dangerous invaders. The immune system reactions can create the following: -

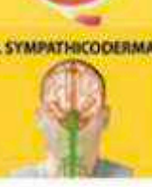
- Congestion and swelling in the lymph glands, which can make a person susceptible to sore throats, ear infections, bronchitis, sinusitis, rhinitis.

- Allergies, asthma, eczema, dermatitis, hives, achy joints



COPD - Degeneration stage of DET

HEALTH ← **Status of Regulation / Deregulation** → **DISEASE**

Organ System/Tissue	Humoral Phases: Excretion Phase	Humoral Phases: Inflammation Phase	Matrix Phases: Deposition Phase	Matrix Phases: Impregnation Phase	Cellular Phases: Degeneration Phase	Cellular Phases: Dedifferentiation Phase
ECTODERMAL						
1. EPIDERMAL 	Increased Sweating, Cerumen, Sebum, Smegma	Dermatitis, Impetigo, Abscess, Furuncle, Otitis externa	Hyperkeratosis, Seborrhoic eczema, Naevus, Skin Tags (soft wart)	Atopic eczema, Urticaria, Warts, Fissura ani, Acne rosacea, Hirsutism	Psoriasis, Decubitus ulceration, Radiation injury, Pemphigus vulgaris	Squamous cell carcinoma, Basal cell carcinoma, Melanoma
2. ORODERMAL 	Hypersalivation, Hyperlacrimation	Otitis media, Pharyngitis, Stomatitis, Gingivitis, Apthous ulceration, Glossitis, Rhinitis (acute), Sinusitis (acute), Laryngitis, Dental abscess	Nasal polyp, Eustachian tube catarrh (serous otitis media), Dental granuloma	Atopic Rhinitis, Hay fever, Sinusitis (cheonic), Rhinitis (iatrogenic), Anosmia, Menière's syndrome, Hypoacusis	Otosclerosis, Deafness (transmission), Ozaena, Atrophic rhinitis, Dental caries, Parodontosis	Leucoplakia (orodermal), Cancer of the tongue, Laryngeal cancer, Nasopharyngeal cancer, Tracheal cancer
3. NEURODERMAL PNS and CNS 	Increased secretion of neurotransmitters	Neuralgia, Neuritis, Polyneuritis, Meningitis, Encephalitis, Trigeminal neuralgia (acute)	Neuroma, Amyloid deposition, Heavy metal deposition	Epilepsy (petit mal), Paresis, Tics, Neuritis (toxic), Attention-Deficit/Hyperactivity Syndrome (ADHS), Guillain Barré syndrome, Poliomyelitis (acute), Trigeminal neuralgia (chronic)	Parkinson disease, Epilepsy (grand mal), Alzheimer's disease, Multiple Sclerosis, Amyotrophic Lateral Sclerosis, Peripheral Neural Atrophy, Diabetic neuropathy, Neurofibromatosis	Glioma, Meningioma, Astrocytoma
4. EYE 		Conjunctivitis (acute)	Pterygium, Mouche volante (floaters), Iris spot (initial)	Uveitis, Allergic conjunctivitis, Iris spots (chronic) Iritis, Astigmatism, Myopia, Presbyopia, Keratoconus, Pannus, Arch (senile)	Glaucoma, Cataract, Hemianopsia, Macular degeneration, Paralytic mydriasis	Retinal cancer, Retinoblastoma
5. SYMPATHICODERMAL 	Increased adrenalin and noradrenaline secretion	Flushes, Hypervagotony, Hypersympathicotonus	Ganglion neuroma	Dysautonomia (including Orthostatic hypotension)	Addison's disease, Reflex sympathetic dystrophy (RSD) or (Sudek's syndrome), Horner's syndrome	Pheochromocytoma, Neuroblastoma
ENDODERMAL						
6. MUCODERMAL 1. Respiratory 	Sputum	Bronchitis (acute), Tracheitis	Nasal polyp	Bronchitis (asthmatic), Chronic tracheitis (viral), Cystic fibrosis	COPD (chronic obstructive pulmonary disease), Atrophy of bronchial mucosa	Tracheal cancer, Bronchial cancer
6. MUCODERMAL 2. Digestive 	Increased digestive juices	Oesophagitis (acute), Gastritis (acute), Gastroenteritis (acute), Colitis	Gastric polyps, Intestinal polyps, Obstipation, Melanosis of the colon	Gastric ulcer, Duodenal ulcer, Gluten enteropathy(mild), Leaky Gut Syndrome, Dysbiosis	Crohn´s disease, Colitis ulcerosa, Atrophy of the small intestinal villi, Gluten enteropathy (severe)	Barret's esophagus, Esophageal cancer, Gastric cancer, Duodenal cancer, Rectal cancer
6. MUCODERMAL 3. Urogenital 	Increased mucous production	Bartholinitis, Cystitis, Urethritis, Infections of the urogenital mucosa	Bladder polyps, Uterine polyps	Interstitial cystitis	Atrophy of the urogenital mucosa	Bladder cancer, Cervical carcinoma
7. ORGANODERMAL 1. Exocrine Sexual 	Lactorrhoea	Mastitis	Mammary cysts, Breast calcifications	Mammary fibroadenoma, Fibrocystic mastopathy	Breast atrophy, Gynecomastia	Mammary carcinoma
7. ORGANODERMAL 2. Exocrine Digestive 	Increased bile salt secretion, Increase gastric acid secretion	Pancreatitis, Sialitis	Cholelithiasis, Steatosis hepatica, Pancreatic calcifications, Pancreatic cysts, Liver cysts, Wilson's disease, Salivary gland calcifications	Chronic hepatitis, Chronic pancreatitis, Viral pancreatitis (e.g. Mumps), Alcoholic hepatitis, Cystic fibrosis	Hepatic cirrhosis, Hepatic iatrogenic disease	Liver cancer, Pancreatic cancer
7. ORGANODERMAL 3. Respiratory 		Acute pulmonary abscess, Pneumonia	Bronchiectasis, Pneumoconiosis	Bronchial asthma, Cystic fibrosis	Emphysema, Chronic pulmonary abscess, Interstitial fibrosis of the lung, Fungal balls	Pulmonary cancer
7. ORGANODERMAL 4. Endocrine 	Increased thyroid hormones, Parathyroid hormones, Thymic hormones, Insulin, Glucagon, Enteric hormones, Cortico suprarenal hormones, Adeno hypophyseal hormones	Thyroiditis , e.g. de Quervain's thyroiditis	Thyroid cysts, Adrenal cysts, Adrenal adenoma Hypophyseal adenoma , Thymoma, Insulinoma, Parathyroid gland adenoma, Thyroid goiter, Adrenal adenomas	Grave's disease, Hashimoto's disease (1st stage), Puerpural thyroiditis, Cushing's syndrome, Precocious puberty, Adrenal exhaustion	Hashimoto's disease (2nd stage), Riedel's thyroiditis, Parathyroid atrophy	Thyroid cancer, Parathyroid cancer, Adrenal cancer, Carcinoid syndrome

DIFFERENTIATION DIVISION

COPD

Chronic Obstructive Pulmonary Disease

COPD Symptoms

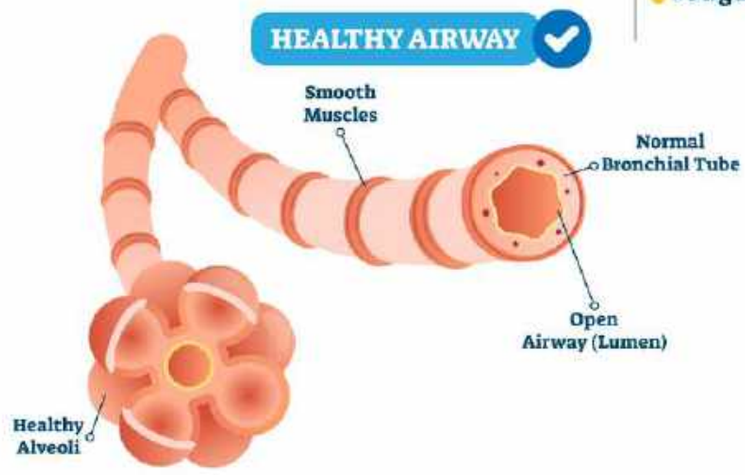
- Chronic Cough
- Production of Mucus
- Fatigue
- Shortness of Breath
- Dyspnea
- Chest Discomfort

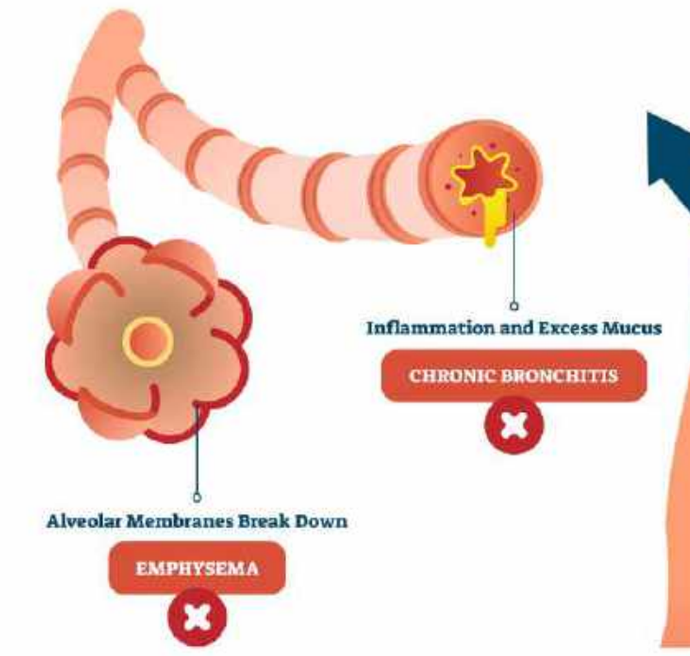
COPD Causes

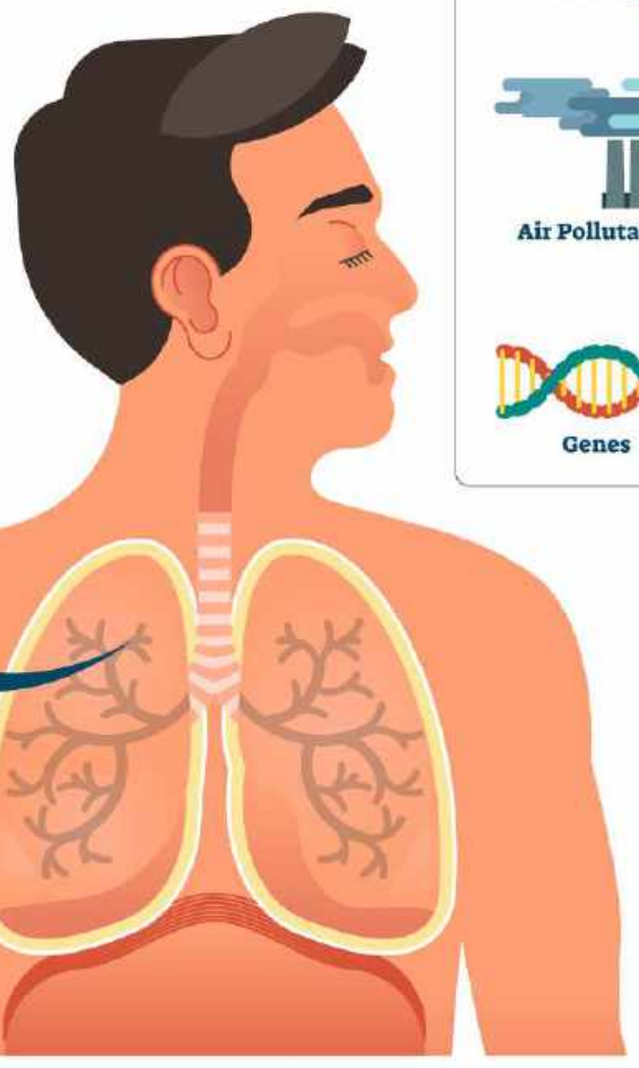
Smoking

Air Pollutants

Genes







Types of Physiological Reactions to Foods

Immune response

- Food allergy (IgE) -> immediate wheezing, swelling, itching, anaphylaxis
- Histamine reaction -> nasal congestion, hives, headaches, itching
- Food sensitivity (IgE, IgM, IgA) -> delayed inflammation
- Genetic T-cell response -> severe autoimune response (coeliac disease)
- Antibody cross-reactivity -> tissue specific injury

Maldigestion response

- Hydrochloric acid insufficienty -> intolerance to protein foods
- Pancreatic enzyme insufficiency -> intolerance to starchy foods
- Gallbladder dysfunction -> intolerance to fats, oils. And fried foods
- Small intestinal bacterial overgrowth -> intolerance to fibres and sugars

Vascular response

- Vascular spasm / construction -> headaches and flushing

Neurological response

- MSG reaction -> diverse neurological smptoms
- Aspartame reaction -> headache, visual problems, neurological symptoms

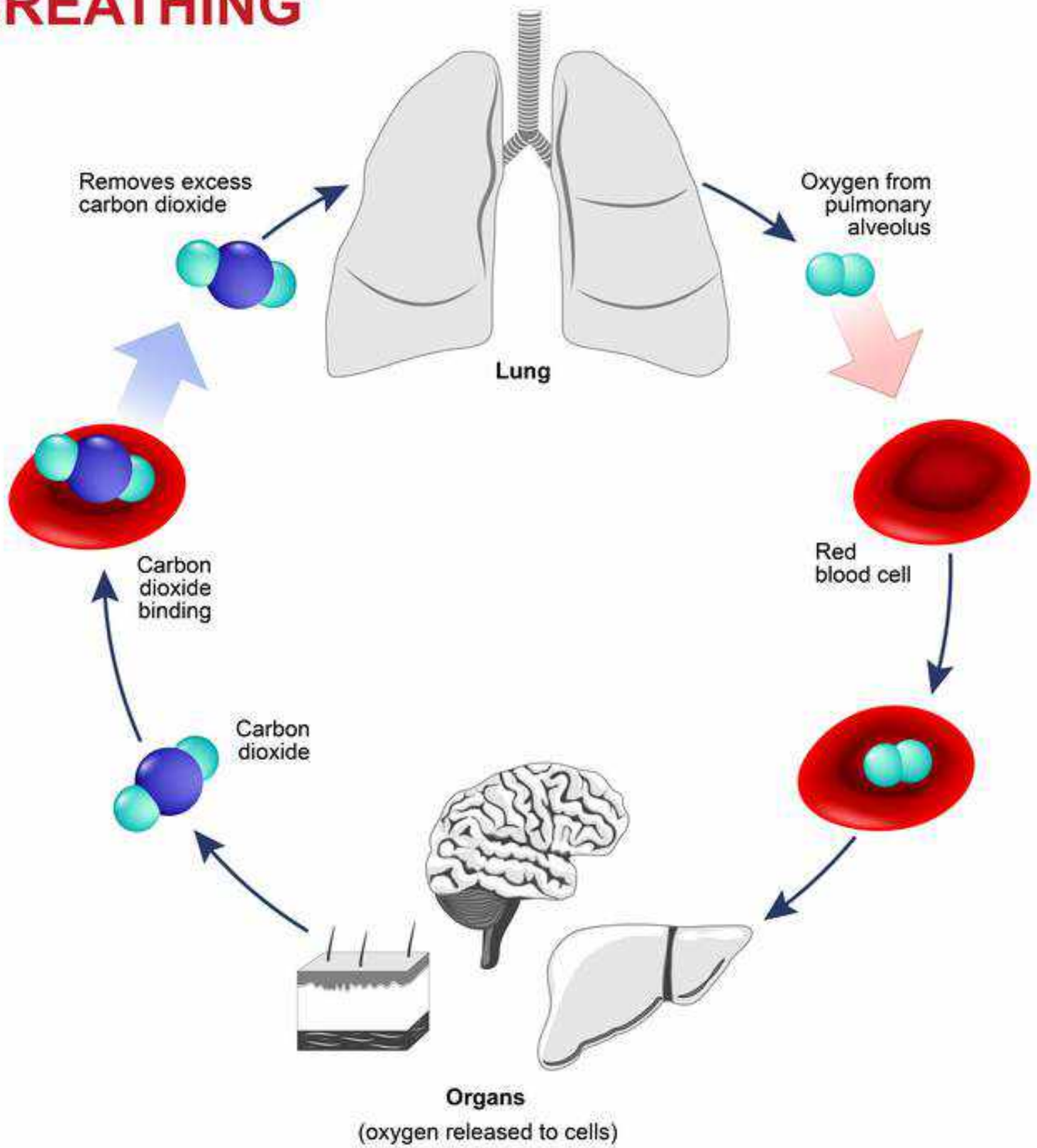
Mould reaction

- Aflatoxin reaction -> pain, wheezing, inflammation

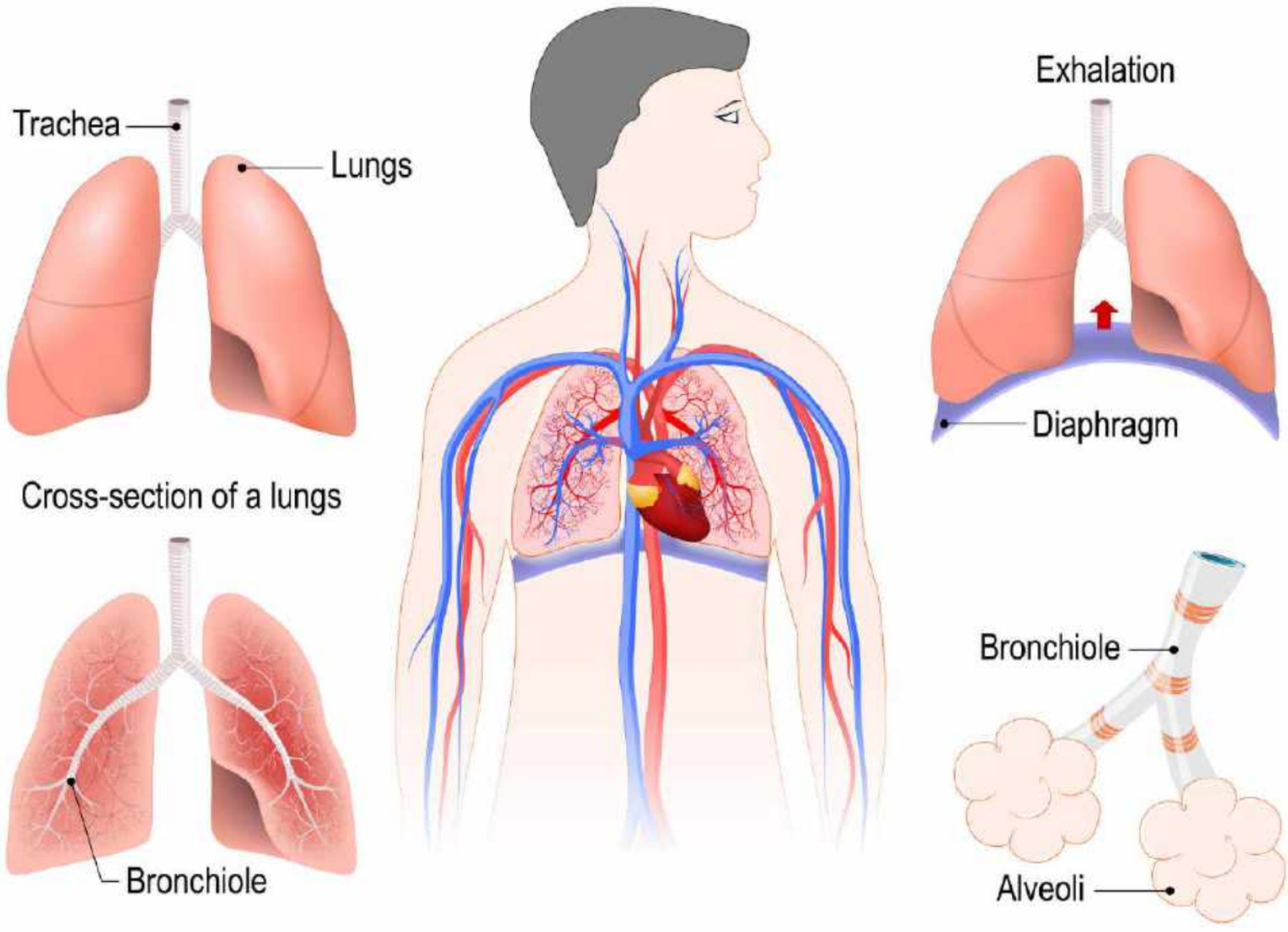
Food additive reaction

- Sulfites, nitrates, food colouring, preservatives -> headaches, mood swings, fatigue

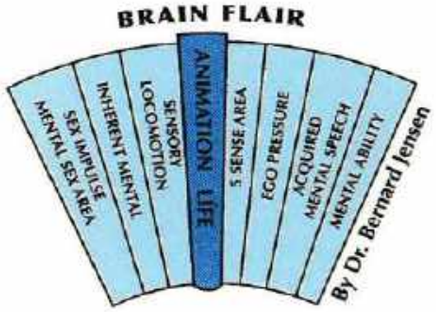
BREATHING

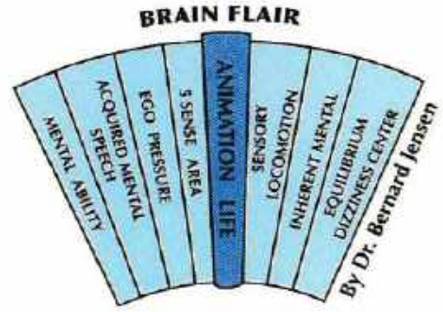


RESPIRATORY SYSTEM



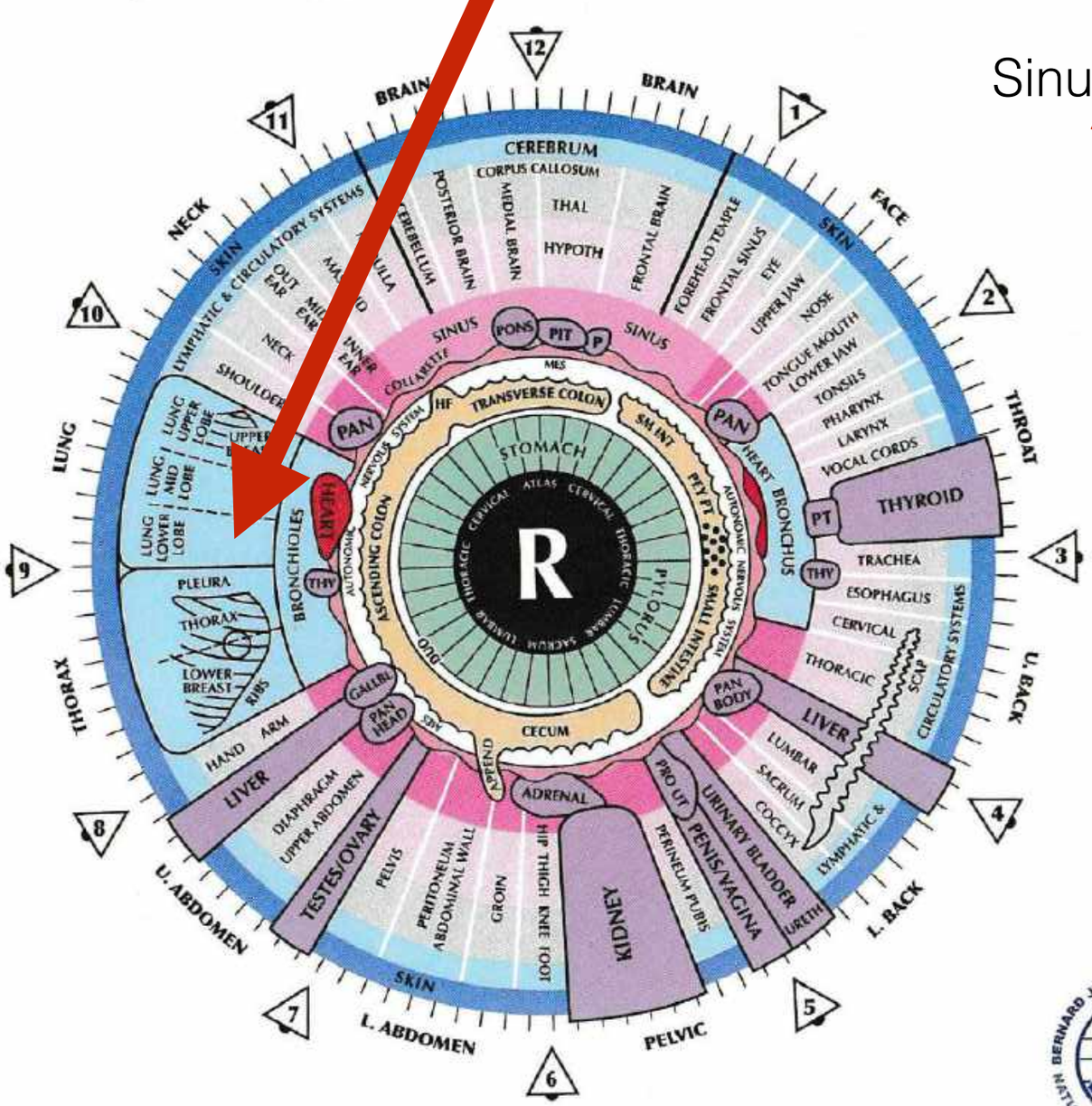
IRIDOLOGY CHART

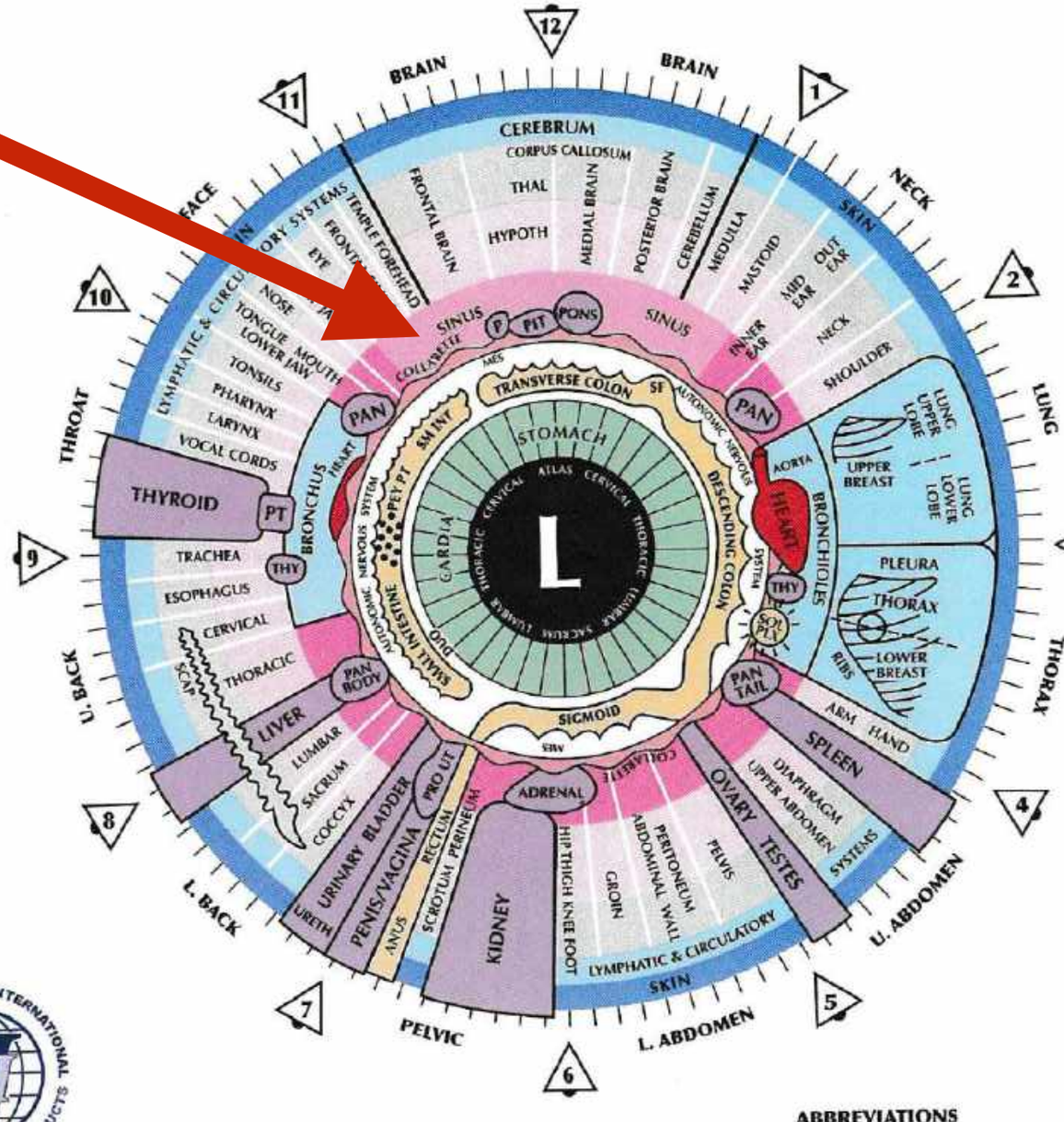




Lungs

Sinus





IRIS ZONES

- STOMACH - NUTRITIVE ZONE
- INTESTINES - NUTRITIVE ZONE
- BLOOD & LYMPH - HUMORAL ZONE
- MUSCULATURE
- BONY STRUCTURE
- SUPERFICIAL LYMPH & BLOOD

CILIARY ZONE

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with revisions by Ellen Jensen, Ph.D., D.Sc.

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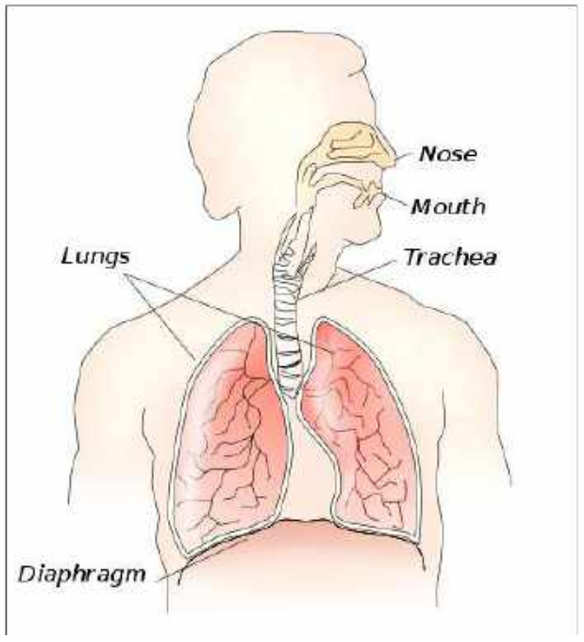
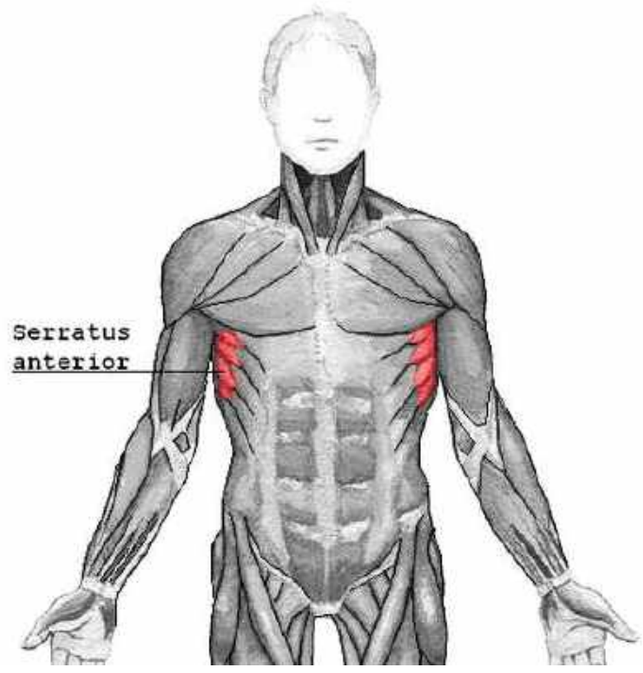
ABBREVIATIONS

APPEND	Appendix	PEY PT	Peyers Patche
DUO	Duodenum	PIT	Pituitary
GALLBL	Gallbladder	PRO	Prostate
HF	Hepatic Flexure	SF	Spleenic Flex
HYPOTH	Hypothalamus	SCAP	Scapula
MES	Mesentery	SOL PLX	Solar Plexus
P	Pineal	THAL	Thalamus
PT	Parathyroid	THY	Thymus
PAN	Pancreas	URETH	Urethra

Muscles associated with the lung meridian

- Support the large intestine - hollow organ of the metal element (lung is the solid)
- Nutrition to support the lung element: Vitamin C, water
- Muscles associated with the lung meridian in Kinesiology: coracobrachialis, diaphragm, deltoid, anterior serratus





A few things to consider using

- Phytobiophysics - Flower formula 10: Breath of Life - Nicotania
  THE LUNGS - heart and lung centre: lung meridian. Immune system, thymus gland, 'breath of life', rejection, forgiveness, lungs: right sided, trauma caused by emotion of love/betrayal; asthma; drug addiction (particularly smoking; antidotes nicotine and enables one to give up smoking); self-worth and pride; chemical induced lung disorders; antidotes BCG; pertussis and polio vaccine; assuages the grief of rejection and spiritual pain which may predispose to cancer; antidotes marijuana and all smoked drugs; assimilation of B2, isoleucine, leucine and glycine.
- Homeobotanicals (for those qualified) - R (Respiration), P (Pleura)
- Bach Star of Bethlehem Remedy (grief)
- Bach Honeysuckle Remedy (regrets failure)
- Bach Wild Rose Remedy (sadness)
- Bach Mustard Remedy (deep sadness)
- Bach Rescue Remedy
- Austalian Bush Purifying Essence (help with letting go)
- Jan de Vries Mood Essence (comforting when sad, mood swings, grief)
- Calc Phos tissue salts: Asthma, bronchitis, bronchiectasis, emphysema, Hayfever, frequent infections, tuberculosis, lung weakness
- Calc Sulph tissue salts: cough with thick, lumpy expectoration and fever, – Tuberculosis, pneumonia (bacterial)
- Kali Sulph tissue salts: cell oxygenator - pancreas, liver, skin, mucus membranes, glands, respiratory organs
- Tubercular Miasm: respiratory disorders: asthma, Hayfever, sinusitis, bronchitis, bronchiectasis
- Homeopathic remedies
- For those qualified: Homeobotanicals Hb A: Allergies - Acute and chronic allergies for airborne, dietary and idiopathic sources. Rhinitis, sinusitis, nasopharyngeal congestion. Or Hb C , Hb R or Pleura.
- For those who go on to study more Homotoxicology: -
  - Luffa Heel Luffa-Heel nasal spray: Allergies, Hayfever Mucous congestion, Runny nose, Itchy eyes, Sneezing, Mucous Congestion, more useful for **allergic reactions of the upper respiratory tract.** Supports the body's natural response to airborne allergens.
  - Euphorbium comp Nasal Spray - indicated in **acute and chronic rhinitis and sinusitis** and is less effective in allergic rhinitis.
  - Engystol - indicated for all viral activity and allergies.

Breathing

"When it comes to breathing, less is more"

James Nestor, Breath

Image: Pixabay

Mouth Breathing

- Mouth breathing, medically known as chronic oral ventilation, is long-term breathing through the mouth. It often is caused by an obstruction to breathing through thge nose, the innate breathing organ in the human body.

- Chronic mouth breathing may be associated with illness. The term "mouth-breather" has developed a derogatory slang meaning.

- Nasal breathing produces nitric oxide, while mouth breathing does not.

- In about 85% of cases, it is an adaptation to nasal congestion and frequently occurs during sleep, although many do not realise they are mouth breathing at night. The more we breathe through the mouth, the more congested the nose becomes.

Mouth Breathing

- The nose filters out particles that enter the body, humidifies the air we breathe and warms it to body temperature.

- In contrast, mouth breathing pulls all pollution and germs directly into the lungs; dry cold air in the lungs makes the secretions thick, slows the cleaning cilia, and slows down the passage of oxygen into the bloodstream

- As a result, chronic mouth breathing may lead to illness

Mouth Breather

Etymology

In the early 20th century, "mouth-breather" was a technical term used by doctors to describe children who were breathing through their mouths due to an underlying medical condition. English lexicographer Johathon Green notes that by 1915, the phrase "mouth-breather" had developed a derogatory connotation within English slang, defined as a "stupid person.” Currently, the Macmillan Dictionay defines the term "mouth breather" as a pejorative noun that is used to mean "a stupid person.”

With reduced nitric oxide and thus less oxygen to the brain, mouth-breathing can affect IQ

Image from the 1903 book by William F. Barry, M.D, The Hygiene of the Schoolroom. Barry describes this child as having “the typical face of a mouth-breather” - Wikipedia

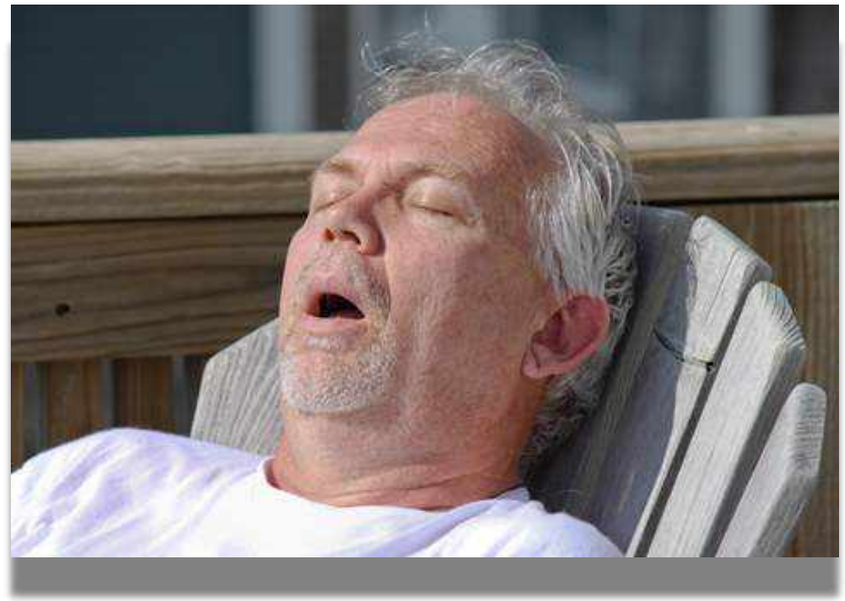
Mouth Breathing

Within the dental professsion most holistic dentists understand that mouth breathing prevents the face and jaw from developing properly which can lead to: -

- An open mouth
- head forward
- Long, narrow face
- Recessed lower jaw
- High “V” shaped hard palet
- Chronic nasal congestion
- Crowded teeth

The more we are able to breathe through the mouth, the more congested the nose becomes and vice versa

Mouth Breathing



- When we breathe through the mouth, the brain doesn't develop, hormones become imbalanced.

- Tonsils and adenoids become enlarged with mouth breathing because all of those allergens and pollutants need to be filtered through the nose and make a clean humidified air all the way down to the lungs. By removing tonsils and adenoids, all that has been done is remove body parts that were doing their jobs correctly

- Other reasons for enlarged adenoids and tonsils are food allergies which can cause inflammation in the nose, inflammation in the immune tissue and will restrict air flow

Dr. Bahar Esmaili, Whole Body Dental Rescue Summit

Mouth Breathing

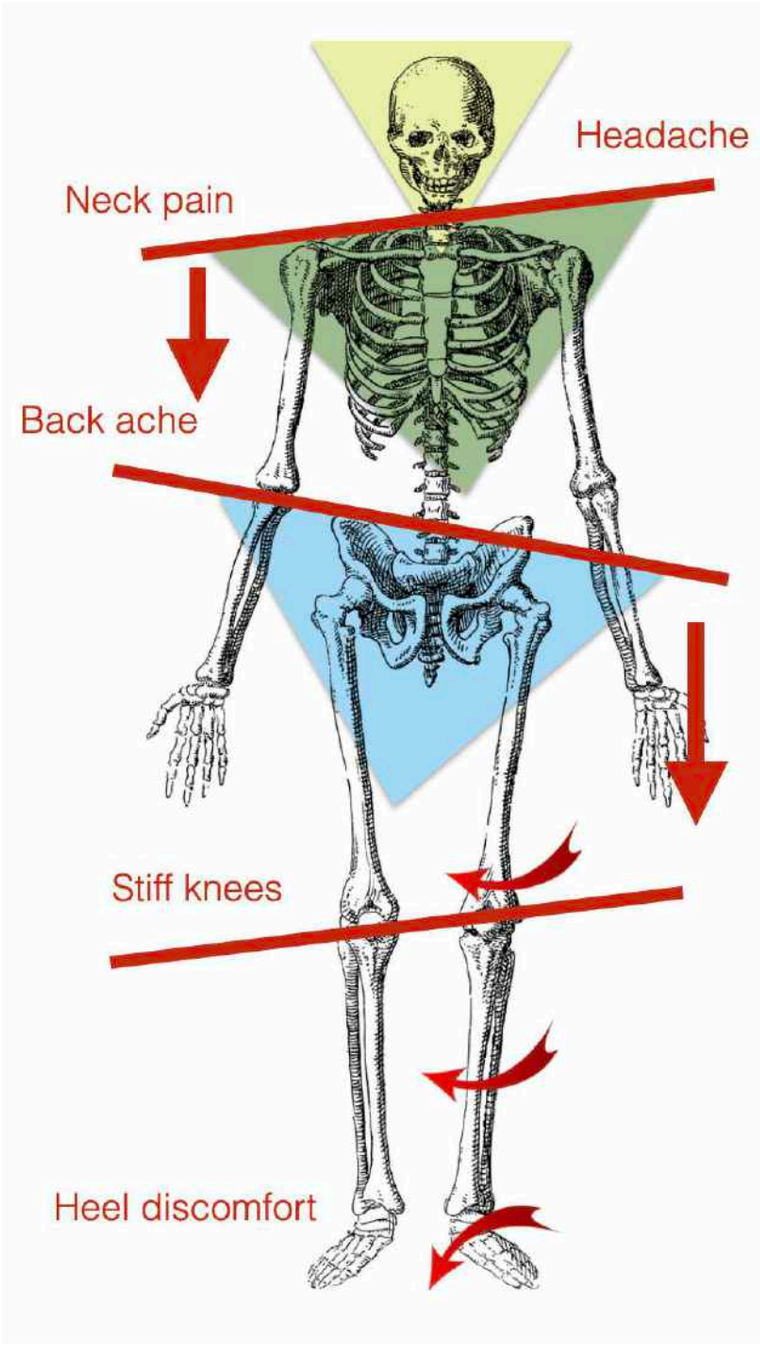
- The nervous system gets most of its signals from the nose - when we breathe in and out through the nose, the parasympathetic nervous system (“rest and digest”) is triggered

- If we breathe through the mouth instead, the head adopts a forward position putting weight on the spine and a shift in the posture occurs to accommodate that mode of breathing

- Challenge: sit upright, put your head up and straight and try and open your mouth. It will be dificult to do.

- The posture sifts to accommodate mouth breathing. You have to put your head in a forwad posture to keep breathing through the mouth. Head forward posture is therefore a sign of a mouth breather.

- One of the biggest causes of postural changes and postural shifts is mouth breathing which causes asymmetry and torsion of the dura matter and tortions and adhesions along the sheath that surrounds the brain and spinal cord. This in turn causes lack of primary fluid running to the brain.



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Mouth Breathing

- The 22 bones in the head / cranium move together every 200 seconds that we breathe through our nose, it will move to pump the spinal fluid around the brain. This does not happen if we mouth breathe.

- When we are out of alignment, compensation for missing functions are taxing to the nervous sysem, making homeostasis much more difficult. For example, the body will employ moving muscles to be stabilisers instead, which is energetically expensive for the nervous system and also involves the pre frontal cortex of the brain which should not be involved in posture. In order to compensate, the hips, knees, feet etc may become misaligned

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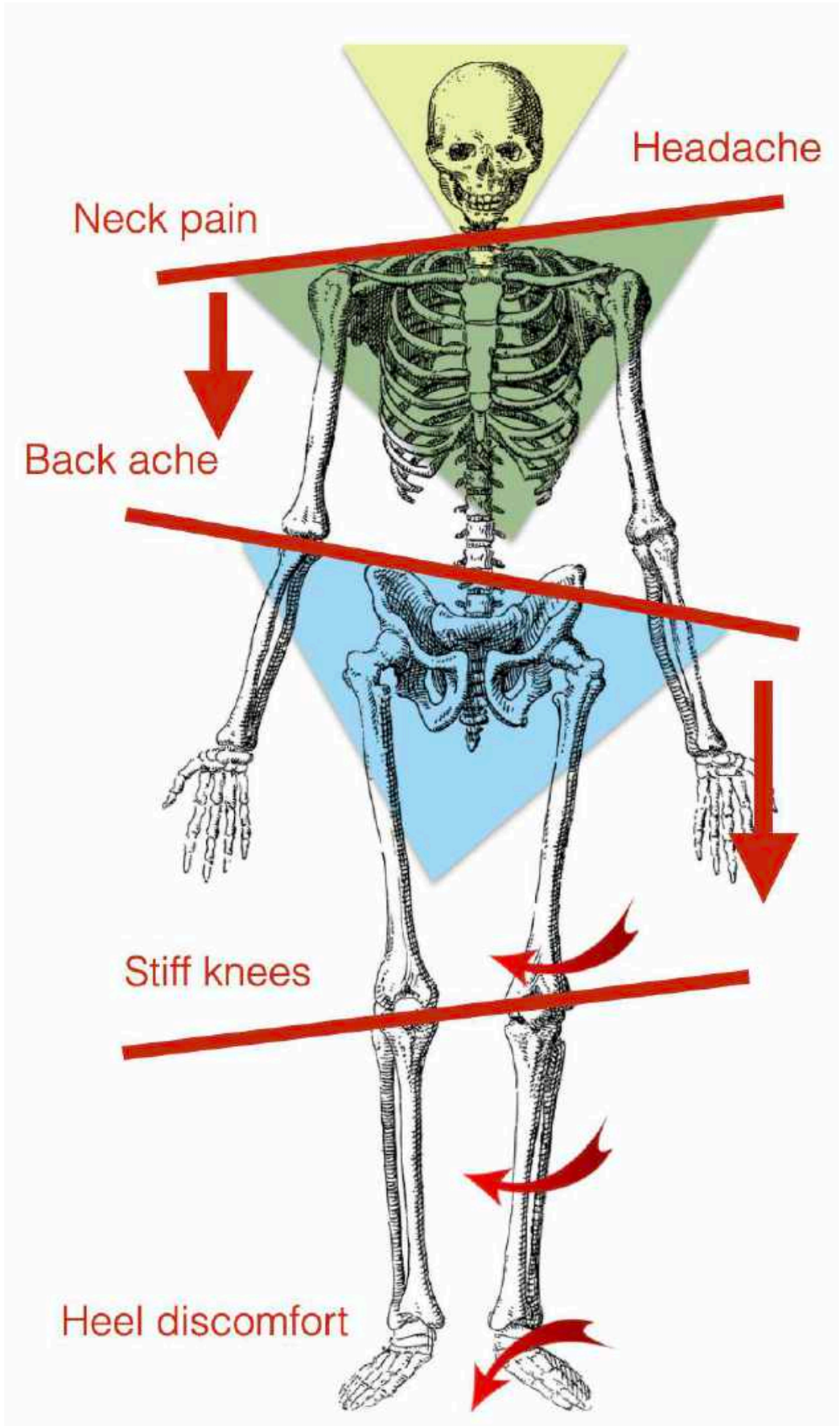
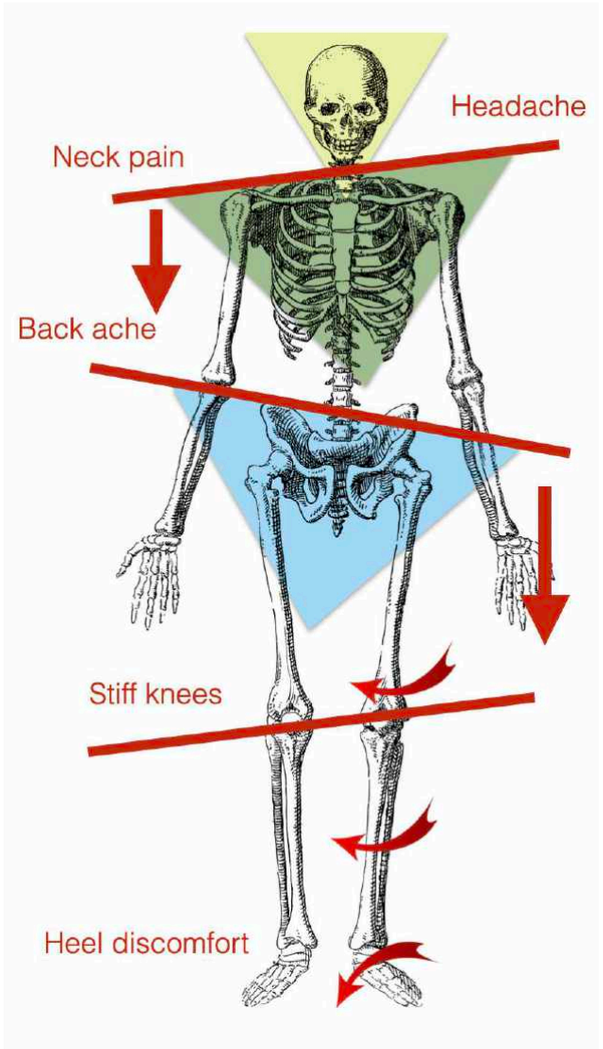


Basic skeleton image: Pixabay

Mouth Breathing

- Breathing is the most innate reflex
- Brain needs to remain over the centre of gravity
- Balance: cerebrospinal fluid, cranial bone, maxilla, eyes with the horizon, (2,000 swallow a day)
- The nervous system gets most of its signals from the nose - when we breathe in and out through the nose, the parasympathetic nervous system ("rest and digest") is triggered
- If we breathe through the mouth instead, the head adopts a forward position putting weight on the spine and a shift in the posture occurs to accommodate that mode of breathing
- One of the biggest causes of postural changes and postural shifts is mouth breathing which causes asymmetry and torsion of the dura matter and tortions and adhesions along the sheath that surrounds the brain and spinal cord. This in turn causes lack of primary fluid running to the brain.
- The fascia that surrounds the brain and spinal cord, is responsible for delivering oxygen to the brain and removing toxins. When our head is out of alignment of the spine, this causes lack of fluid movement passively to the brain which will cause dis-ease.



When the brain gets supplied with what it needs, it will get itself into a better nervous system function.

Whole Body Dental Rescue Summit

Basic skeleton image: Pixabay

Head Forward

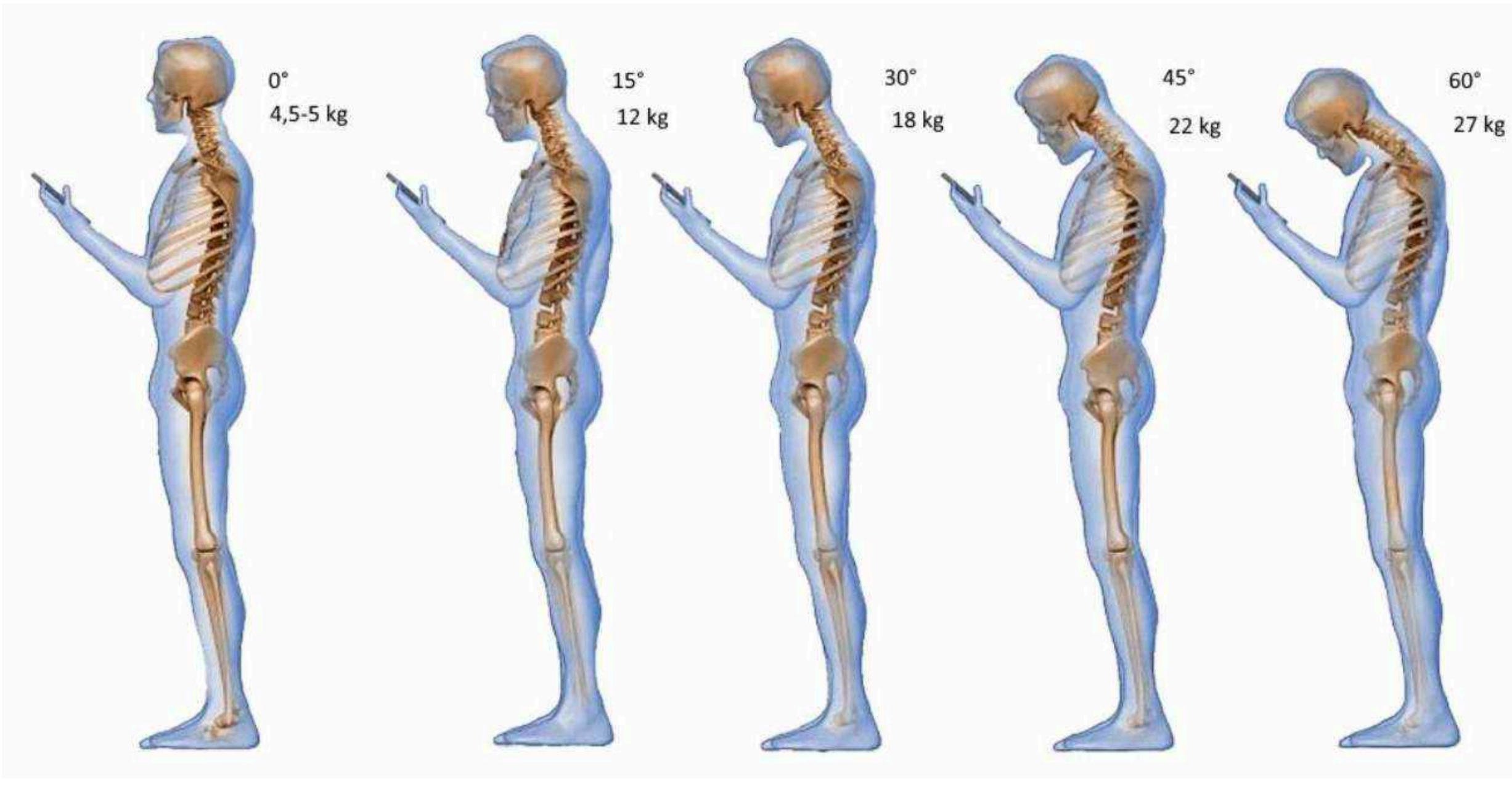
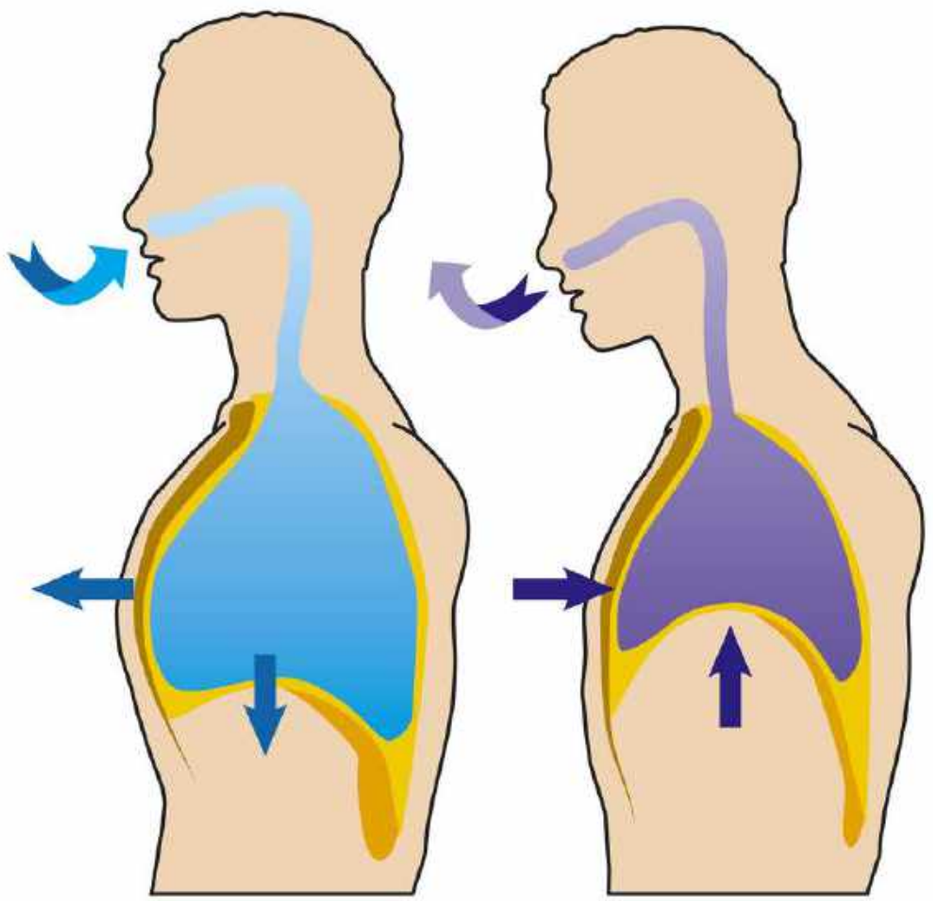


Image by permission of A Nova Odontologia do Sono

Diaphragmatic Breathing



- Lack of movement in the diaphragm can cause a lack of rhythmic massage to the digestive tract and liver. Similarly, where the ribs join the spine and restriction of the joints.

- This could lead to numbness and tingling in hands and feet. Returning blood to the heart from the legs and lower body can be affected, leading to cold feet and legs – *Bionutri.*

- As well as being central to breathing, the diaphragm plays an important role in controlling posture. During an inhalation, the diaphragm moves downward. As it descends, a positive pressure is generated in the abdomen, which contributes to posture control and stability.

- The pressure acts like an inflating balloon, supporting the front of the spine and the pelvis

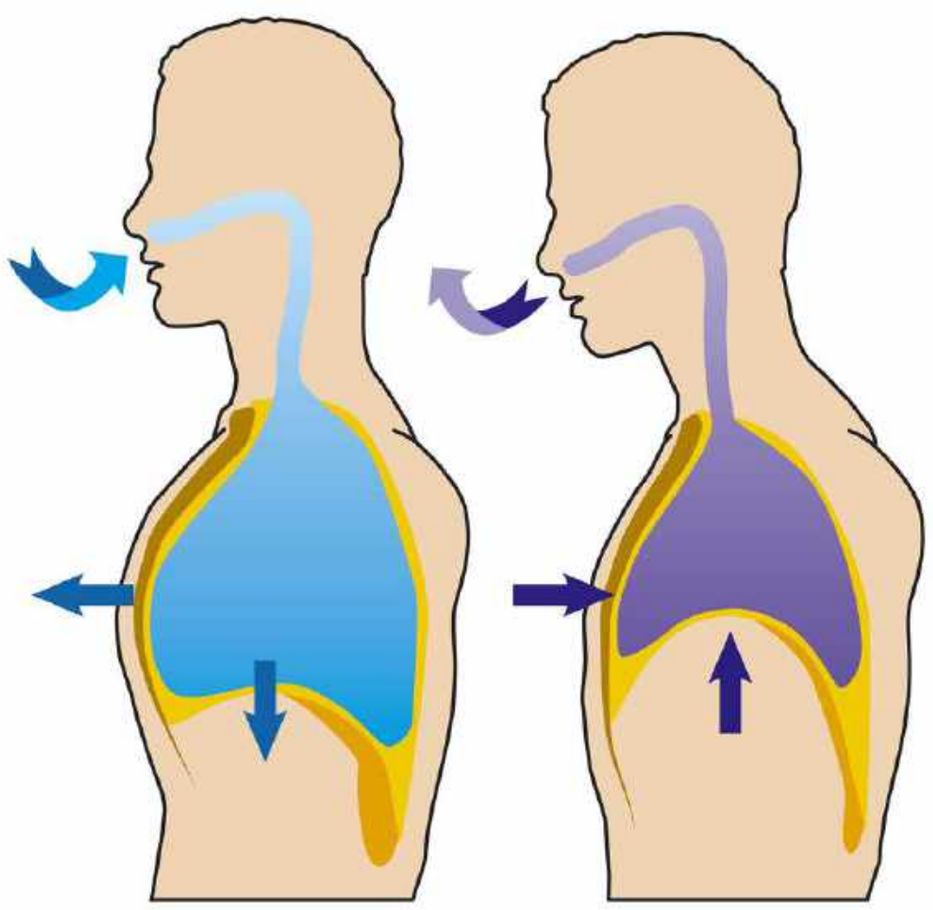
Diaphragmatic Breathing

- Conversely, good posture improves breathing. Breathing should be gentle, slow and shallow, you shouldn't be able to see someone breathing from across the room.

- Rather than focusing on breathing in more oxygen, we should be focusing on retaining the carbon dioxide in our blood, which facilitates the delivery of oxygen throughout the body. The greater the amount of air taken into the body, the less oxygen is delivered.

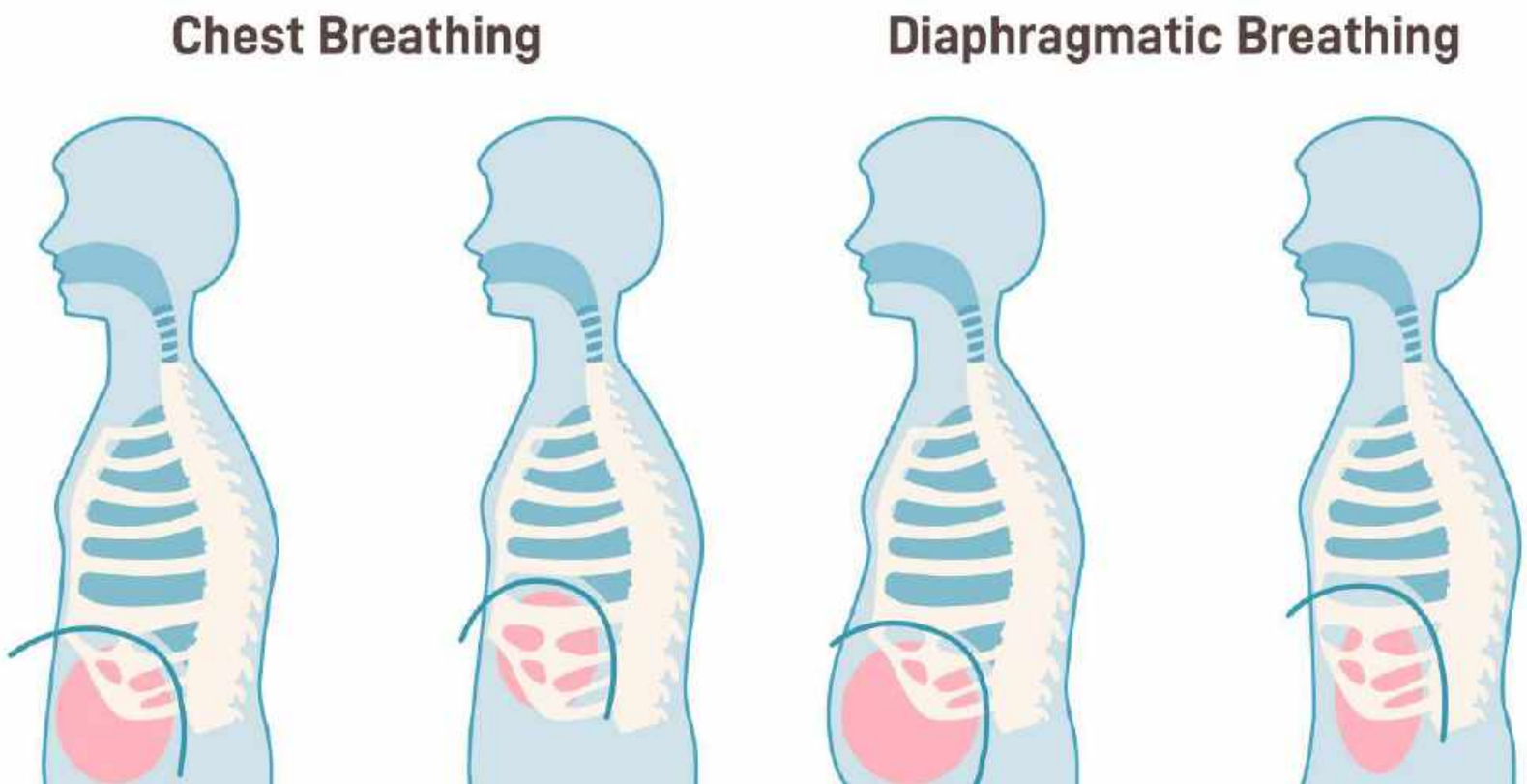
- Not all of the air that we breathe in reaches the small air sacks for gas exchange to take place from the lungs into the blood. Some of this air will remain in dead space – in the nose, throat, trachea, bronchi and bronchioles.

- With fast and shallow breathing you leave a lot more air in dead space. When you reduce the respiratory rate, you do not leave so much air in dead space.



Chest v Diaphragmatic Breathing

- The natural way to breathe is belly / diaphragm breathing instead of chest breathing.
- **Chest breathing:** the rib cage expands slightly and the chest rises dramatically. The chest cannot expand by the action of its muscles - muscles can only contract. What appears to be an elnargement of the chest is really only rising as it is pulled upward by muscles in the neck and at the base of the skull.
- This results in very little air entering the lungs and is an inefficient way of breathing.
- Mouth breathing encourages chest breathing and vice versa



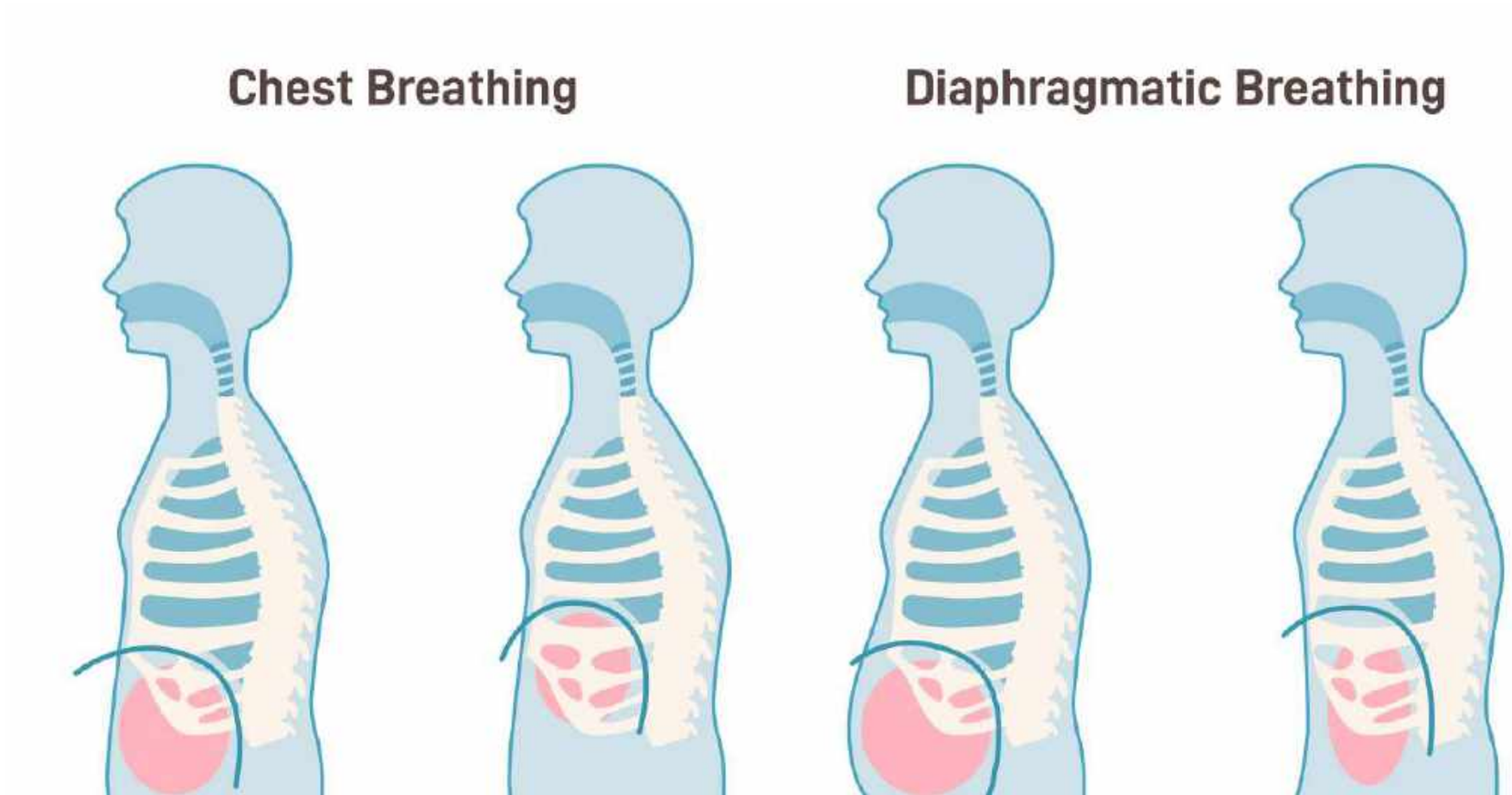
Diaphragmatic Breathing

Gives the organs and spine an internal massage

- Diaphragmatic / Abdominal breathing, accomplished by alternatively contracting the diaphragm and abdominal muscles, increases the space in the chest into which the lungs can expand and accept air. A far greater volume of air is exchanged witih abdominal breathing than with chest breathing.

- This massages the intestines and spine (some lower back pain can be as a result of over breathing). Those who chest breathe are not massaging their intestines appropriately. Nose breathing encourages diaphragmatic breathing, whereas mouth breathing encourages chest breathing.

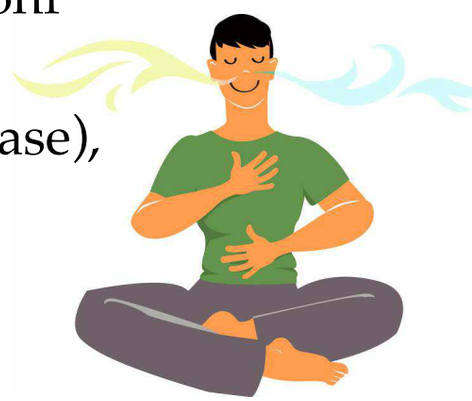
- Nose breathing encourages Diaphragmatic / Abdominal breathing. Diaphragmatic breathing is the way we all breathed originally as infants.



Breathing

In an article published in a 2006 issue of Wise Traditions, Dr Silkman compared an underdeveloped cranium to an “overpacked” suitcase. He noted the following challenges: -

- Lack of oxygenation and / or nourishment to the cranial tissues and organs
- Inadequate drainage of waste products through thge lymphatic system which in turn triggers hormonal imbalances, nerve condition issues an reduced brain funct9ion and mental clarity
- Elevated pH of saliva, leading to dental cavities
- The development of forward head posture which in turn may cause spinal misalignment, fibromyalgia and / or fatigue
- An under developed jaw, which may negatively impact eyesight and found asthetids in addition to narrowing of the nasal passages (which don’t function or drain as they shjoulod) and setting the stage for nasal congestion, sleep apnoea, temporomandibular Joint Syndrome (TMJ) and migraines.
- Greater liklihood of upper respiratory tract infections, which in turn often trigger tonsillitis and enlarged adenoids
- An increases in blood alkalinity, so that less oxygen is released from the blood (The Bohr Effect)
- Smooth muscle spasms potentially resulting in GORD (gastro-oesophegall reflux disease), asthma and bed wetting



Fresh Air

- "The health value of free, abundant fresh air is still largely undervalued. People are not always aware of the health relevance of being outdoors or letting air into their homes." This was not always the case.

- “Living indoors without fresh air quickly poisons the blood and makes people feel tired and seedy when they don't know why. For myself, I sleep out of doors in winter as well as summer. I only feel tired or seedy when I have been indoors a lot. I only catch a cold when I sleep in a room.” Robert Baden-Powell, founder of the Boy Scout movement (1857-1941).

- In the First World War, it was noted that soldiers were less suspectable to dying of gangrene and sepsis if they recovered from injuries outside.

- Belief in the healing and restorative power of fresh air continued into the 1940s and 1950s. In fact, by then, fresh air was seen as a natural disinfectant, able to clear away various toxins from the lungs and the body’s external surfaces.

- In the journal ‘Modern Hospital’ published in March 1942, a prominent New York City hospital design consultant called Charles F. Neergaard revealed a layout for inpatient care that he had copyrighted. It featured a windowless room

Source: Conella Holdings Blog

Fresh Air

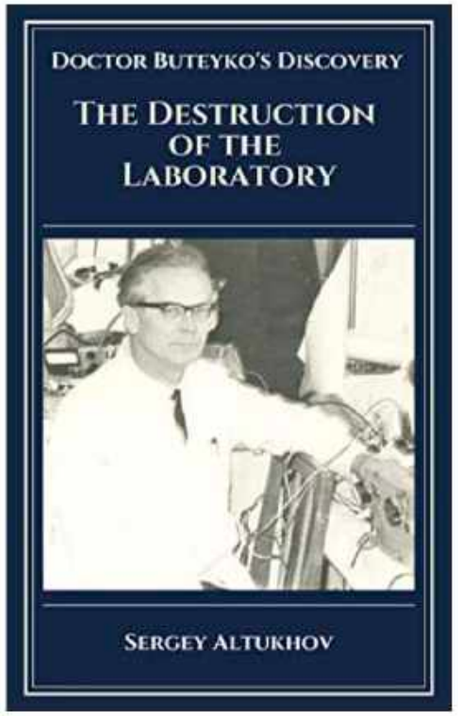
- Interestingly, part of the response to COVID-19 was a return to the 19th-century view (greatly supported by Florence Nightingale) that good ventilation and access to fresh air were key to health and healing.

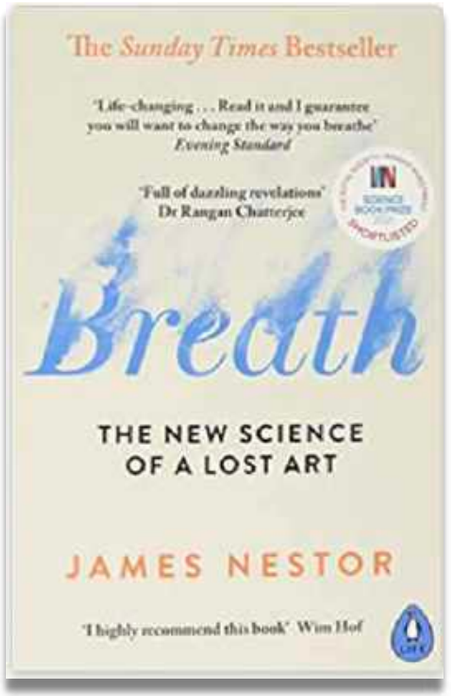
- Scientists experimenting in the 1960s concluded that fresh air could be a natural disinfectant, killing the source of infections. It was referred to as the Open Air Factor or OAF.

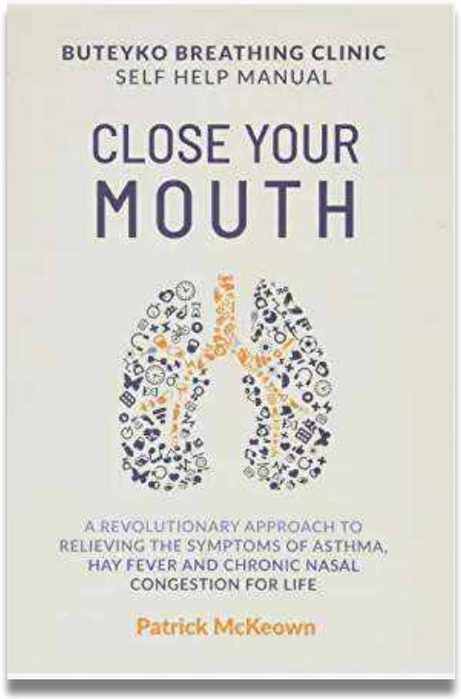
- A recent study on COVID-19 mentions that this “has not been properly recognised for decades. This is despite robust evidence that the OAF can influence both the survival of airborne pathogens and the course of infections.”

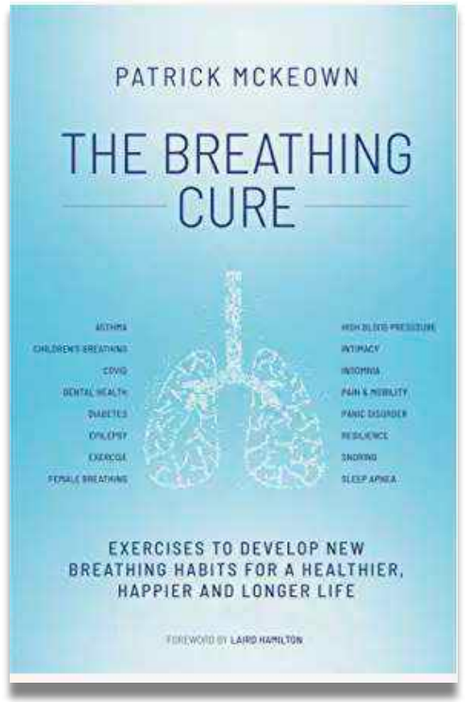
- Poor nutrition to support our respiratory and vascular health naturally also leaves us more vulnerable to infections."

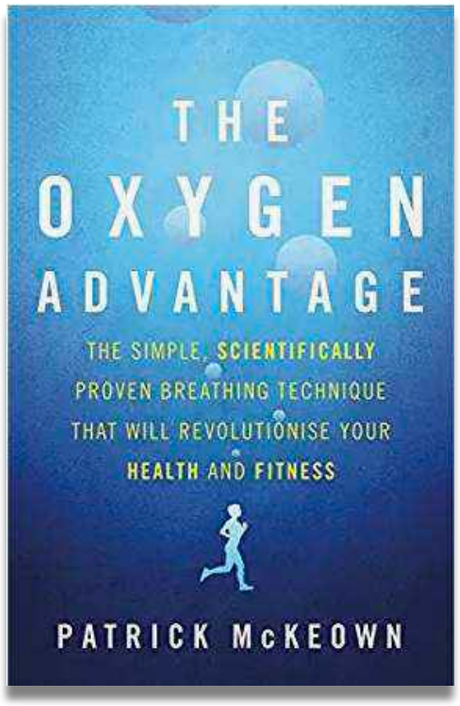
Source: Conella Holdings Blog

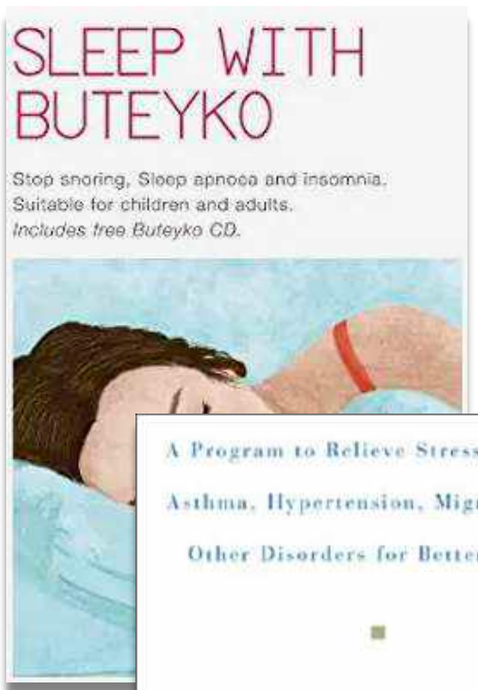

DOCTOR BUTEYKO'S DISCOVERY
THE DESTRUCTION OF THE LABORATORY
SERGEY ALTUKHOV


The Sunday Times Bestseller
'Life-changing . . . Read it and I guarantee you will want to change the way you breathe'
Evening Standard
'Full of dazzling revelations'
Dr Rangan Chatterjee
Breath
THE NEW SCIENCE OF A LOST ART
JAMES NESTOR
'I highly recommend this book' Wim Hof


BUTEYKO BREATHING CLINIC
SELF HELP MANUAL
CLOSE YOUR MOUTH
A REVOLUTIONARY APPROACH TO RELIEVING THE SYMPTOMS OF ASTHMA, HAY FEVER AND CHRONIC NASAL CONGESTION FOR LIFE
Patrick McKeown


PATRICK MCKEOWN
THE BREATHING CURE
EXERCISES TO DEVELOP NEW BREATHING HABITS FOR A HEALTHIER, HAPPIER AND LONGER LIFE


THE OXYGEN ADVANTAGE
THE SIMPLE, SCIENTIFICALLY PROVEN BREATHING TECHNIQUE THAT WILL REVOLUTIONISE YOUR HEALTH AND FITNESS
PATRICK McKEOWN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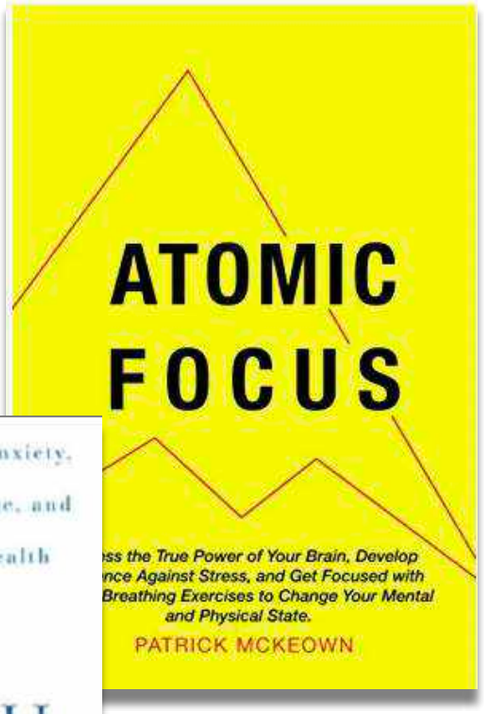
Stop snoring, Sleep apnoea and insomnia.
Suitable for children and adults.
Includes free Buteyko CD.


ATOMIC FOCUS
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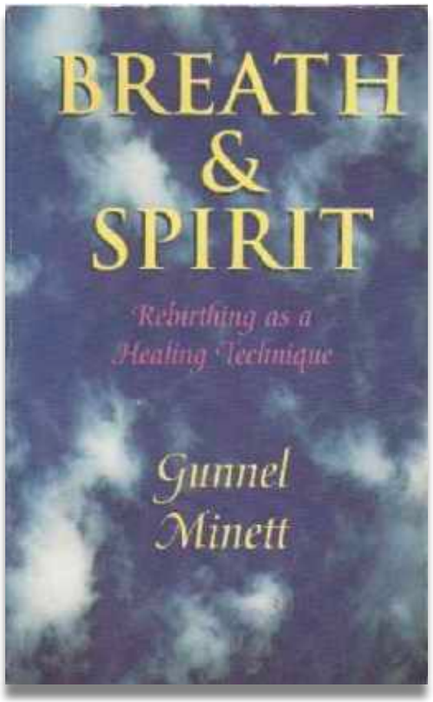
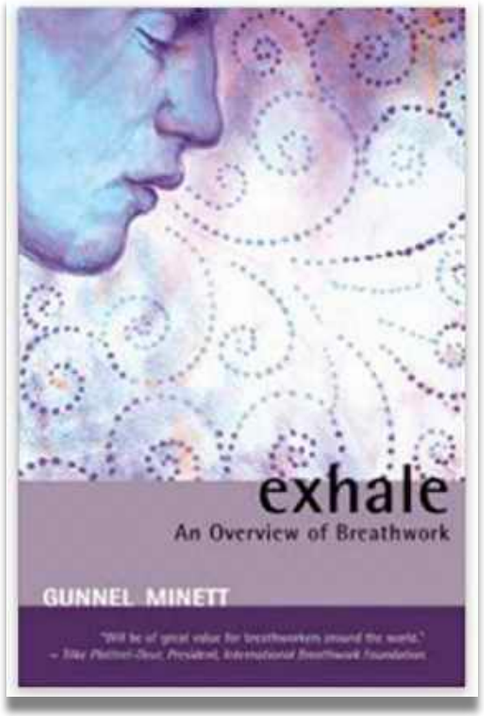
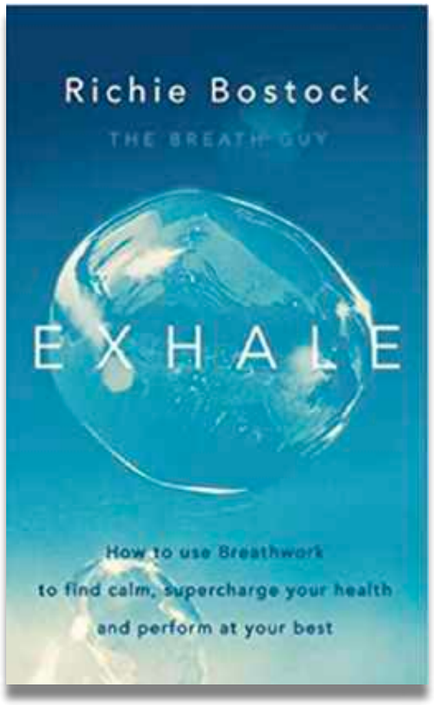
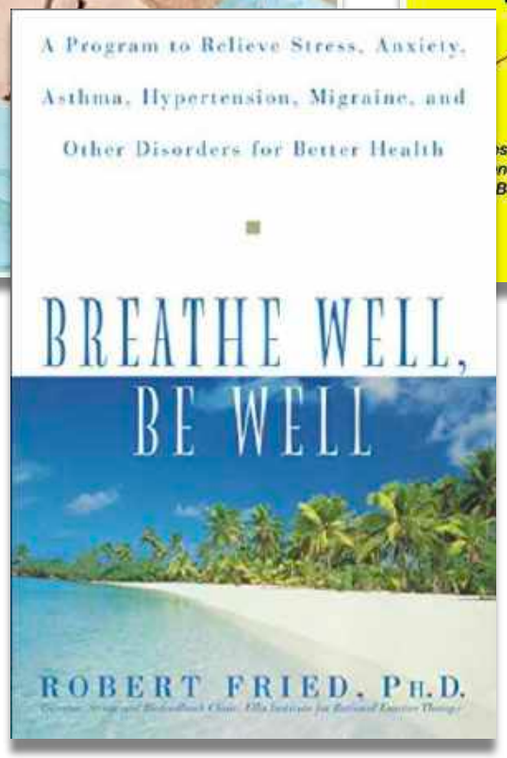
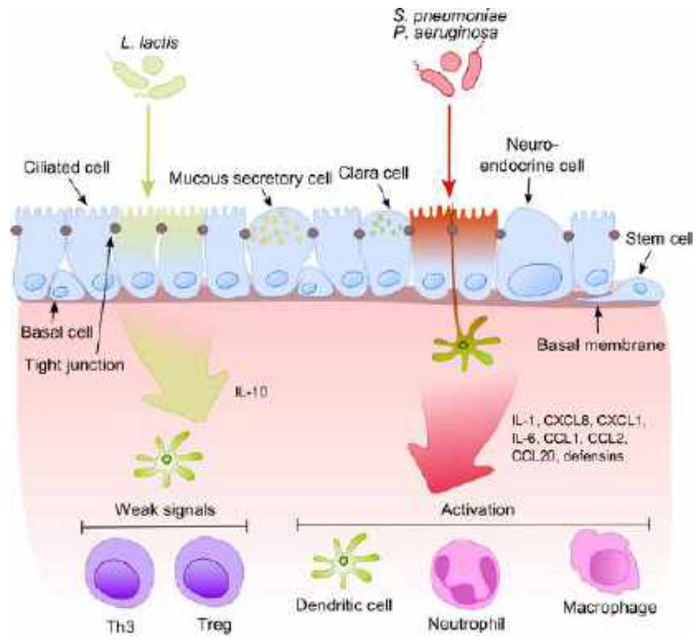

BREATH & SPIRIT
Rebirthing as a Healing Technique
Gunnel Minett


exhale
An Overview of Breathwork
GUNNEL MINETT


Richie Bostock
THE BREATH GUY
EXHALE
How to use Breathwork to find calm, supercharge your health and perform at your best


A Program to Relieve Stress, Anxiety, Asthma, Hypertension, Migraine, and Other Disorders for Better Health
BREATHE WELL, BE WELL
ROBERT FRIED, PH.D.

Lung Microbiome and Mycobiome



- The healthy lung was long thought of as sterile, but recent advances using molecular sequencing approaches have detected bacteria at low levels especially on the mucous layer and the epithelial surfaces. These microorganisms include bacteria, fungi, viruses and bacteriophages.

- Healthy lung bacteria largely reflect communities present in the upper respiratory tract that enter the lung via microaspiration, which is balanced by mechanical and immune clearance and likely involves limited local replication.

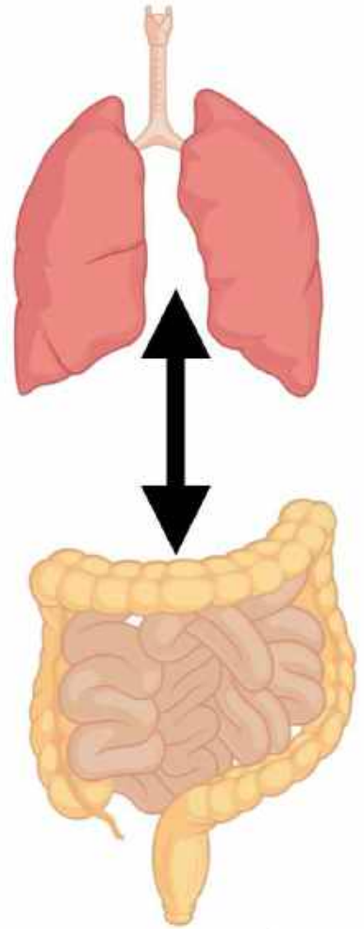
- Dysbiosis has been demonstrated in many pulmonary diseases not traditionally considered microbial in origin, and potential pathways of microbe-host crosstalk are emerging.

- The question is whether / how dysbiotic microbiota contribute to initiation or perpetuation of injury. The fungal microbiome and virome are less well studied.

- The harmful or potentially harmful bacteria are also detected routinely in respiratory specimens. The most significant are *Moraxella catarrhalis, Haemophilus influenzae,* and *Streptococcus pneumoniae*. They are known to cause respiratory disorders under particular conditions namely if the human immune system is impaired.
- The fungal genera that are commonly found make up the lung *mycobiome,* in the microbiota of the lung, and include *Candida, Malassezia, Neosartorya, Saccharomyces,* and *Aspergillus,* among others.
- We can also consider the dental microbe - > lung connection and the gut-lung axis

1. https://pubmed.ncbi.nlm.nih.gov/34338230/
2. https://en.wikipedia.org/wiki/Lung_microbiota

Gut-lung Axis



Diet, Microbiota and Gut-Lung Connection

Swadha Anand Sharmila S Mande

"Dysbiosis in gut microbiota has been implicated in several lung diseases, including allergy, asthma and cystic fibrosis. The bi-directional cross-talk between gut and lung (termed as Gut-Lung axis) is best exemplified by intestinal disturbances observed in lung diseases. Some of the existing probiotics show beneficial effects on lung health". https://pubmed.ncbi.nlm.nih.gov/30283410/

The Gut–Lung Axis in Respiratory Disease

Benjamin J. Marsland , **Aurélien Trompette** , and **Eva S. Gollwitzer**

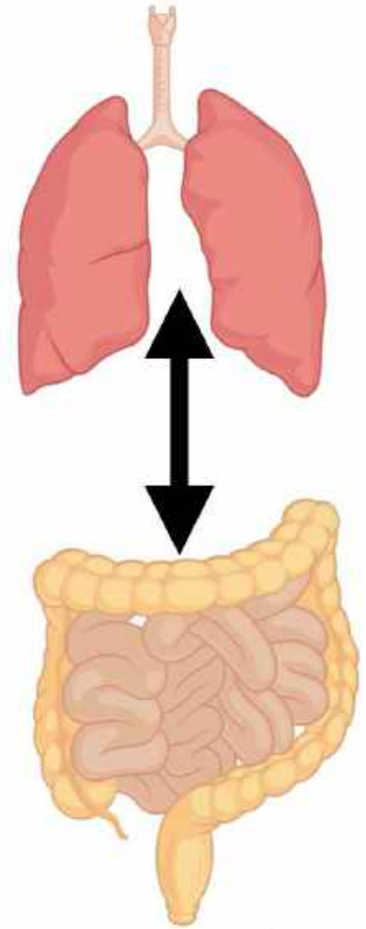
"Chronic lung disorders, such as asthma, chronic obstructive pulmonary disease (COPD), and cystic fibrosis, all exhibit a component of intestinal disease manifestation. In addition, respiratory viral infections are often accompanied by intestinal symptoms. It has also been shown that the intestinal microenvironment changes in the course of several different lung diseases, including shifts in the composition of the intestinal microbiota. This indicates that there is a vital cross-talk between these two mucosal sites of the human body." https://www.atsjournals.org/doi/full/10.1513/AnnalsATS.201503-133AW

Microbes, metabolites, and the gut-lung axis

Anh Thu Dang & Benjamin J. Marsland

"Emerging experimental and epidemiological evidence highlights a crucial cross-talk between the intestinal microbiota and the lungs, termed the 'gut–lung axis'. Changes in the constituents of the gut microbiome, through either diet, disease or medical interventions (such as antibiotics) is linked with altered immune responses and homeostasis in the airways." https://www.nature.com/articles/s41385-019-0160-6

Gut-lung Axis

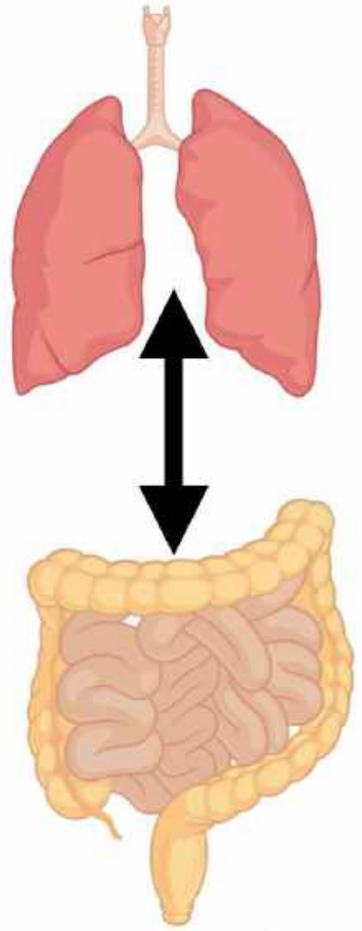


How does the gut microbiota affect respiratory outcomes?

- A gut microbiota in good shape is important for ensuring proper immune responses in the lungs to keep respiratory tract infections at bay
- The gut mirobiota and lungs are connected in two directions
- Immune cells located in the gut wall can leave the gut and travel through the lymphatic system to other locations including the lungs.
- Inversely, respiratory infections can alter gut microbiota composition and functions
- Infant gut mirobiota development has been shown to predict asthma risk later in life and individuals with chronic obstructive pulmonary diseasse (COPD) are 2-3 times more likely to be diagnosed with inflammatory bowel disease
- While the respiratory tract was traditionally considered sterile, we now know that it has its own microbiota that is linked to the gut microbiota. As such, improving your gut microbiota through diet provides an opportunity to look after your lungs.

https://www.gutmicrobiotaforhealth.com/researchers-turn-to-the-gut-lung-connection-in-the-search-for-a-treatment-for-covid-19/?search=gut%20lung%20axis

Gut-lung Axis



How does the gut microbiota affect respiratory outcomes?

- Several human clinical trials have studied the effect of probiotics on upper respiratory tract infections such as the common cold. Studies also show certain probiotic strains can reduce atopic diseases in infants and fight off the release of inflammatory compounds by immune cells in smokers. Furthermore, in healthy children and adults, specific *Lactobacillus* and *Bifidobacterium* probiotic strains have shown benefits in reducing the duration of respiratory and gastrointestinal symptoms and thus absenteeism at school and work.

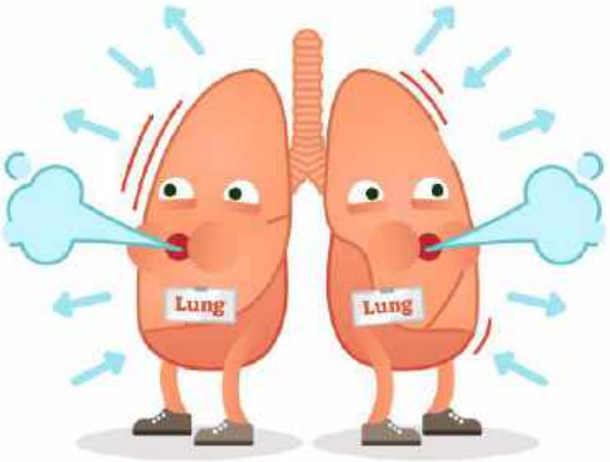
- One dietary element is the fermentable fiber inulin, which has been shown to prevent flu in mice by involving both innate (inflammatory responses) and specific immune responses.

- Dental bacteria can also travel to the mouth to the lungs

- https://microbiomelabs.co.uk/the-gut-lung-axis/

https://www.gutmicrobiotaforhealth.com/researchers-turn-to-the-gut-lung-connection-in-the-search-for-a-treatment-for-covid-19/?search=gut%20lung%20axis

Gut-lung Axis



- A healthy lung microbiota is essential in the maturation and homeostasis of lung immunity, reducing Th2-associated cytokine production after an allergen challenge and inducing regulatory cell production early in life, as well as establishing resident memory B cells, which are important weapons against viruses such as influenza.

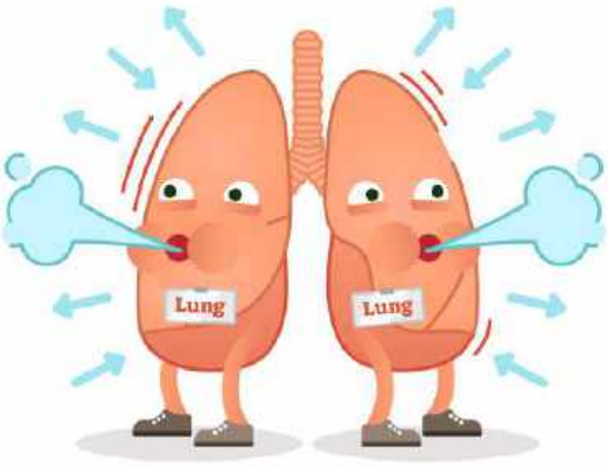
- Microbiome imbalances are clearly implicated in asthma, CPOD and cystic fibrosis. For example, a reduction in *Bifidobacteria* and increase in *Clostridia* in the gut microbiome is associated with asthma in early life.

- Dysbiosis increases toll-like receptor (TLR) activation and the release of gut NF-κB, which is associated with an increased lung inflammatory response during influenza in mice. TLR activation is implicated in the cytokine storms recently seen in the most serious COVID-19 cases.

- Lung pathologies can also affect the gut. Influenza virus infection in the murine respiratory tract increases *Enterobacteriaceae* and reduces *Lactobacilli* and *Lactococci* in the gut microbiota. *Salmonella* nasal inoculation promotes salmonella specific gut immunisation, which depends on lung dendritic cells. Inhalation of lipopolysaccharides by mice disturbs their gut microbiome.

Source: Heel

Gut-lung Axis



- This research suggest a close correlation between the two microbiota and the presence of a host-wide network influencing each others' immune homeostasis. This has clear implications in the clinic.

- Gut microbiome balance must be taken into account when targeting the lungs and needs support after any lung based infection. Metabolites, which act at both a gut and systemic level to counteract pro-oxidant and/or pro-inflammatory responses, bind and neutralise toxins in the lumen and mucosa before they can reach the intestinal epithelium.

- Nutrients that have been shown to have a positive effect on secretory IgA production and secretion include essential omega fatty acids, glutathione, glycine, phosphatidylcholine, vitamin C, zinc and colostrum.

Source: Heel

Biome Breathe is a clinically trialled live bacteria supplement for the gut-lung connection with innovative microencapsulation technology

Lactobacillus salivarius LS01 (DSM 22775)
Bifidobacterium breve B632 (DSM) 24706)
Sweeteners (sorbitol, xylitol), maise maltodextrin, antioxidant (glyceryl palmito-stearate) flavour enhancer (natural vanilla flavour) anti-caking agent (silicon dioxide)

The bacteria that live in our gut are able to stimulate our immune system in other parts of the body, including the lungs. This communication between the gut and the lungs has been termed the **gut-lung axis.** Through their benefit on the health of the gut microbiome, probiotics are able to stimulate the immune system in the lungs, which may hep to control the symptoms of respiratory conditions.

In a recently completed clinical trial in children with allergic asthma or recurrent wheezing, supplementation with Biome Breathe Probiotic daily for 4 months significantly reduced the number of asthma attacks the children experienced during both the treatment period and 4-month follow-up period, compared to placebo. On the basis of these encouraging clinical trial results, Biome Breathe™ Probiotic may be considered as an adjunct to medications indicated for paediatric asthma management, including preventer, reliever, or combination medications.

★★★★★ (100)

resB® Lung Support

resB® Lung Support is the first clinically studied formula to combine live probiotic bacteria strains (RSB11™ RSB12™ and RSB13™) with bioactive botanicals for **digestion, immune function, and respiratory health.***

Take two capsules (30B CFU) per day

Multi-strain Probiotic Blend

Bioactive Botanicals

1 Month Supply | 3 Month Supply

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Multi-strain Probiotic Blend

Lactiplantibacillus plantarum RSB11™
Lactobacillus acidophilus RSB12™
Lacticaseibacillus rhamnosus RSB13™

Marshmallow Leaf / Root / Flowers

Western Actions

- Dry coughs and colds
- Dry mouth and low saliva production
- Bacterial infections, including bladder infections, urinary tract infections and respiratory infections
- Bronchitis and tonsillitis
- Joint pain caused by swelling/inflammation
- Inflammation of the lining of the stomach
- Digestive issues, including diarrhoea, stomach ulcers, constipation
- Inflammatory bowel disease, leaky gut syndrome and autoimmune disorders
- Burns, wounds, insect bites or poultices on the skin
- Eczema and dermatitis of the skin
- Water retention, bloating and PMS

Ayurvedic actions:

- Ama pachana - clears toxins from the gut
- Relieves coughs & breathing problems
- Increases strength
- Relieves hyperacidity
- Relieves urinary stones and calculi
- Increases Ojas
- Rejuvenative
- Reabsorbs fluid from the bowel, burbs diarrhoea
- Diuretic
- Relieves pain and spasm in the gut
- Increases breast milk
- Relieves allergies
- Heals ulcers
- Wonderful rasayana for all 3 doshas (nourishes Rasa Dhatu - 1st Dhatu)
- Soothes high pitta, reduces heat and inflammation in Ama
- Gargles for sore throats

Marshmallow Leaf / Root / Flowers

Althea officinalis

A herbal preparation made from marshmallow root since ancient Egyptian times, used to soothe coughs and sore throats and to heal wounds, evolved into today's marshmallow treat, but most modern marshmallow treats no longer contain any marsh-mallow root

Dosha: VPK= (K+ ama+ in excess
Virya / Potency: Cooling
Strotas / Chanels: prana/respiratory, mutra/urinary, anna/digestive, majja/ nervous, stanya/lactation

Actions:
emollient, demulcent, anti-inflammatory, antiseptic, anti-histamine

Marsh Mallows from my herb garden

Other plants in the Malvaceae (mallow) family: -

- Hollyhock
- Hibiscus
- Linden
- Okra
- Cotton
- Cacao

Buteyko Clinical Breathing

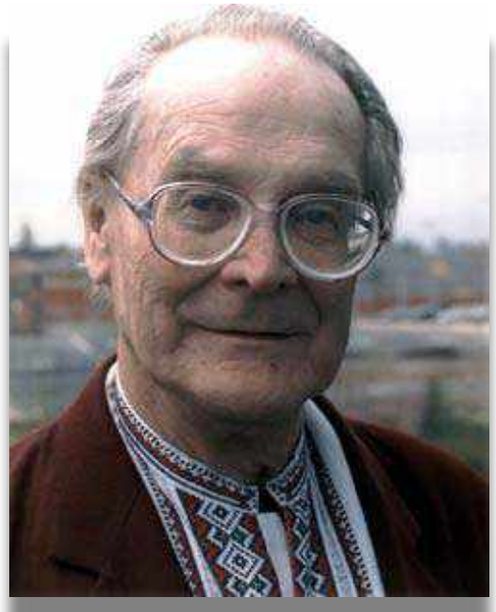
When breath control is perfected,
the body becomes light,
countenance becomes cheerful,
eyes become bright,
digestive power increases
and it brings internal purificaiton and joy

Grahayamalatantra, chapter 13

Breathing

- We have lost touch with our most basic and important biological function.
- To oxygenate tissues and organs, we need to breathe less, not more.
- The mouth doesn't serve any function at all in terms of breathing, except to take air to the lungs.
- It doesn't warm the air, regulate the air, moisten the air, or harness nasal nitric oxide.
- The mouth is connected with the upper chest which is more likely to kick in a fight or flight response.
- Conversely, the nose is connected with the diaphragm.
- We can hugely influence our autonomic nervous system through the breath.
- The awake, resting brain uses 20-25% of the body's total oxygen, even though it makes up only 2-3 percent of the body's mass

Buteyko Clinical Breathing



Konstantin Pavlovich Buteyko

- The Buteyko method was originally developed in the 1950s by physiologist Konstantin Buteyko in Ukraine, then part of the Soviet Union.
- The first official study into the effectiveness of the Buteyko Method on asthma was undertaken in 1968 at the Leningrad Institute of Pulmonology.
- The second, held at the First Moscow Institute of Pediatric Diseases in April 1980, eventually led to the head of the ministry of health to issue an order (No 591) for the implementation of the Buteyko method in the treatment of bronchial asthma.
- Later, this method was introduced to Australia, New Zealand, Britain and the United States, where it has received increasing exposure.
- The Buteyko method is one of a number of breathing retraining methods in use for treating lung diseases.

- Wikipedia

Buteyko Clinical Breathing

- Dr. Buteyko noticed that his sick patients were mouth breathing and breathing hard.
- He asked, is the sickness causing the hard breathing, or the hard breathing causing the sickness?
- People are often told to take deep, full, big breaths in the belief that this will increase oxygen delivery to the tissues.
- If we look at the science, it doesn't work that way. If you take big breaths that increase the volume of air beyond what it should be, you get rid of too much carbon dioxide.
- Due to the Bohr Effect, this causes red blood cells to actually hold on to oxygen instead of releasing it. By practicing the Buteyko breathing technique and developing subtle, soft, slow, light breathing while also maintaining diaphragmatic, nasal breathing, you are increasing oxygen delivery to the cells.

Konstantin Pavlovich Buteyko

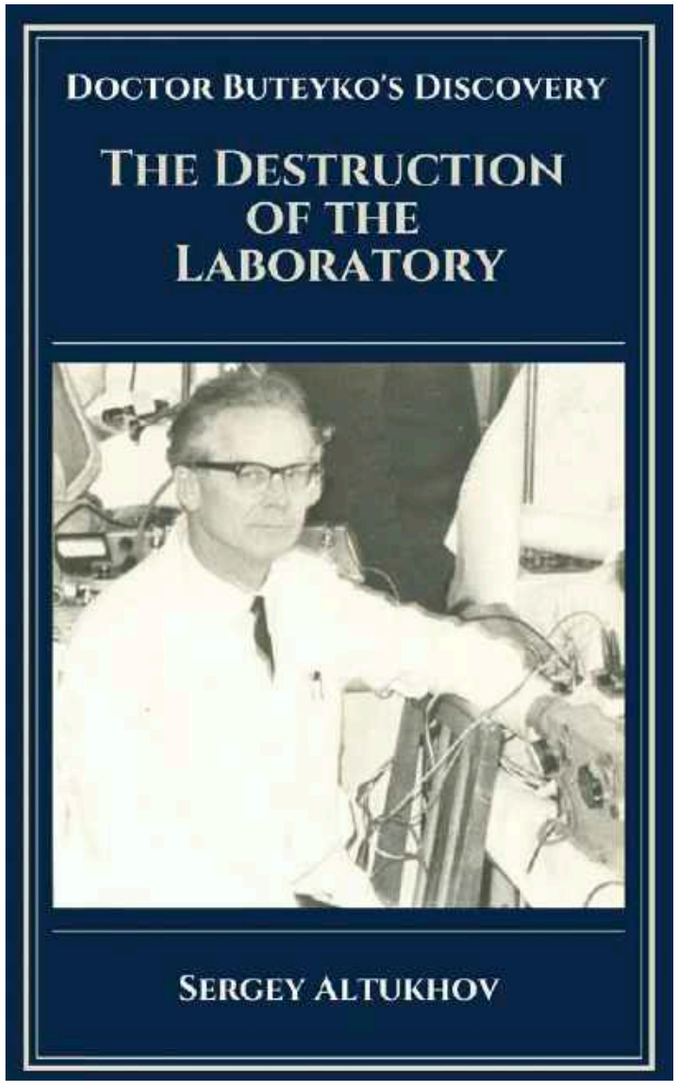
- “For over 30 years – from October 1952 to September 1985 – the medical establishment hushed up my discovery. It did everything to trample on and destroy the strongest weapon in the fight against many modern diseases.”

- “I was called a charlatan, a schizophrenic and a raving nutter, among other names. They tried to poison me three times, and organised two car crashes. There were several attempts to put me in a psychiatric hospital. “

- “They physically destroyed my laboratory, which was unique throughout the world.”

- “And all of this because I had discovered a lever that patients could pull to be free from their piles of pills and complicated surgical procedures that were far from safe.”

Altukhov, Sergey. Doctor Buteyko’s Discovery: The Destruction of the Laboratory (p. 9). TheBreathingMan



Buteyko Clinical Breathing

- The Buteyko Method consists of a series of breathing exercises specifically designed to reduce over-breathing (clinically known as ‘chronic hyperventilation’).

- The simple fact is that many people breathe too much, which alters the natural levels of gases in the blood, reduces oxygen delivery to tissues and organs, and causes constriction of the smooth muscles surrounding blood vessels and airways.

- This can lead to numerous health problems. Bringing breathing volume towards normal and making the switch from mouth to nose breathing helps to alleviate such health problems.

- Over-breathing can impair the functioning of the kidneys, liver, intestines and other organs and can slow the detoxification process.

- Mouth-breathers send less oxygen to their brains and also have more colds and chest infections than nasal breathers because the nose warms and filters out pathogens and particles in the air. With mouth breathing, pathogens can go straight into the mouth and to the tonsils.

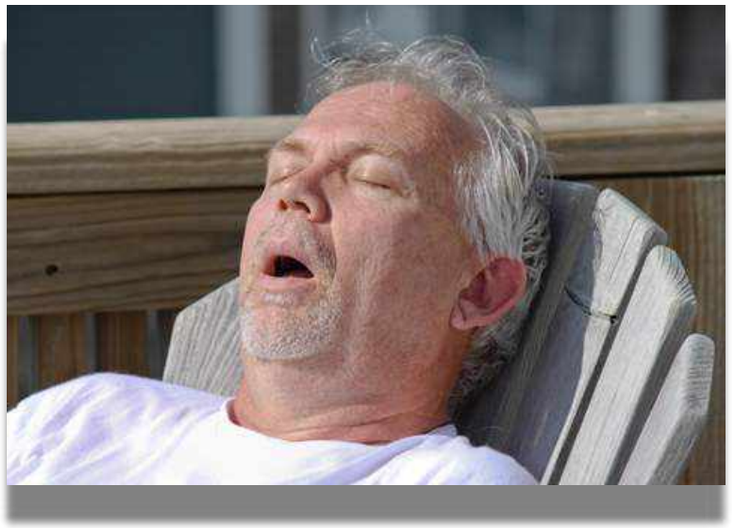
Buteyko Clinical Breathing

- Stress and shallow mouth-breathing may cause too much carbon dioxide to be eliminated, leading to alkaline blood. This can cause sleep problems, dizziness, light headedness and fatigue. Alkalinity can cause increased nerve ending sensitivity and further nervous system symptoms. Inadequate oxygenation and retention of acid wastes in overused muscles make them painful and stiff, particularly in postural muscles where trigger points can be found.

- **The quickest way to alkalise the body is by breathing correctly. This is because hyperventilation (over breathing) causes blood to be alkaline by driving out CO_2 . This low blood pH causes constriction of blood vessels.**

- "When we breathe through the mouth, the nasal passages and throat dry out. This can lead to inflammation of the airway, which contributes to a narrowing of the airway, but also with a dry throat, when the airway closes, it takes a greater reopening pressure to re-establish breathing." – Patrick McKeown

Buteyko Clinical Breathing

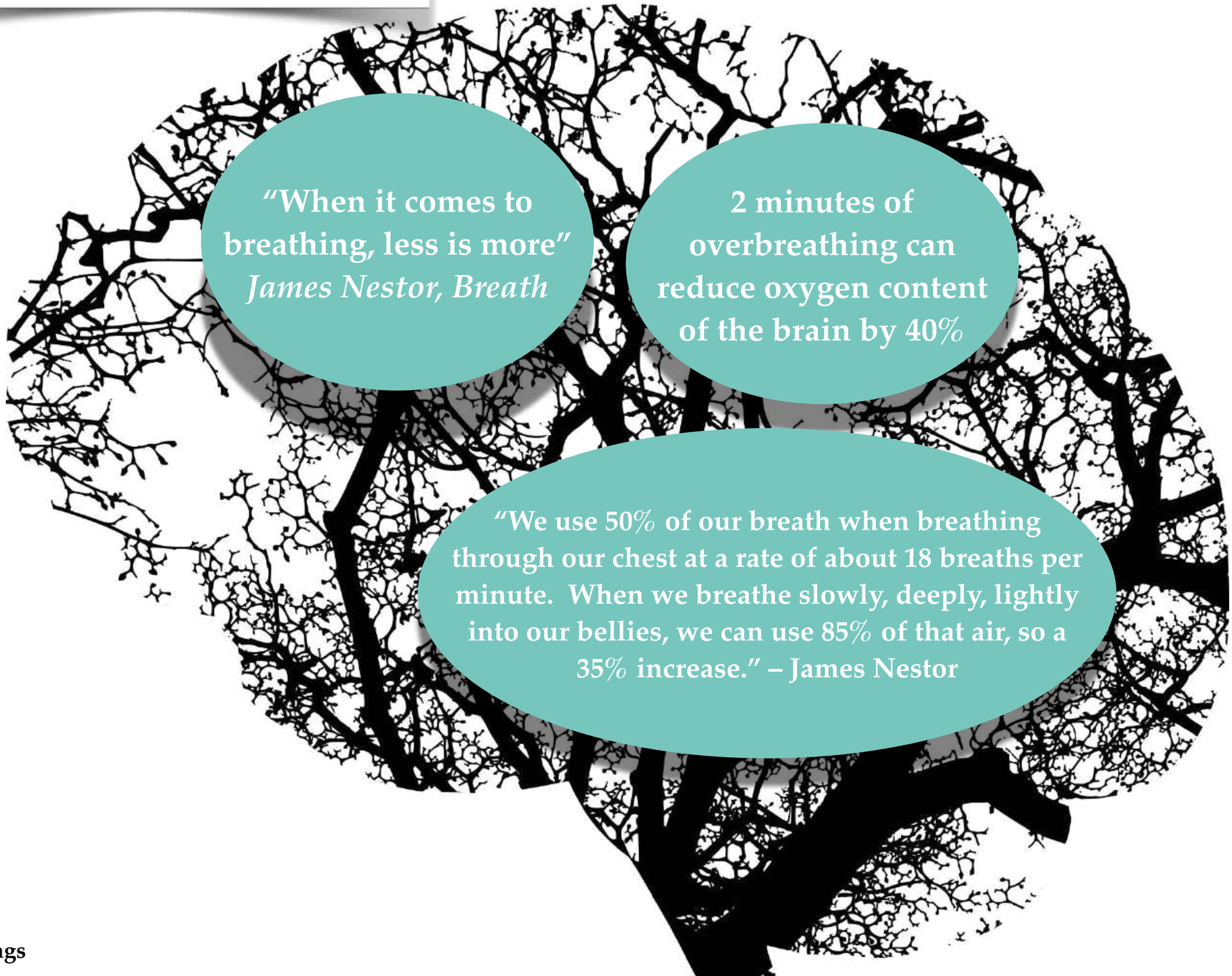


- The Buteyko Method aims to normalize breathing to ensure the correct balance of respiratory chemistry. The exercises restore functional breathing, optimize oxygen uptake and improve respiratory muscle function.

- Poor breathing is responsible for a surprising number of common symptoms. The Buteyko Method gently re-trains this natural function, restoring harmony throughout the body's systems.

- Any person from the age of five upwards can learn how to breathe properly using the Buteyko Method.

Overbreathing



"When it comes to breathing, less is more"
James Nestor, Breath

2 minutes of overbreathing can reduce oxygen content of the brain by 40%

"We use 50% of our breath when breathing through our chest at a rate of about 18 breaths per minute. When we breathe slowly, deeply, lightly into our bellies, we can use 85% of that air, so a 35% increase." – James Nestor

Breathing

Breathing should be light, quiet, effortless, soft, through the nose, diaphragmatic (from the diaphragm and not the upper chest), rhythmic, and gently paused on the exhale.

Breath should be so smooth that the fine hairs in your nostrils remain motionless.

"Generally, there are three levels of breathing. The first one is to breathe SOFTLY, so that the person standing next to you doesn't hear you breathing. The second level is to breathe softly so that YOU don't hear yourself breathing. The third level is to breath softly so you do not FEEL yourself breathing."
– Master Chris Pei, Beginners Guide to Qi Gong.

Image: Pixabay

Breathing and Hydration

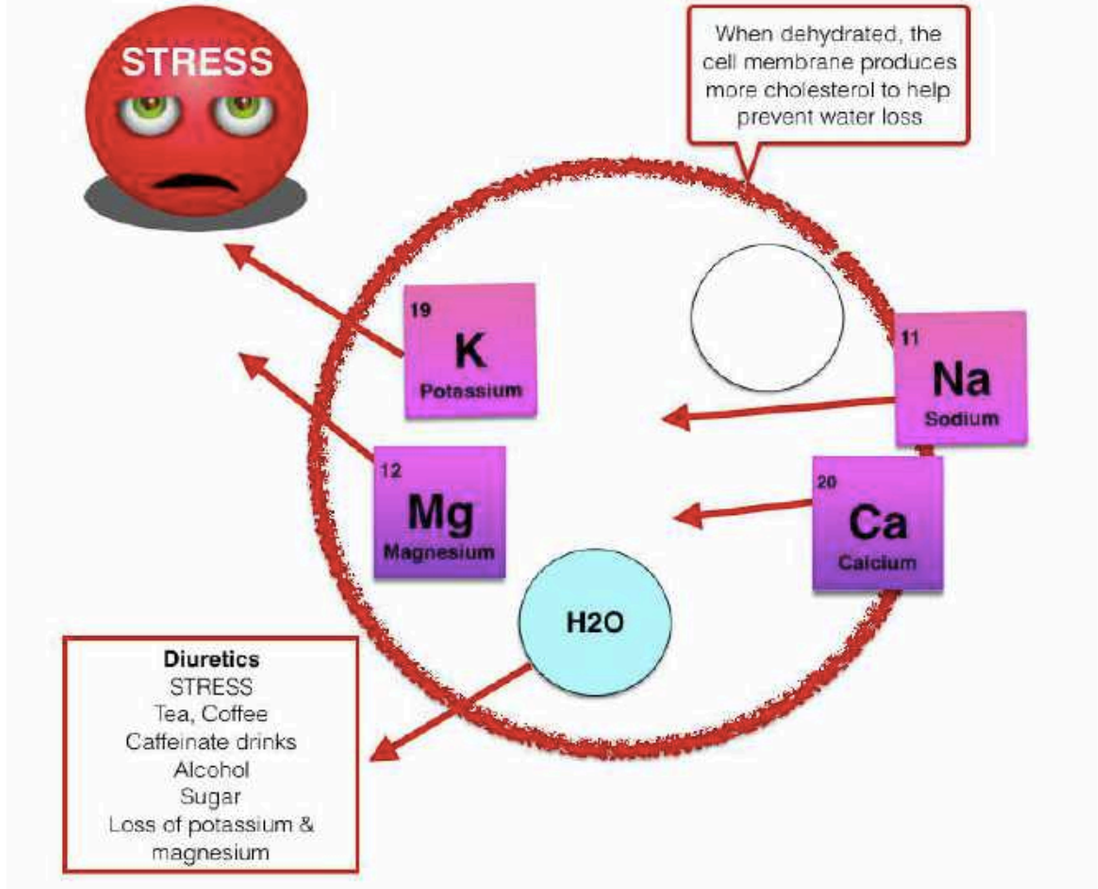
- Hydration is not just about what we drink. A person can be drinking 1.5 litres of water a day but may still be dehydrated because if are not holding on to their water.

- We need essencial fatty acids for the cell membrane to hold in water, and electrolytes balanced in the cell (calcium : magnesium, sodium : potassium), and we get hydration from vegetables and fruits. Plus reducing stimulants, which are diuretics (caffeine, alcohol, sugar). The water that we ingest also needs to be delivered to the cells by movement.

- Stress is very dehydrating because of the imbalanced electrolytes. Mouth breathing activates the sympathetic nervous system and the stress response. It triggers the release of the hormone vasopressin, which increases the depletion of water in the body by 40%.

- Vasopressin, also called antidiuretic is a hormone (ADH) triggered in the hypothalamus and released by the posterior pituitary with a direct antidiuretic effect on the kidneys. ADH plays essential roles in the control of the body's osmotic balance, blood pressure regulation, sodium homeostasis, and kidney functioning. ADH primarily affects the ability of the kidney to reabsorb water

- So breathing correctly helps with hydration



Breathing

- Inhaling air through the mouth decreases pressure, which causes the soft tissues in the back of the mouth to become loose and flex inwards, creating less overall space, and making breathing more difficult.

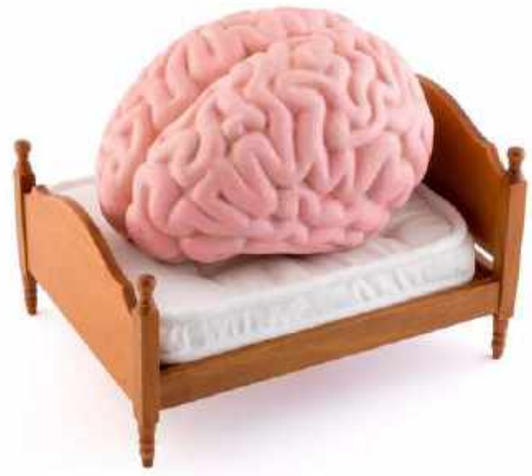
- Experiments have showed that when nose breathing is blocked, there is a downward growth pattern, a narrowing of the dental arch, more of a V shape of the roof of the mouth which can penetrate the sinuses and inhibit nasal breathing, crooked teeth, and faces that grow longer with a slacker jaw (also known as "adenoid face" – James Nestor).

- Mouth-breathing encourages more mouth-breathing. Nose breathing, clears the nose and encourages more nose-breathing.

- Breathing in excess of metabolic requirements has a negative impact on health – *"debunk the theory of taking big breaths" – Patrick McKeown.*

Avoid sighing – one sigh every few minutes is enough to maintain chronic hyperventilation. Avoid big yawns for the same reason.

Breathing



- When we over-breathe (breathing in more air than the body needs - hyperventilation), it can contribute to high blood pressure, stress, anxiety, depression, fatigue, sleep-disordered breathing (e.g., snoring and sleep apnoea), asthma, fatigue, poor concentration / attention problems, brain fog, high blood pressure, heart disease. Most people with low thyroid hormones over-breathe.

- The nose plays a major role in the regulation of respiration in sleep. Breathing through the mouth results in light sleep.

- If you are addressing sleep issues, you have to address breathing. Breathing is a fundamental aspect of sleep.

- Inside the carotid artery in the neck, there is a chemoreceptor, a chemical receptor, which reads how much oxygen is coming up. If the brain registers low oxygen, it sends feedback to the heart, which tells it to drive it up.

- Children with enlarged tonsils and adenoids often mouth-breathe. Clinically it is recognised that enlargement of these tissues is often associated with frequent oral breathing, instead of nasal breathing.

Some signs of Mouth Breathing

Cardiovascular	Heart palpitations Missed beats Tachycardia Sharp or dull chest pain Angina Cold extremities Raynaud's Blotchy flushing of facial "blush" area Capillary vasorestriction
Neurological	Dizziness Instability Faint feelings (but rarely fainting) Headache Parasthesiae (numbness, deadness, uselessness, heaviness, pins and needles
Respiratory	Shortness of breath Irritable cough – dryness of the upper airways Tightness or oppression of chest Air hunger Inability to take a deep breath Excessive sighing Excessive Yawning Sniffing
Muscular	Cramps Muscle pains – neck & shoulders Lower back pain (proper diaphragmatic breathing provides stabilisation for the spine) Stiffness
Psychological	Tension Anxiety 'Unreal' feelings Phobias Panic
Allergies	
Gastrointestinal tract	Difficulty in swallowing Globus (having a lump in the throat) Dry mouth and throat Acid regurgitation Heartburn Flatulence Belching Air swallowing Abdominal discomfort Bloating
General	Weakness Exhaustion Impaired concentration Impaired memory and performance Disturbed sleep, including nightmares Emotional sweating

Factors that influence breathing

Even though breathing is an involuntary activity, there are many things that can influence our breathing gradually over time: -

- **Diet** – over-eating increases breathing volume.

- **Talking and singing** – involves large intakes of air and over-breathing e.g. people who work in retail, telesales, teachers, actors, singers, public speakers.

- **Stress** - activates the fight or flight response which increases breathing to prepare us for physical activity, but the stress that we have these days rarely demands the physical exercise such as running from a tiger to burn off the adrenaline.

- **Sedentary lifestyle**. When we move, our muscles generate carbon dioxide which helps maintain body oxygenation. A lack of exercise results in lower production of CO2 and a larger breathing volume.

- **Higher temperature / stuffy environments** – modern homes and workplaces are generally well-insulated but not always well ventilated. Stuffy, central heated rooms make it difficult for the body to regulate body temperature through the skin, therefore encouraging us to revert to the primitive method of heavier breathing

- **Big breath myth**. The widely held mistaken belief that it is beneficial to take big breaths is a major cause of over-breathing in the Western world. As mentioned, a deep breath should not be confused with a big breath. Babies take deep breaths in a quiet and gentle way using the diaphragm. In contrast, a big breath is often loud, through the mouth with upper chest movement. These things cause the nose to become blocked and the blood vessels and airways to constrict, it can disrupt the sleep and result in snoring, sleep apnoea and insomnia.

- A single sigh or yawn can affect the exchange of gasses for up to 7 minutes

Tongue Posture

- Correct oral posture supports your spine!

- Have you ever considered the relationship between your teeth and bite, your jaw joints, head position, head and neck muscles, lower back, pelvis, your feet, and your general upright standing posture?

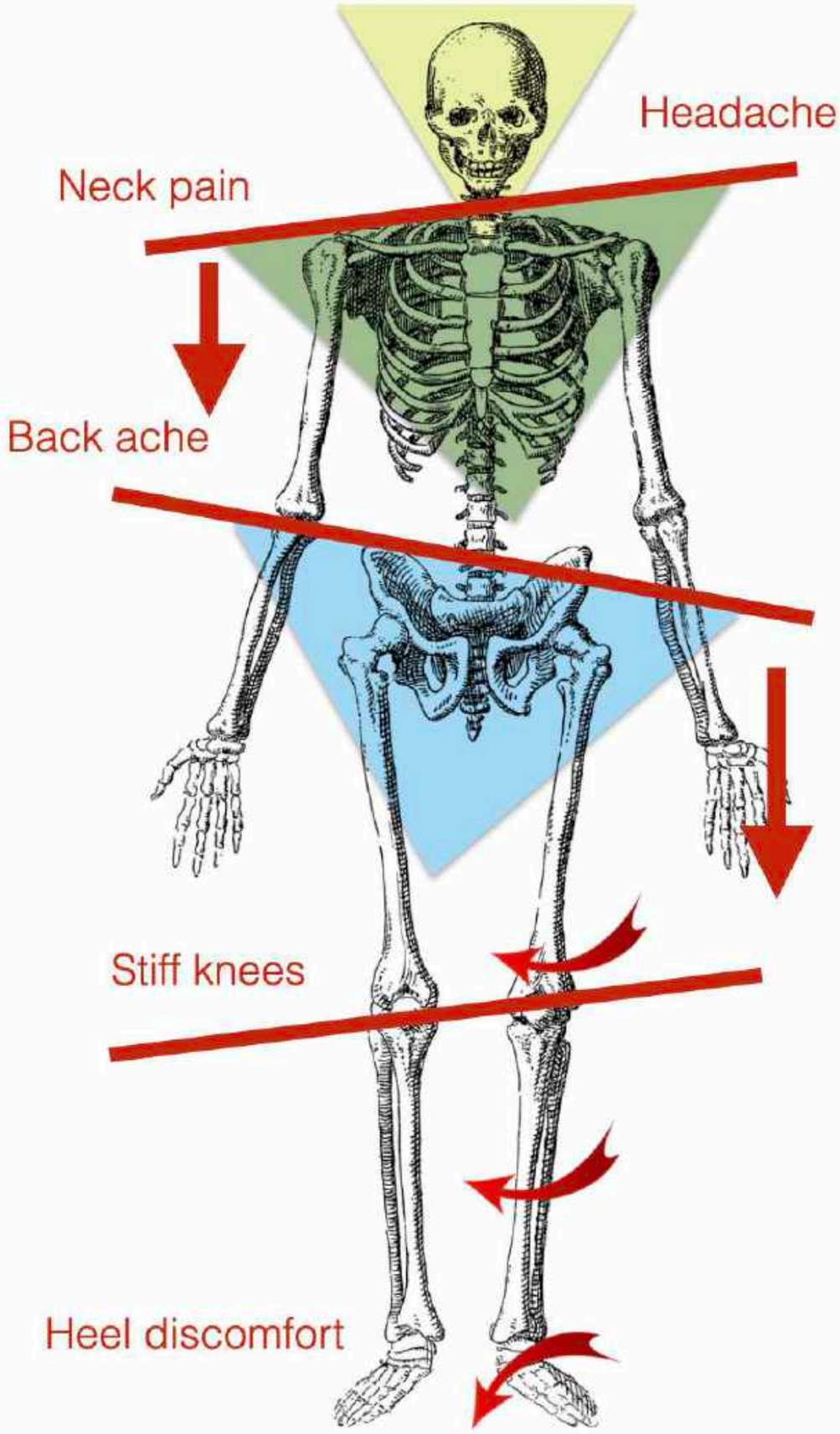
- Good jaw posture keeps bones and joints in correct alignment. **Good jaw posture depends on good tongue posture.**

- The normal resting place for the tongue at all times should be around ¾ of the tongue placed on the roof of the mouth.

- Proper tongue position will promote forward growth of the face, which is considered more aesthetically pleasing.

- Incorrect tongue posture is typically a symptom of ***mouth breathing***. Mouth breathing can be caused by many different things - such as allergies and nasal congestion.

- Incorrect tongue posture can also be caused by habits such as ***thumb sucking*** and a ***lack of tough foods*** in the diet, resulting in less chewing and ultimately weakening the jaw muscles.



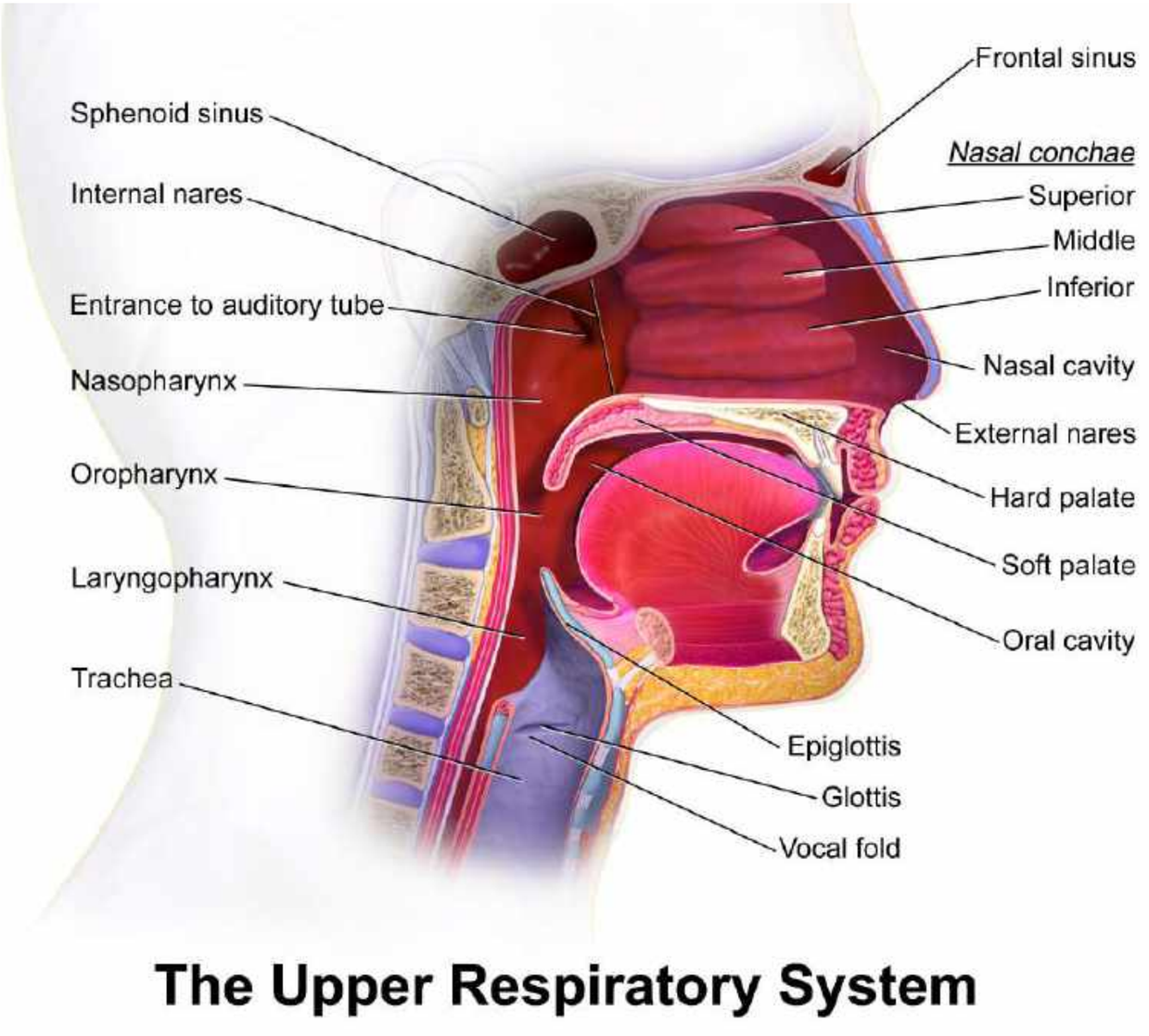
Tongue Posture

Orthodontics

- Treatment mostly starts later in life after growth has finished - typically at ages 13+
- Treatment is done primarily via mechanical braces
- Extracts teeth to create space

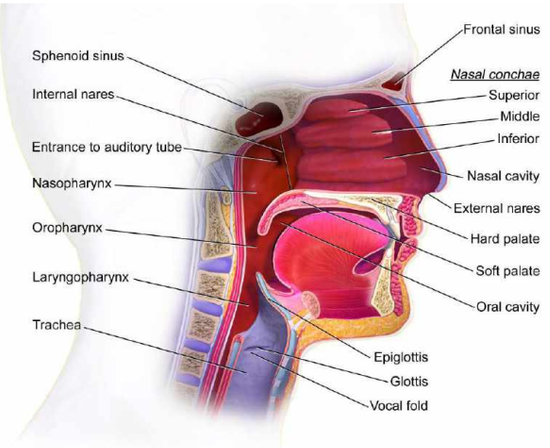
Orthotropics

- Treatment starts as early as possible as it creates lifelong change
- Treatment makes us of orthopaedic appliances, not braces
- Expands and develops the maxilla and cranial bones to create space instead of extracting teeth



Source: Erid Davis Dental - Biological Dentistry. https://www.ericdavisdental.com/faqs-and-blog/blog/tongue-posture-what-is-proper-tongue-posture-and-why-is-it-so-important/

Tongue Posture



The Upper Respiratory System

- The primary focus of ***orthotropic treatment*** is to correct tongue posture. Correct tongue posture simply means that the tongue sits on the roof of the mouth (the palate) at rest. Having the tongue sit on the roof of the mouth is important because it ensures the lips are sealed, the jaws together, the ***maxilla widened*** and that the face will be more likely to ***grow forwards*** (which is better than the face growing down). Ultimately, correct tongue posture ensures there is enough room for the teeth and a more attractive face.

- Tongue posture can also refer to the *swallow pattern* or how the tongue moves during swallowing. Dr Mike Mew estimates that 85% of the the population follow an incorrect swallow pattern that adversely affects tongue posture and ultimately leads to poor facial development and crowded teeth. At Eric Davis Dental, we focus on achieving **c**orrect tongue posture via proper swallowing patterns during orthotropic treatment.

- Dr Mike Mew - renowned for popularising mewing - also explains tongue posture in his videos on mewing. Tongue posture is central to the idea of mewing, just as it is in orthotropics. To learn more about mewing and mewing tongue posture

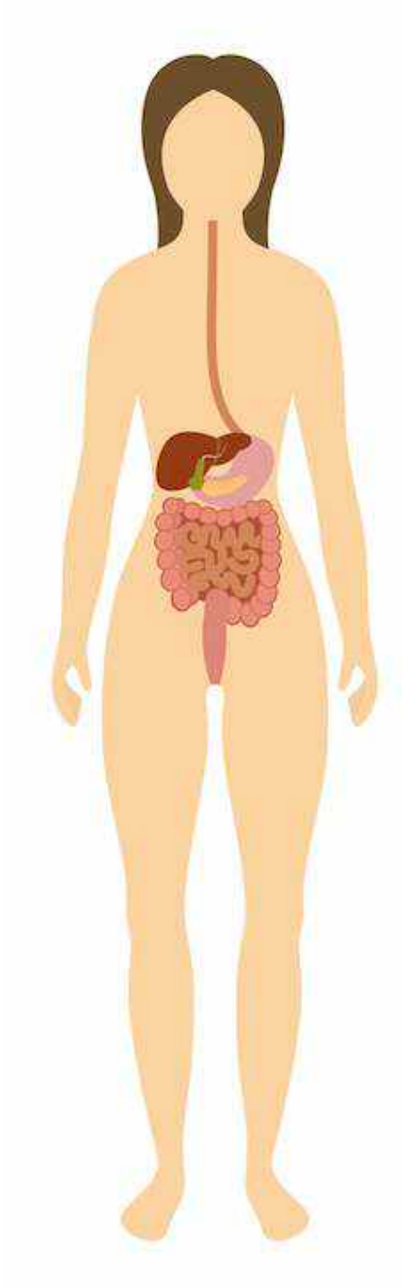
Source: Erid Davis Dental - Biological Dentistry. https://www.ericdavisdental.com/faqs-and-blog/blog/tongue-posture-what-is-proper-tongue-posture-and-why-is-it-so-important/

Breathing and Digestion

- When you correct your breathing volume, your metabolic processes improve, and your gastrointestinal tract receives more oxygen. This can reduce the need for food and helps normalise the appetite.

- Carbon dioxide stimulates the Vagus nerve (a parasympathetic nervous system cranial nerve that affects many areas of the body including the gastrointestinal tract (digestion), appetite control, the heart, respiration, speech, functions of the mouth.

- Breath has a significant effect on our mental state, just as our mental state can have a positive or negative effect on our ability to breathe well.



Breathing and Insomnia

- Insomnia is defined as having persistent problems with either falling or staying asleep. It is the most common of all sleep disorders, impacting approximately 30% of the global populationand it becomes even more prevalent after the age of 35.

- It can vary in intensity from mild to severe and it can occur short-term or be c hronic and enduring.

- A major contributor to many caseds of insomnia is dysfunctional breathing. This is beause dysfunctional breathing activates the Sympathetic Nervous system (SNS) which fuels stres and anxiety, and the underlying cause of almost all insomnia is stress and anxiety.

  - Buteyko International

Breathing and Hormones

- The second half of the menstrual cycle is called the luteal phase which lasts around 14 days and occurs after ovulation. The progesterone produced during this time serves to maintain the thickened lining of the uterus in preparation for the fertilized egg to implant itself. It also prohibits uterine muscle contractions that would cause the body to reject an egg. This phase is characterised by a gradual rise in progesterone.

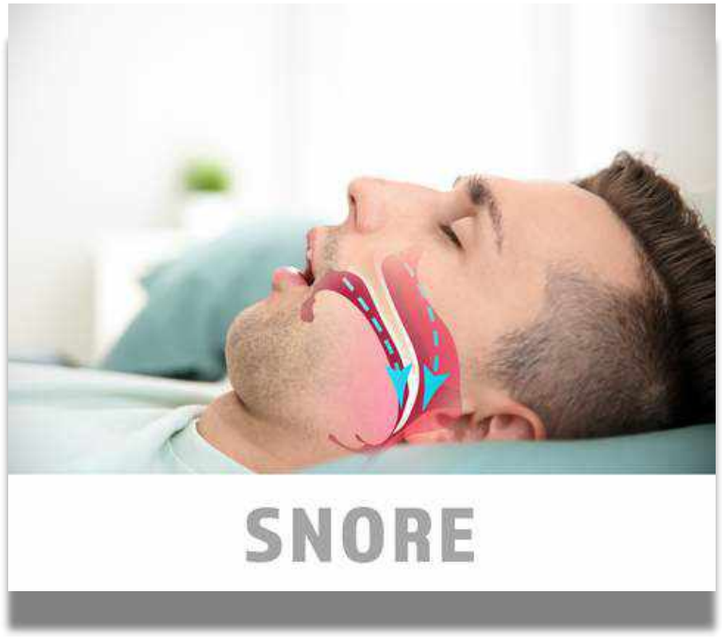
- When progesterone levels increase, it stimulates an increase in breathing (hyperventilation) and carbon dioxide levels can drop by 25% during this time. With this can come increased pain, fatigue, anxiety, PMS, sensitivity to carbon dioxide.

- As a change of breathing pattern can occur post ovulation, paying attention to breathing through the nose and doing the breathing exercise may help with these symptoms.

- Oestrogen and progesterone both influence minute ventilation* and arterial CO2 levels (Slatkovska et al., 2006) and may also influence TMJ pain (temporomandibular joint). The hormonal intricacies relating to pain and the menstrual cycle are still being untangled (Sherman and LeResche, 2010), but alterations in breathing pattern during the menstrual cycle could contribute to TMJ.

*** Minute Ventilation: the volume of air that enters the lungs over one minute**

Snoring



- Snoring is a sign of obstruced airways. It occurs due to a large volume of air passing through a narrow space, causing turbulence in the soft palate, nose, or back of the throat, which in turn, causes the tissues to vibrate. S

- There are 2 reasons why this might happen: either the snorer is breathing too hard during sleep, or the upper airway - the nose, mough and throat - is too narow

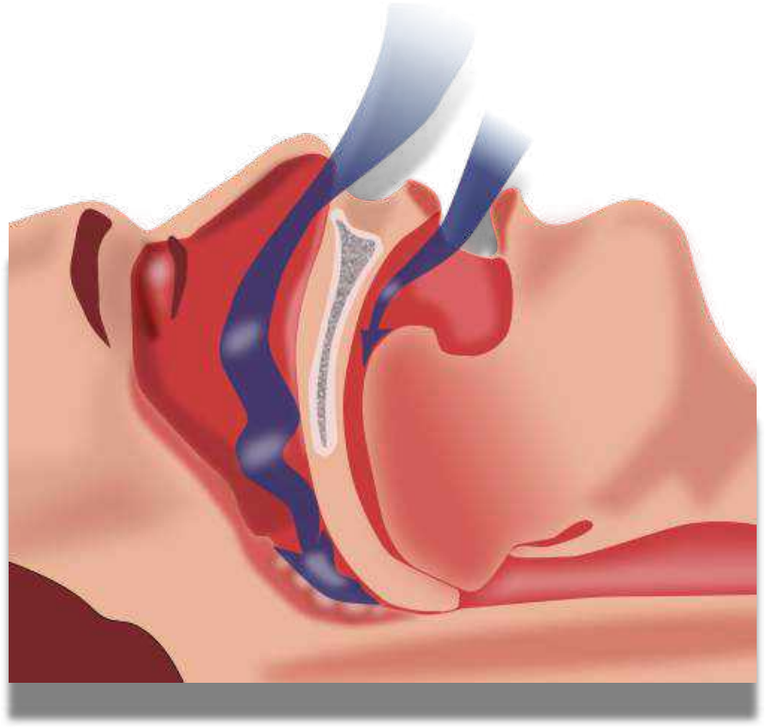
- Many people struggling with their health don't think they are mouth-breathers because they breathe through their noses during the day, but mouth breathing "renews disease" every night.

- For those with a structural blockage in the nose or enlarged adenoids nose breathing will be more difficult. When nasal breathing is established, a child is able to harness the benefits of nasal nitric oxide, the nose moistens, warms and filters the air so that you have a filtered and conditioned air meeting the adenoids. The adenoids are then more likely to shrink.

- To reduce *nasal* snoring, breathe only through your nose during the day and pracice breathing light. For many, this is enough to stop *nasal* snoring.

- Snoring can lead to sleep apnoea.

Obstructive Sleep Apnoea (OSA)



- Sleep apnoea may be either obstructive sleep apnoea (OSA), in which breathing is interrupted by a blockage of air flow, central sleep apnoea (CSA), in which regular unconscious breath simply stops, or a combination of the two. OSA is the most common and severe form of sleep-disordered breathing that is also caused by blocked airways.

- OSA has four key contributors; these include a narrow, crowded, or collapsible upper airway, an ineffective pharyngeal dilator muscle function during sleep, airway narrowing during sleep and unstable control of breathing (high loop gain). It is often a chronic condition.

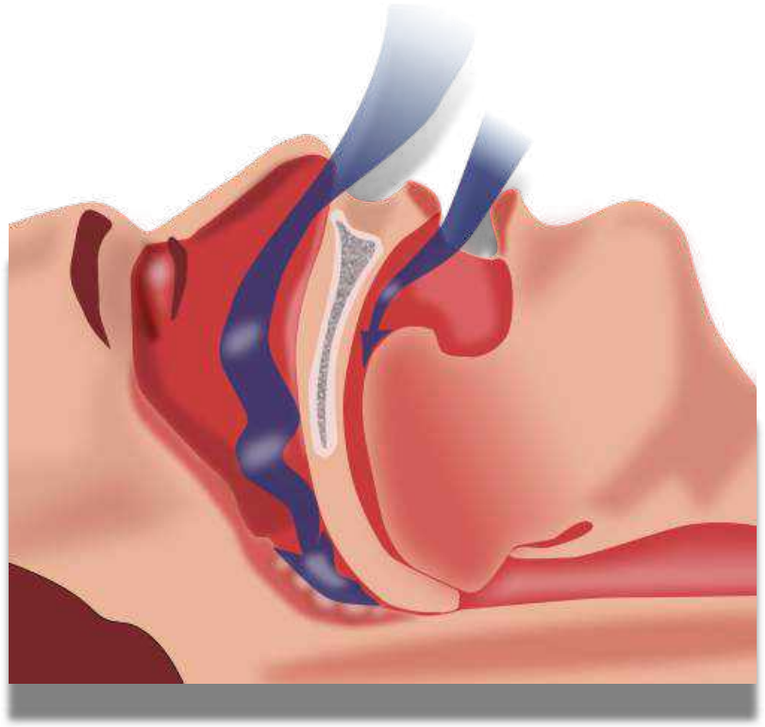
- Patients with sleep apnoea breathe extremly heavily while sleeping and often cycle between thunderous snoring, followed by complete cessation of breathing, and loud gasping or choking when breathing resumes.

- Other risk factors include being overweight, a family history of the condition, allergies, and enlarged tonsis. Some people with sleep apnoea are unaware they have the condition. In many cases it is first observed by a family member. Sleep apnea is often diagnosed with an overnight sleep study. For a diagnosis of sleep apnoea, more than five episodes per hour must occur - Wikipedia

Apnoea means "without breath" in Greek

Image: Wikipedia

Obstructive Sleep Apnoea (OSA)



- People suffering from snoring and sleep apnoea breathe in more air than the normally accepted amounts, more like 15 to 20 breaths per minute.

- Left untreated, snoring (a sound created from turbulent airflow) may progress into sleep apnoea, high blood pressure or cardiovascular complaints.

- OSA is becoming increasingly widespread. Statistics suggest that it affects up to 9% of women and 26 % of men.

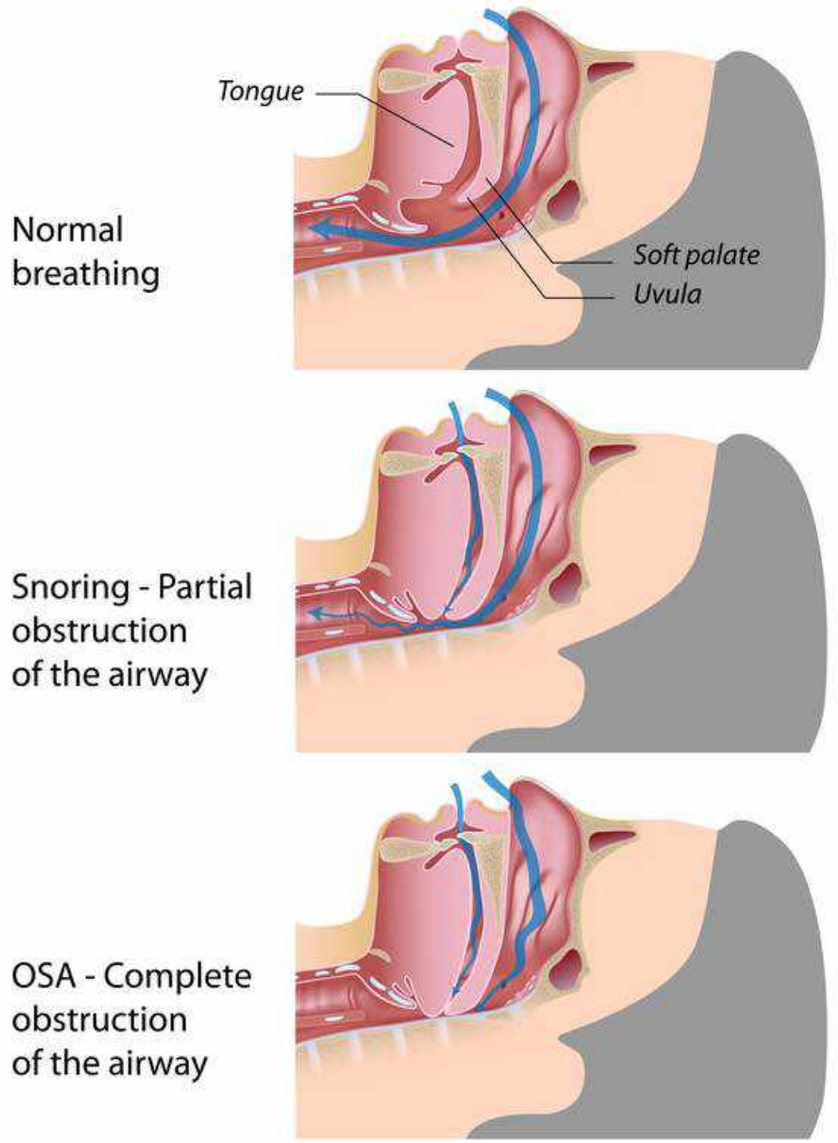
- Fortunately, insomnia, snoring, obstructibve sleep apnoea and most other slep issues can be reversed by learning how to breathe better at night.

Apnoea means "without breath" in Greek

Image: Wikipedia

When heavy snoring could be a sign of sleep apnoea

- In April 2023 a UK-led study warned that snoring can cause significant declines in brain function — not just because it leaves us tired in the daytime, but because it may cause inflammation and physical damage in the brain. The study, published in the journal Frontiers in Sleep, followed 27 otherwise healthy middle-aged men with mild to severe OSA. Compared with a healthy group (matched by age, BMI and education), the sleep apnoea sufferers performed distinctly worse in a range of cognitive tests. Those with severe OSA were significantly less alert, had a worse short-term visual memory and worse impulse control, and poorer social and emotional recognition.



- Snoring has also been linked with serious physical risks. A report in Pulse Today, a journal for GPs, said that OSA is associated with increased risks of cardiovascular disease, high blood pressure and arrhythmias, regardless of a shared risk factor such as obesity.

- **A recent a study of 4,496 people conducted by University of Galway researchers and published in the journal Neurology indicated that snorers were almost twice as likely to have a stroke as non-snorers, while the risk was almost threefold in participants with sleep apnoea.**

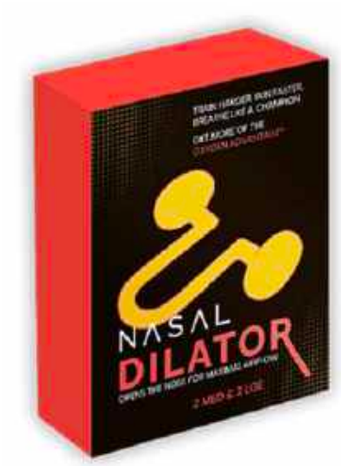
https://www.thetimes.co.uk/article/e3722f60-dadc-11ed-89ad-19e3cfc05db4?shareToken=f0d4ce2204d984556fbb7a03e39965e7

Sleep Apnoea Facts

CPAP Machine

- Snoring is a symptom of sleep apnoea
- People with sleep apnoea stop breathing for a few seconds
- Treating sleep apnoea is the most common preventable cause of congestive heart failture.
- Sleep apnoea can cause heart problems, diabetes, obesity
- Most, but not all, people with sleep apnoea are over weight
- Those with a larger neck size are more susceptible
- Mouth breathing will increase the SNS
- Most common cause of dental caries is mouth breathing
- Classic sign is dry mouth in the morning and falling asleep during the day
- Teeth grinding can be a sign of sleep apnoea - to move the tongue away form obstructing the airway
- Medical treatment is a CPAP machine

Sleep Apnoea



How can we support sleep apnoea?

- Diet
- Buteyko Clinical Method Breathing Retraining
- Mouth Taping - 3M Micropore Surgical Tape, Hypoallergenic, 2.5cm
- Nasal Dilators (https://buteykoclinic.com/nasal-dilator/)
- Nasal Strips
- Myotape (by Patrick McKeown) https://myotape.com/
- Kinesiology Technique
- In Kinesiology, Dr Sheldon Deal teaches a muscle test for sleep apnoea.
  - If positive, there are two possibilities for corrections:
  - Mechanical / Structural: This involves correcting the Temporomandible Joint
  - Nutritional: 2 supplements, either tyrosine or tryptophan, each one is muscle tested

Buteyko Clinical Breathing

Only when people can see, feel, hear or follow their breath can they chnage it. focusing on the area just inside the nose it is easier to soften breathing withou tensing, or deliverately interfering with breathing muscles.

The goal is to allow breathing to soften, to slow down and reduce breathing using thoughts and concentration.

Use the acronym PAST

Posture
Awareness
Slow down breathing, short breath in
Tolerable air hunger

Sit up straight so as not to compress the diaphragm. Imagine there is a piece of string pulling you upwards from the top of the back of your head towards the ceiling. Lengthen the distance between navel and sternum. Widen the distance between the ribs.

EXERCISE 1 Decongest / Unblock the nose

This can work with a head cold also and also if a little fatigued and may help with constipation.
This is a temporary method, but once a normal breathing volume begins to be achieved through nose-breathing practise, the nose should eventually become more and more decongested as the respiratory centre of the brain begins to reset. **I love this exercise** and it can be really helpful in temporarily clearing the airways before doing some of the exercises or when the nose is blocked.

When we pinch the nose, nitric oxide pools in the nasal cavity area and it is likely this nitric oxide helps to decongest the nose.

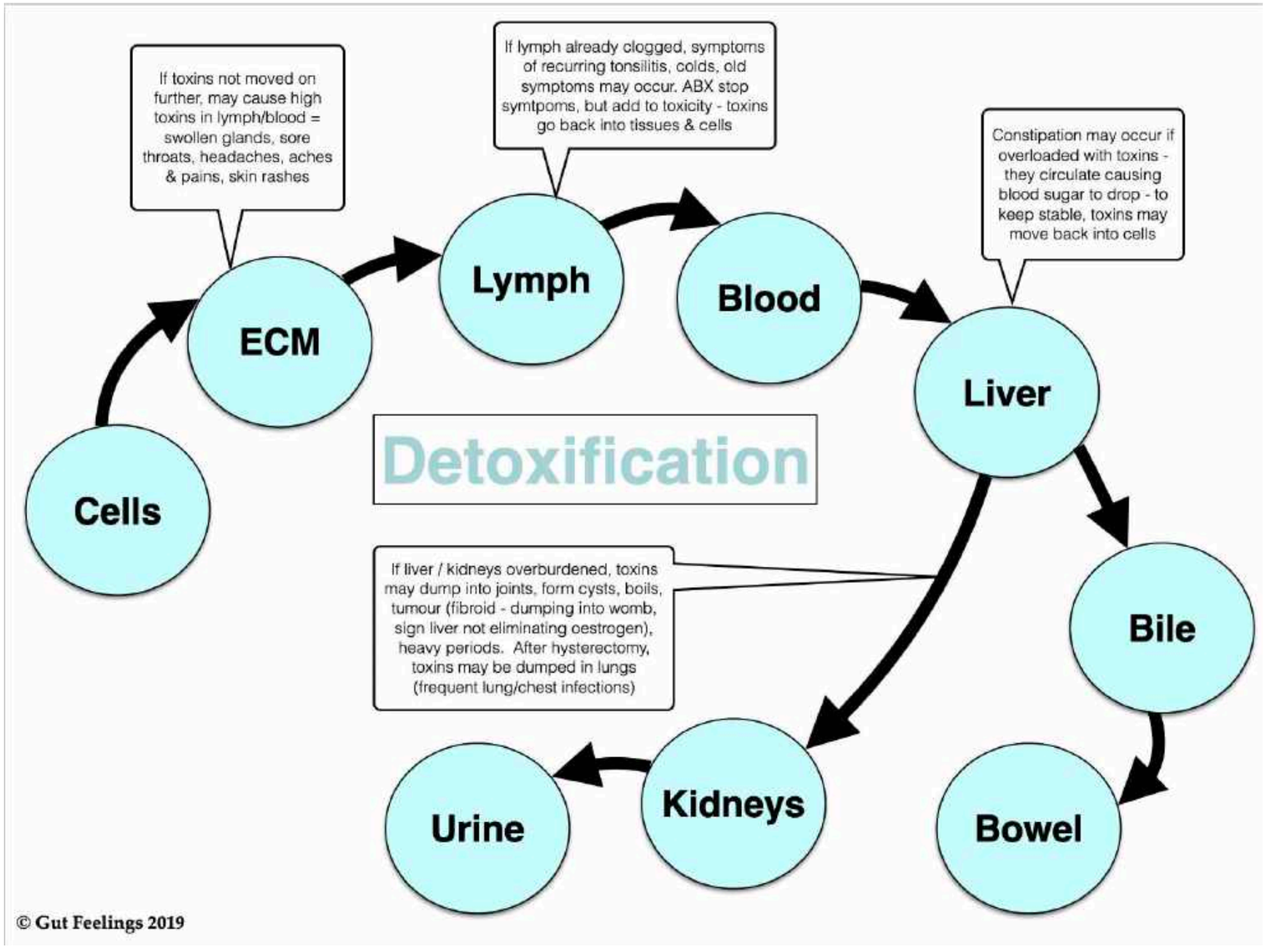
- Gently breathe in through the nose
- Gently breathe out through the nose
- Pinch nose with fingers to hold breath
- Hold breath for as long as possible – a strong air hunger is needed for decongestion
- Sway or nod your head as a distraction
- Release nose and continue nose breathing
- Calm breathing as soon as possible
- Wait half a minute to a minute. Repeat 6 times

If pregnant, have Type 1 diabetes, obstructive sleep apnoea, anxiety, panic attacks, epilepsy, high blood pressure or heart problems or unwell, do not hold the breath for too long, always go lightly. If you have physical obstruction issues in your nose, these exercises may not be appropriate for you. You may wish to start with the many small breath holds instead or just slow breathing and relaxation. These exercises should be done with little effort and in a relaxed state. If it becomes too hard to breathe, stop or just go within your tolerance. You may experience symptoms of detoxification when first starting with these exercises due to the improved blood flow and oxygenation of tissues and organs.

You Tube Video of Patrick McKeown demonstrating this exercise https://www.youtube.com/watch?v=LkWbPZbIYX0

Detoxification

It is important to be aware that changing breathing from mouth breathing to nose breathing, from hyperventilation to slow breathing, will activate the parasympathetic nervous system and the body may begin to detoxify. We only detoxify when not stressed. So in the same way that we would support other detoxification methods, we need to pay attention to the detoxification pathways, and any symptoms of detoxification that may arise from changing the breathing.



V

Hyperventilation - Nijmegen Questionnaire

Hyperventilation = faster movement of air = increased Vata

Nijmegen Questionnaire

A score of over 23 out of 64 suggest a positive diagnosis of hyperventilation syndrome.

	Never 0	Rarely 1	Sometimes 2	Often 3	Very Often 4
Chest pain					
Feeling tense					
Blurred vision					
Dizzy spells					
Feeling confused					
Faster or deeper breathing					
Short of breath					
Tight feelings in chest					
Bloated feeling in stomach					
Tingling fingers					
Unable to breathe deeply					
Stiff fingers or arms					
Tight feelings round mouth					
Cold hands or feet					
Palpitations					
Feeling of anxiety					

https://hgs.uhb.nhs.uk/wp-content/uploads/Nijmegen_Questionnaire.pdf

Panick Attacks

- One of the things most likely to trigger a panic attack is simply the fear of a panic attack.

- However, while anxiety, racing thoughts, and panic attacks are categorized as psychological problems, scientists have found a strong biochemical link.

- People with panic disorder often have a strong sensitivity to carbon dioxide, and the feeling of suffocation can be alleviated by normalising breathing patterns.

- When you regularly expose your body to controlled mild air hunger for a short duration, which is the objective of the Breathe Light exercises, your body becomes less sensitive to the feelings of suffocation and the chemical changes that trigger those feelings.

- Panic attacks can also be a symptom of; low blood sugar, stress, low stomach acid, low Vitamin B12, low B6, low magnesium, excess toxic copper, food sensitivity, mould toxicity, mercury toxicity, Graves' disease, traumatic brain injury (TBI).

- Sudden onset of panic and anxiety disorders may be also be associated with Campylobacter (contaminate in poultry)

Image with permission of Buteyko International

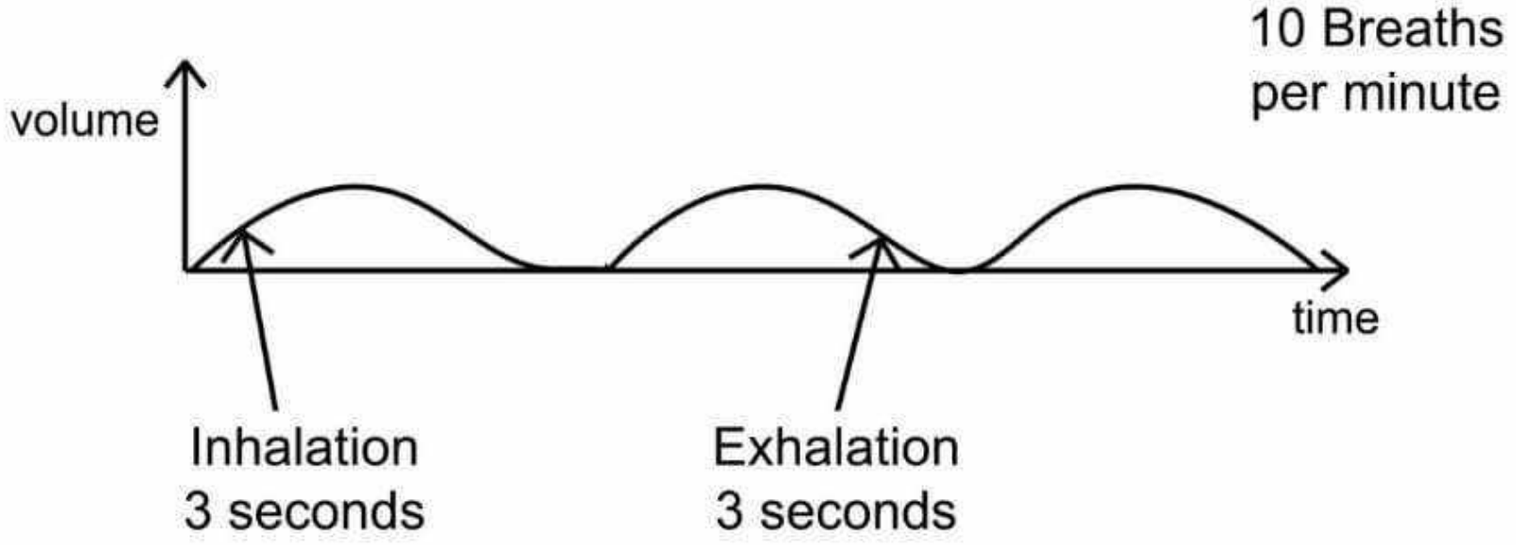
BUTEYKO CLINIC
INTERNATIONAL

EXERCISE 1:

BREATHING INTO CUPPED HANDS

At the first sign of a panic attack, cup your hands across your mouth and nose, and gently slow down your breathing. If you can breathe slow and low with lateral expansion and contraction of the lower ribs, then great. Otherwise, just concentrate on breathing slow. Cupping the hands will pool CO2 from the exhaled breath, allowing you to re-breathe the CO2 back into your lungs. This will increase CO2 in the blood, which will improve blood flow and oxygen delivery to your brain. This is like the "brown paper bag" technique, but it is safer because it allows a plentiful supply of oxygen while increasing CO2.

BUTEYKO CLINIC
INTERNATIONAL



EXERCISE 2:

BREATHE SLOW & DEEP

Fast and shallow breathing will feed into the feelings of suffocation and air hunger. To help alleviate air hunger, slow down your breathing with lateral expansion and contraction of the lower ribs. If the feeling of air hunger is quite strong, breathe in slowly for two to three seconds and out slowly for three to four seconds. If this feels okay, you can slow down your breathing a little more, inhaling for five seconds and exhaling for five seconds. Place your hands on your sides to feel the ribs gently expanding and contracting as you breathe.

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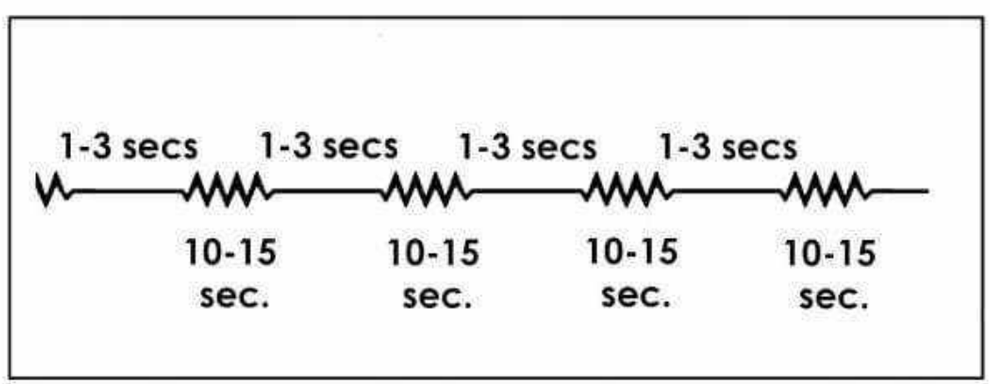
EXERCISE 3:

BREATHING RECOVERY, SITTING

- Sit up straight and take a normal breath in and out through your nose.
- Pinch your nose with your fingers to gold your breath for up to three seconds. Count 3, 2, 1...
- Let go of your nose and breathe though your nose for 10-15 seconds.
- Repeat sequence for as long as symptoms are present.



Brown Paper Bag Exercise

- Similar to the restrictrive breathing exercise with hands
- Creates carbon dioxide
- Dilates blood vessels
- More blood can flow to the area
- More flexibility in the joint
- The closer you get to the head, the more dramatic the effect e.g. arm
- This can also help with cranial faults (Kinesiology)
- Actors use this before going on stage when they have a panic attack
- Remember that emergency services used to carry carbon dioxide

If you have a medical condition, or do not wish to do this exercise please just watch

- Check flexibility of arm
- Breathe in and out of the paper bag for 1 minute
- Check flexibility of arm and see if there is any improvement

Image: Pixabay

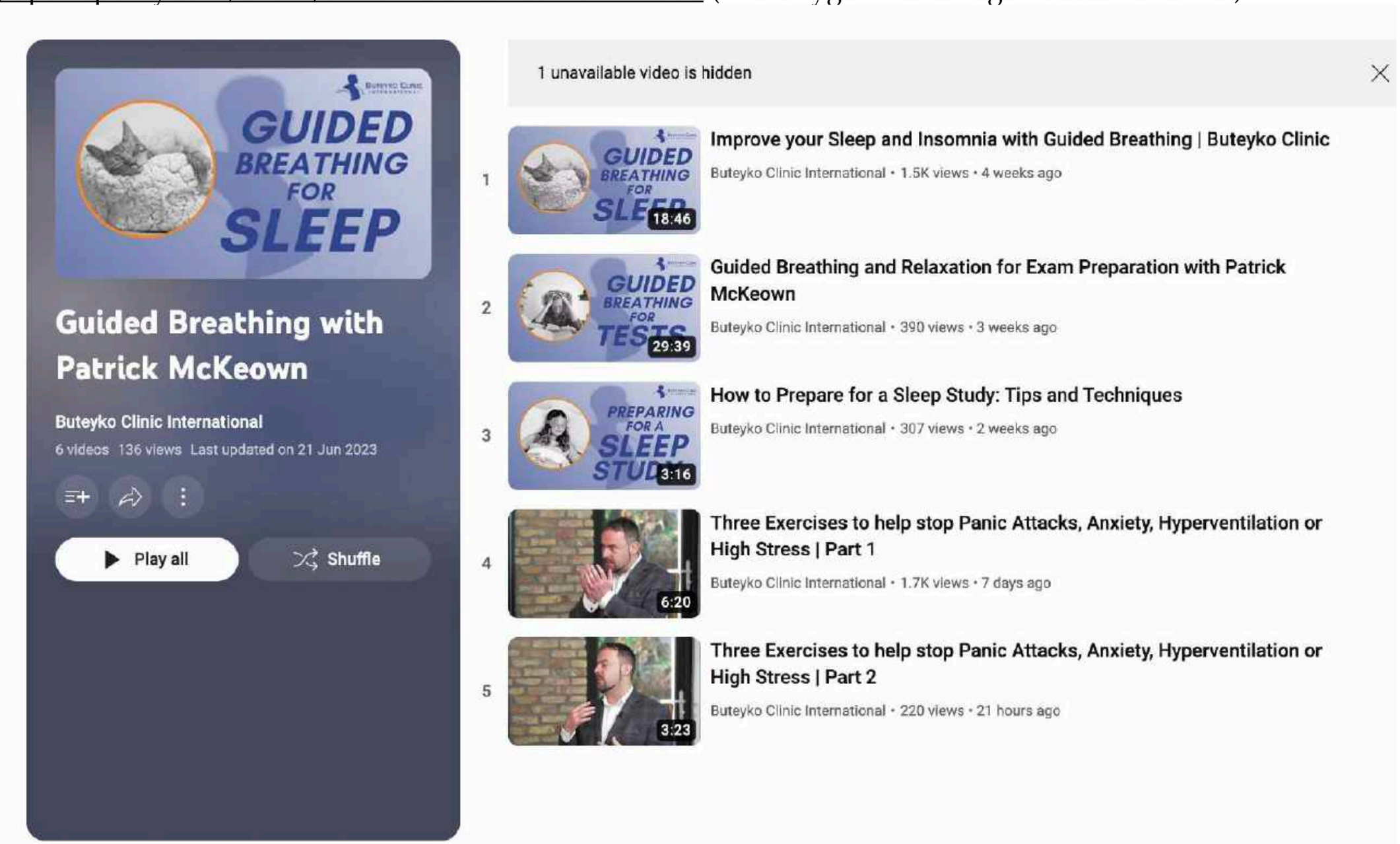
Definitions

- **PaO_2:** partial pressure of oxygen in the blood
- **SpO_2:** percentage of oxygenated haemoglobin versus total haemoglobin in arterial blood
- **Blood** is made up of three parts: oxygen-carrying red cells, white blood cellsl and plasma
- **Haemoglobin** is a protein found within the red blood cells and allow 70 times more O_2.
- **Normoxia:** normal levels of oxygen (SpO_2 95 to 99 %)
- **Hypoxia**: deficiency in the amount of oxygen enetering the tissues (SpO_2 less than 91%)
- **Normocapnia**: normal arterial CO_2 - approx 40mm Hg
- **Hypercapnia**: abnormally elevated levels of CO_2 - less than 37 mm Hg (recent figure is 35 mm Hg)
- **Minute Ventilation:** the volume of air that enters the lungs over one minute

Patrick McKeown recently put together several Guided Breathing and Relaxation Audios. These audios are available to everyone and include the following topics: Insomnia, Exam Preparation, Perfectionism, Musicians, and Athletes.

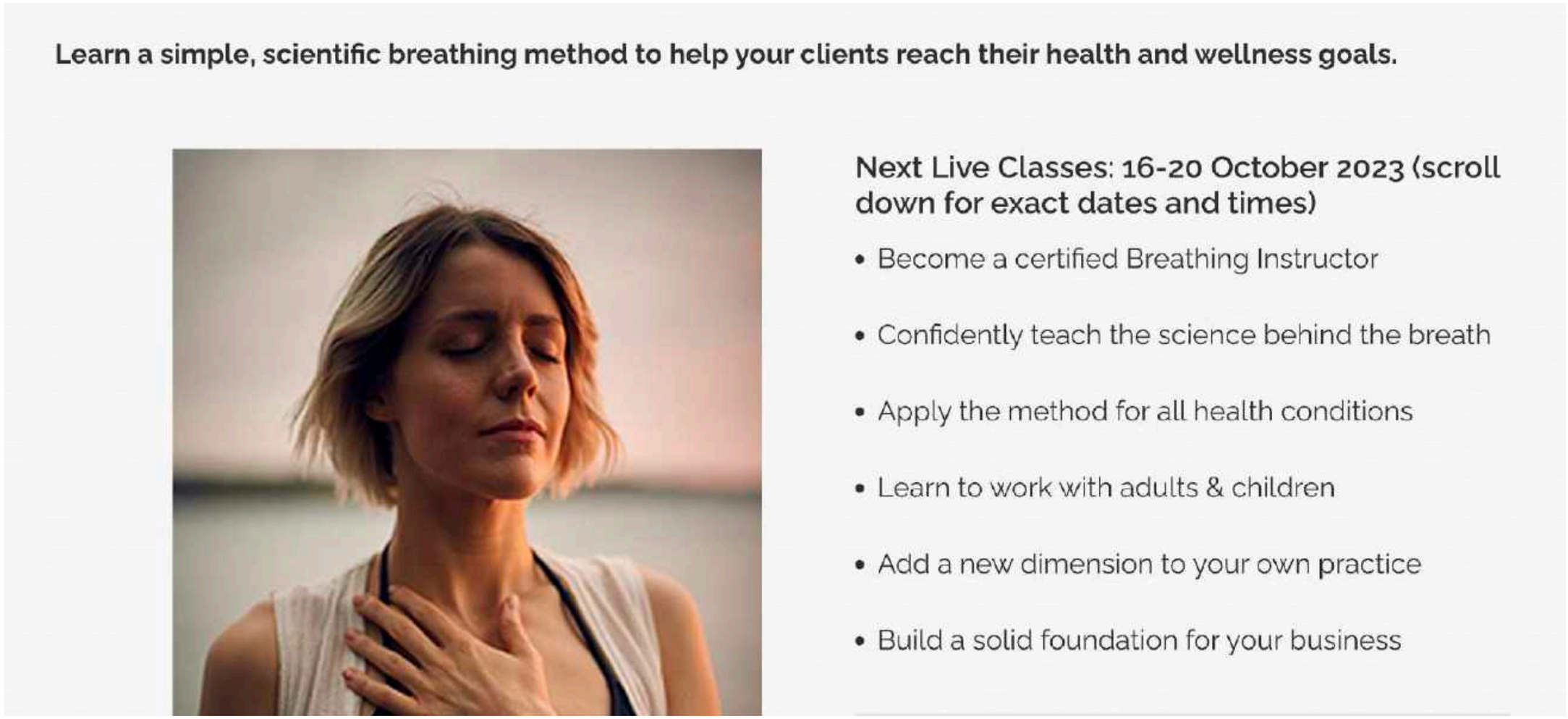
Discover the power of guided breathing exercises for better sleep, reduced anxiety, improved focus, and overall well-being within 20-30 minutes.

All audios are available to listen to on Spotify and YouTube here:
https://www.youtube.com/playlist... (Buteyko Clinic International YouTube Channel)
And https://open.spotify.com/show/5XTS4B3ODaEfsbNOBmYb6d (The Oxygen Advantage Podcast Channel)

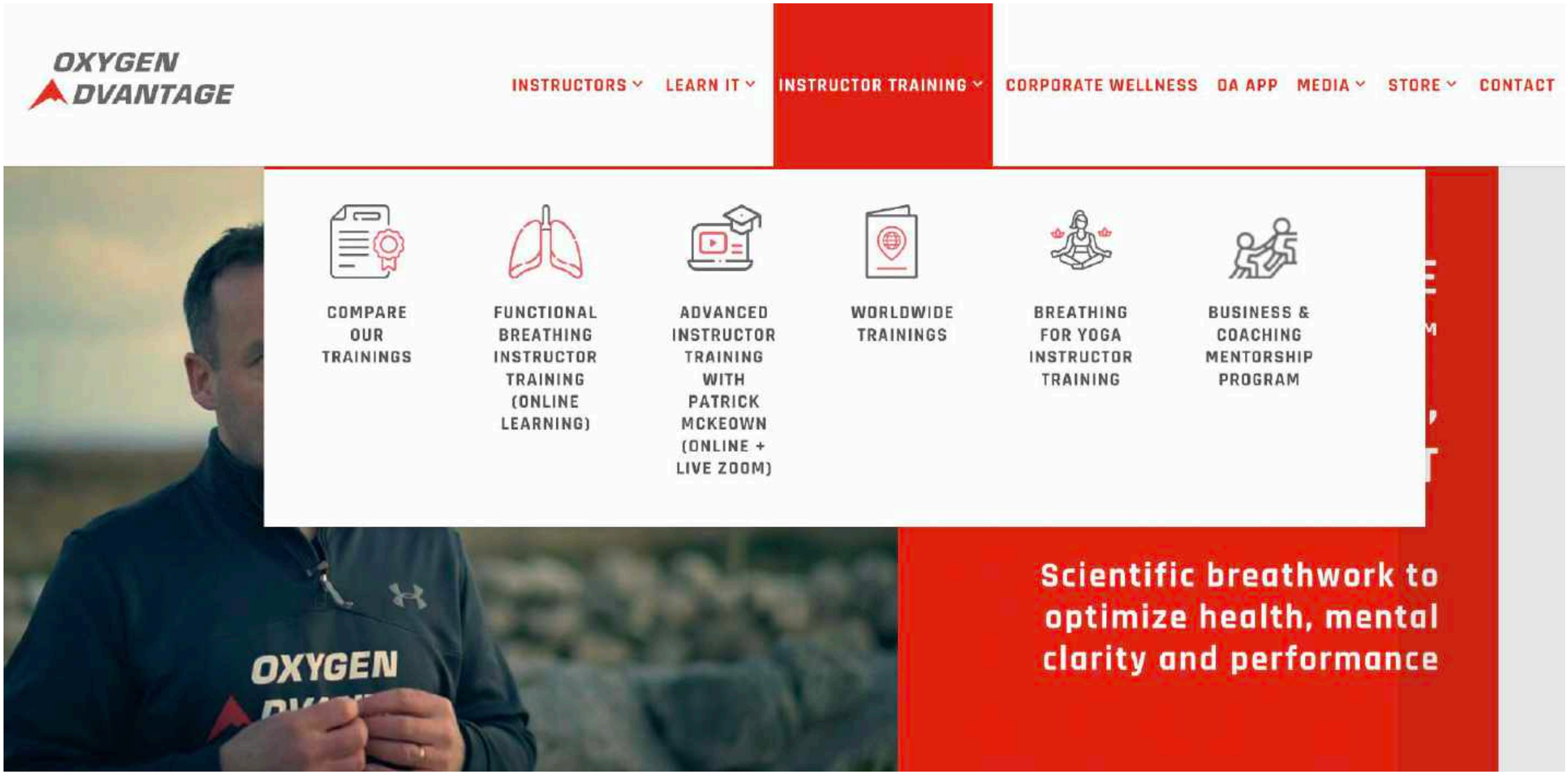


Training in Buteyko Breathing with Patrick McKeowan at Buteyko International is all done online (live online or recorded online), although he also does live training in various locations around the world). https://buteykoclinic.com/online-certificate-program/

The qualification includes regular ongoing monthly online training and webinars for those who are interested.



Patrick McKeowan has a separate website for Buteyko Breathing which is more geared to sports, and there is also Buteyko breathing for yoga instructors, advanced training etc. He has a book called the Oxygen Advantage which is more geared to sports. He trains Olympic Athletes to breathe correctly to improve their performance. https://oxygenadvantage.com/



Buteyko Clinic International was founded in 2002 by Buteyko instructor and author, Patrick McKeown

Patrick McKeown is a leading international authority on the Buteyko Method. Accredited in 2002 by the method's founder, the late Dr. Konstantin Buteyko, Patrick has trained thousands of clients and instructors. He has authored and published eight books, including three Amazon bestsellers. Patrick is regularly invited to speak at dental and respiratory conferences worldwide. He is a Fellow of the Royal Society of Biology and the Academy of Applied Myofunctional Sciences

The international community of Buteyko breathing instructors includes: -

- Sports coaches
- Naturopaths
- Nutritionists
- Osteopaths
- Psychotherapists
- Massage therapists
- Psychologists
- Speech pathologists
- Yoga teachers
- Physiotherapists
- Yoga therapists
- Dentists
- Dental hygienists
- Myofunctional therapists
- And more…

Clinical Trials Investigating the Buteyko Method for Asthma

There are currently 19 clinical trials investigating the Buteyko Method as an adjunct for asthma, including six studies in collaboration with Buteyko Clinic Instructor and Director of Education at Buteyko Clinic, Patrick McKeown.

Trials investigating the Buteyko Method showed positive results including improved asthma control, improvements to lung function and reduced need for asthma medication.

Comments from the papers include:

"If a drug could show these results, then it is likely that it would be used widely in asthma control" *(Hassan et al, 2012)*
"This study demonstrated that the BBT (Buteyko Breathing Technique) can effectively improve the total serum IgE, the ventilatory function in terms of FVC, FEV 1, PEF, FEF 25–75% and FEV 1/FVC, and C-ACT scores in children with bronchial asthma." (Elnaggara, 2016)

"In conclusion, we found that those practising the Buteyko breathing technique (BBT) reduced hyperventilation and their use of beta2-agonists. A trend toward reduced inhaled steroid use and better quality of life was observed in these patients without changes in objective measures of airway calibre." *(Bowler et al, 1998)*ss BTS asthma guidelines.

Buteyko Breathing clinical trials full details https://buteykoclinic.com/buteyko-trials/

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"Breathing using the diaphragm effectively reduces fear and anxiety during dental visits, according to a recent medical study.

Diaphragmatic breathing has been shown to reduce fear and anxiety. A study from Sapienza University of Rome, Italy, aimed to evaluate whether it can reduce dental anxiety in children. A group of 20 children undergoing dentist visits used diaphragmatic breathing beforehand to see if it would reduce instances of stress or anxiety during dental treatment. The results were very positive.

"Compared with the treatment as usual, such a simple technique had significant benefits on mood, self-reported pain and autonomic balance, thus reducing sympathetic activation," read the report.

"Diaphragmatic breathing is a low-cost, easy-to-implement technique suitable for daily dental practice, and is a promising tool for reducing negative effect and physiological distress in children with dental anxiety that results in more cooperative behaviors and reduced visit time," the report continued.

None of this medical evidence is surprising to us at Buteyko Clinic International. By breathing through the nose, as taught by the Buteyko Breathing Method, it is much easier to engage the diaphragm. Buteyko Breathing exercises help strengthen the diaphragm, thereby making the practice of diaphragmatic breathing easier."

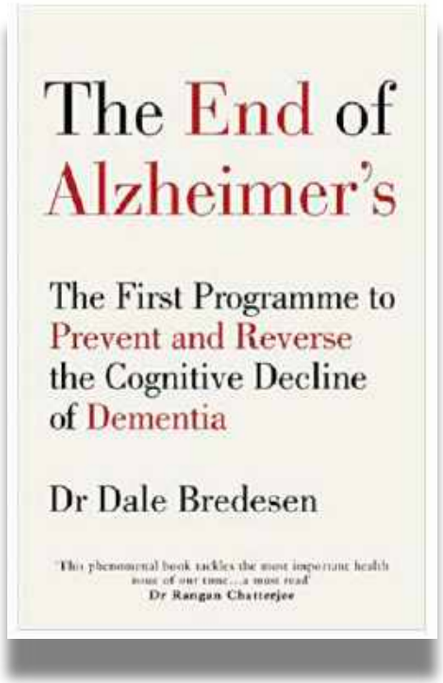
Breathing and Alzheimer's

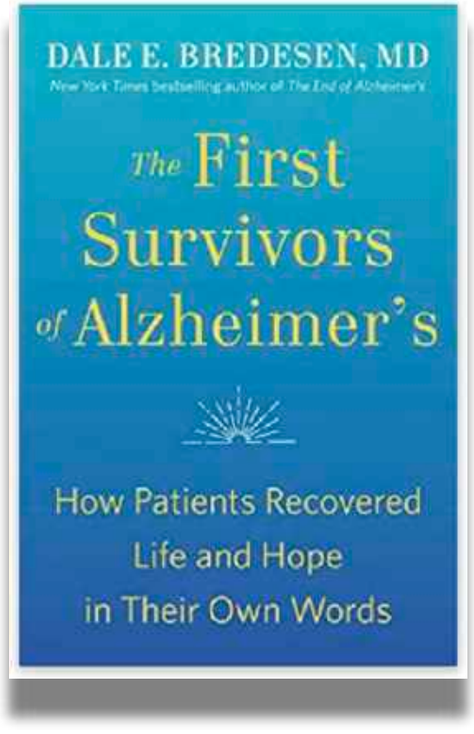
- A recent study had participants consciously breathe for 20 minutes twice a day, and found significantly lower amyloid levels in their blood samples.

- This is a particularly interesting result for us, as it highlights (again) that amyloid plaques are an immune response, and calming the body may have helped clear amyloid, but also could have prevented production. Dr Dale Bredesen, Author of Reversing Alzheimer's

- When two groups of people were assigned different breathing exercises for 40 minutes a day participants ended up with dramatically different levels of amyloid beta, the peptide associated with Alzheimer's disease.

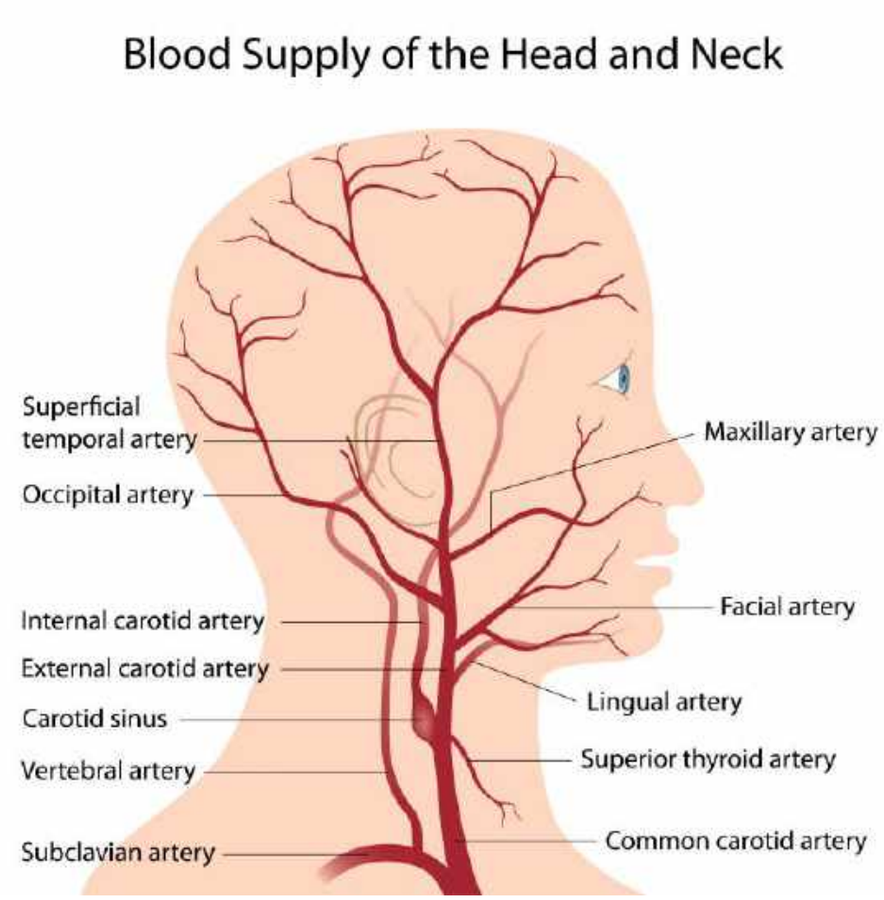
- Whether one exercise can stem the rising tide of dementia in society remains to be proven.





https://www.iflscience.com/breathing-exercises-reduce-the-buildup-of-a-likely-cause-of-alzheimers-disease-68721?fbclid=IwAR3J757n3lqiOzKmm6hXYdR3MxNq87MCGep4MU4GDBOZq8rgNBB7WkOq4gY

The Breathing Brain



- Of all the body's organs, the brain requires the largest blood supply.
- The brain contains millions of tiny blood vessels which supply every cell with oxygen and nutrition.
- The brain consumes around 25% of the body's oxygen supply despite only constituting 3% of total body weight.
- If the blood supply is reduced, the brain will suffer
- Elderly people can suffer a 50% blockage in the arteries supplying the brain because of calcification (misplaced calcium). It has proved possible to raise their IQ signifiantly by cleaning out the arteries, thereby increasing the oxygen sujpply to their brains.
- During brain surgery it has been observed that brain volume is altered by breathing. During normal breathing the brain moves approximately 18 times a minute

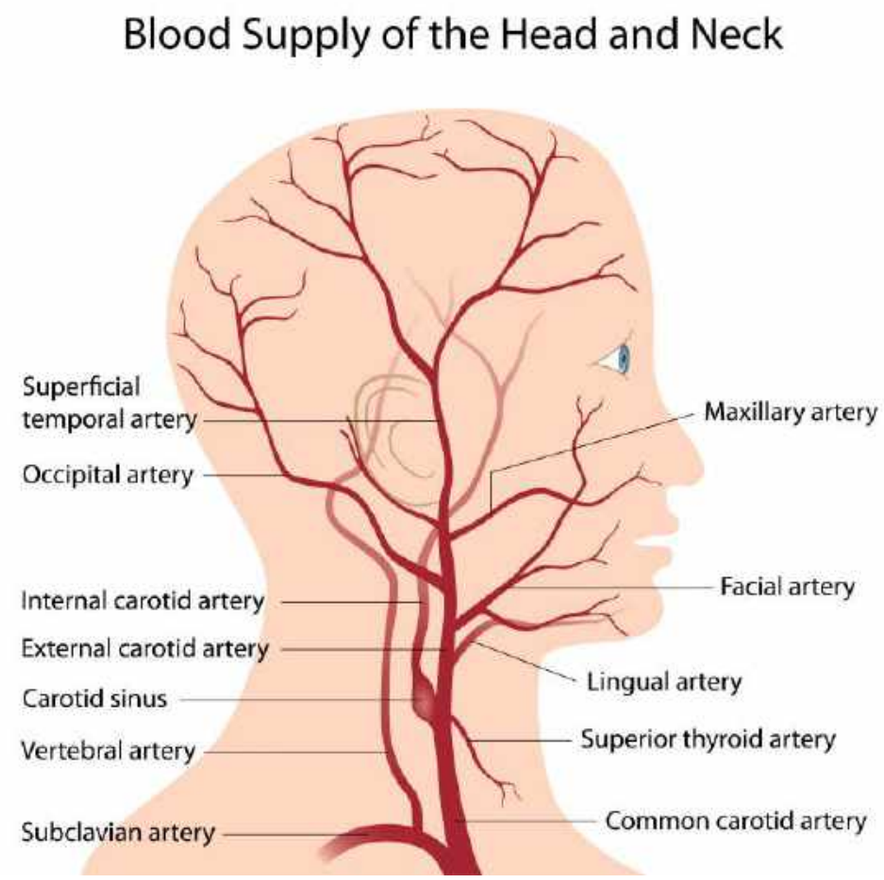
The Breathing Brain

- The brain can't go without oxygen for more than a short time before being inversely damaged. It needs a consistent wash through with oxygen-rich blood to maintain its normal functions

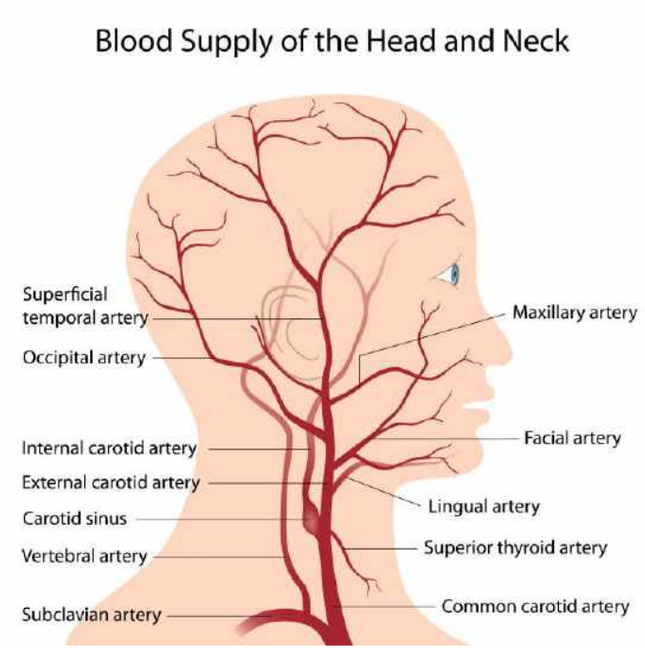
- To 'oxygen-flood' the brrain through appropriate breathing can therefore have a positive effect on the brain

- The human brain consists of billions of nerve cells called neurons joined together by a supporting network of glial cells. A single cell can have connections with more than 100,000 other calls. The total number of connections in the brain are therefore incalculable.

- Many neurons have long fibrous connections with distant parts of the body. Information is transmitted up to the brain from the body's different receivers in the form of chemically-coded impulses



Epilepsy and Blood Flow to the Brain



- Seizures can be caused by anything that interrupts necessary connections between nerve cells in the brain.

- Common non-epileptic triggers could include high/low blood sugar, high fever, alcohol or drug withdrawal, brain concussion, atlas misalignment, dental focus, failed first epidural of mother at birth.

- When part of the brain receives a burst of abnormal elecrical signals that temporarily interrupt normal brain function, a seizure occurs.

- Cerebral blood flow is known to change during seiures, specifically in the epileptogenic zone, the area of the cortex that initiates the seizure.

- Blood flow to the brain decreases between seizures and increases during them.

- Immediately after a seizure ends, cerebral blood flow becomes very low and remains low for several minutes which prevents proper oxygenation of the brain

- While the primary cause of this over stimulation of the neurons is unclear, new findings indicate that hypoxia or lack of oxygen caused by abnormal flow may be to blame for as much as half the neuronal death caused by this condition

Epilepsy and Blood Flow to the Brain

- Research has found that cerebral blood flow can be improved with breathing exercises - again CO_2 plays a key role. CO_2 has long been recognised for its anticonvulsant properties.

- "Given that much of the neuronal damage caused by epilepsy is caused by lack of oxygen to the brain, it is promising to realise that breathing exercises can so simply improve cerebral blood flow and therefore brain oxygenation" - *The Breathing Cure,* Patrick McKeown

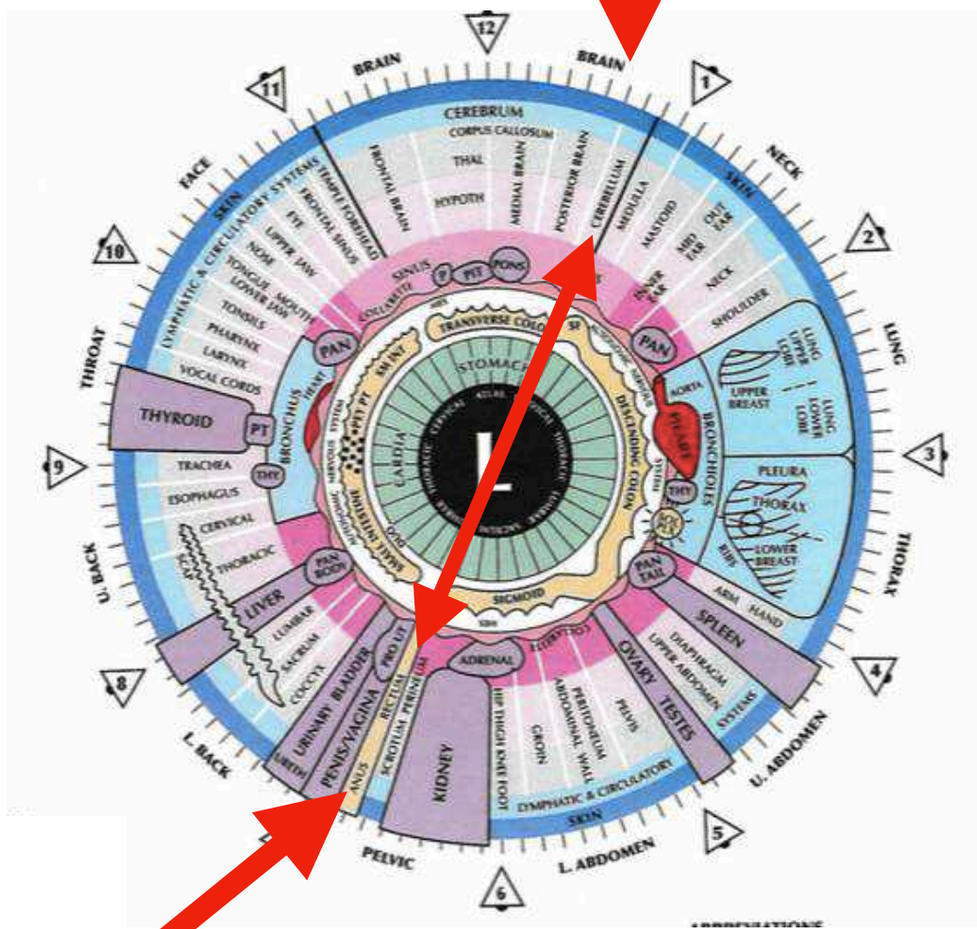
- Epilepsy and sleep-disordered breathing are both relatively common conditions, however they occur comorbidly more frequently than expected leading to c onsiderations of a connection between the two.

- Farida Sharan Iridology – page 139. Contained in the cerebellum on the left iris only, this Brain Zone governs equilibrium in its physical, mental, and emotional aspects. Epilepsy is indicated by dark Radii Solaris, either as severe grand mal or milder, less frequent attacks. Dark Defects or Lacunas denote petit mal or nocturnal epilepsy.

- If this Brain Zone is hyperactive or hypoactive, physical symptoms include multiple sclerosis, epilepsy, dizziness, and balance difficulties Observe the Ear Brain Zone when these problems occur. **Opposite Iris areas radiate to the uterus / prostate / vagina / anus / rectum Iris areas.** It is interesting to note that epileptic seizures are relieved by enemas and the relaxation of the anal sphincter.

Cerebellum

Iridology Iris Chart
of left eye



Anus Rectum

Epilepsy and Blood Flow to the Brain

- Copper: Interestingly, in one case history a person described an unpleasant coppery taste in her mouth up to a day after a seizure. Changing breathing lightly through the nose stopped this metallic taste that normally followed a seizure.

- Mouth breathing can increase the SNS, which taxes the adrenals. Copper is under the control of the adrenals. Copper can lodge in the brain (as well as other organs) and is an electrical conductor, so those with excess copper may be more susceptible to EMF, WIFI, Electrical items, living near a phone mast or pylon.

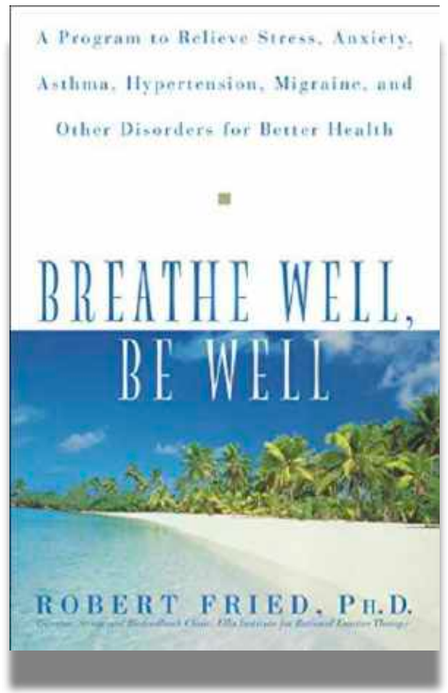
- We know that copper and candida (and insulin, histamine, mercury and oestrogen) rise and fall together. Candida is a fungus. Fungi communicate with each other electrically - mushrooms are high in copper. So building connections is so interesting.

- The neuronal excitability threshhold is highly sensitive to, and dependent on the concentration of carbon dioxide in nerve tissues.

- There is a whole brilliant chapter on Seizure Control and the Breath in *The Breathing Cure* book by Patrick McKeown

Our bodies are predominantly fluid which is influenced via electric and magnetic rhythms. These electromagnetic fields are created via the Pineal Gland which is mainly carbon, while the Cerebral Cortex is predominantly copper. These create the electrical field in the brain. *Barbara Wren*

Epilepsy and Blood Flow to the Brain

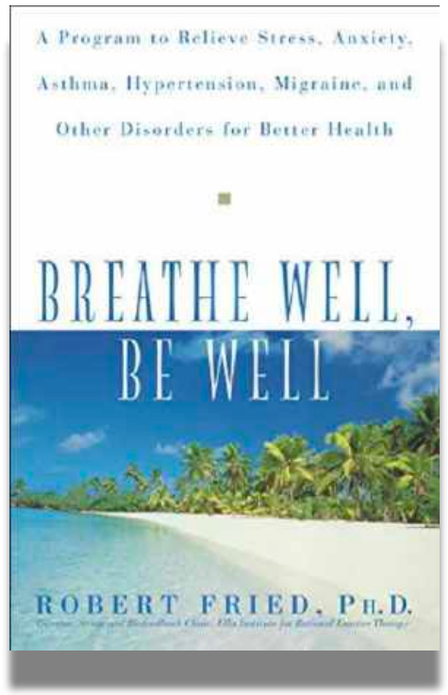


- According to the author and breathing afficionado, Dr Artur Rakhimov, between 70 and 100% of epileptics can lower their neuron excitability threshhold and induce seizures by deliberate hyperventilation. Evidence demonstrates that hyperventilation can cause seizures, indeed in clinical settings, hyperventilation is used to activate seizures for monitoring, but research has not yet identified the exact CO_2 level that can trigger seizures.

- While the concentration of arterial CO_2 is key, metablic rate, which is affected by things like body position, posture, exercise, thyroid, also plays a role. So does the availabiliy of calcium and magnesium ions in tissues, as well as the levels of amino acids, neuroransmitters and other substances.

- According to Robert Fried's book, *Breathe Well, Be Well*, hyperventilation is a major cause of fits in epilepsy. He also wrote *The Hyperventilation Syndrome (1987)* and *The Psychology and Physiology of Breathing: In Behavioral Medicine, Clinical Psychology, and Psychiatry*, which are hard to get hold of / expensive.

Epilepsy and Blood Flow to the Brain



- Dr Wilder Penfield, probably the most respected neurosurgeon in the world and an unquetioned authority on epilepsy (having pioneered its surgical treatment) wrote that hyperventilation elicits changes in the EEG and seizures in epileptic patients by causing a partial reduction in brain blood circulation due to the brain blood vessel constriction that accompanies the lowered carbon dioxide concentration.

- If hyperventilation reduces blood levels of carbon dioxide causing brain arteries to constrict and limiting oexygen availability to brain cells, no wonder they rebel.

- Dr Penfield actually observed arteries constricting just before a seizure, during spontaneously occurring hyperventilation in a person on whome he waws operating. However, 2 scientists, Drs Darrow and Graf, observed it earlier in mechanically huperventilated cats.

- Breathe Well, Be Well, Robert Fried, PhD

Hypotension (Low Blood Pressure) and Oxygen

- We need adequate blood pressure to push oxygenated blood into the tissues, particularly the brain! If you always have cold fingers, toes, and a nose, and you get fungal infections on your nails, this could mean your brain is not getting enough oxygen. Vitamin B6 is the extremedies Vitamin and may help get blood flow to the extremities, also gingko biloba

- Many of the symptoms of low blood pressure are the same as hyperventilation - those that hyperventilate lose carbon dioxide more quickly and threfore have less oxygen to the brain: dizziness, blurred vision, fainting, lack of concentration, cold body, pale skin, confusion, rapid and shallow breathing

- Those with adrenal exhaustion usually have low blood pressure which means that less oxyben will be getting to the tissue and the brain. Salt can help raise blood pressure and with those that have adrenal exhaustion, we will often advice them to add Himalayan or Celtic sea salt to their food or to water in the morning. Liquorice can also help raise low blood pressure and support the adrenals.

- We know from Ayurveda that salty taste (water + fire) reduces vata, and in Tibetan Medicine salty taste pacified wind and phlegm. Conversely, we know that bitter foods lower blood pressure (decreases Pitta), but increases Vata.

- The kidneys (Water Element) regulate the changes in the electrolytes and makes adjustments to blood pressure. The nephrons in the kidneys are involved in the regulation of sodium

- Those with a sluggish thyroid will have a reduced metabolism

- Those with coeliac disease often have low BP

- The hypothalamus is also involved in blood pressure control

- Hydroxocobalamin is said to be be helpful for raising blood pressure - e.g. those with POTS (it converts to methylcobalamin and adenosylcobalamin)
-

Hypotension (Low Blood Pressure) and Oxygen

- A cholesterol ring (aka sarcus selinis, sodium ring, calcium ring) can be a sign of blood pressure imbalance (high or low) or other symptoms.

- In Chinese Face reading, a line across the ear lobe can indicate a blood pressure imbalance (I have seen this with both high or low BP, but commonly with high)

- For those that do hair mineral tests, slow oxidisers tend to have lower blood pressure due to the stress picture

- Low blood pressure can also be a symptom of: atlas misalignment, food sensitivities, low calcium (hyperparathyroidism), excess tissue copper or low copper (copper imbalance), low iron, low Vitamin B1 (thiamine), low Vitamin B6 (pantothenic acid). Vitamin B3 (niafcin) does creates a flushing effect on the face which can be helpful for blood flow to the brain, however you need to go a bit carefully with Vitamin B3 (niacin) and very low blood pressure. As always, we use the least amount to stimulate the body's innate healing.

- The Ragland's test is an analysis of blood pressure to determine the level of adrenal health and function. First the blood pressure will be taken while lying down and then immediately after standing up. With healthy adrenal function, the systolic blood pressure number (the top number) should rise 8 to 10mm. If blood pressure doesn't rise, or drops, the adrenal glands are insufficiently functioning (adrenal burnout) and need additional support.

- POTS Postural Orthostatic Tachicardia Syndrome. Causes can include: TBI (traumatic brain injury), Electrical injury e.g. lightening, Lyme disease, HPV vaccine (USA vs. Europe-Gardazil), Pregnancy , Median arcuate ligament syndrome, Mold exposure, Low stomach acid, Blood sugar imbalance.

Dentists and Breathing

- Dr William Hang, a Los Angeles -based airway-centric authodontist describes the dentist as the gatekeeper of the airways.

- Researchers Peter Catalano and John Walker also state: -

- The most likely person to diagnose a child with SDB (sleep-disordered breathing) is their family dentist or authodontist. This is directly related to the faxt that nasal breathing has a tremendous impact on craniofacial development, which in turn determines dental preofile and occlusion (how teeth align).

- Over 90% of children with crooked teeth, teeth grinding, or malocclusion (misalighment of the teeth) have compromised nasal breathing.

Breathing and Medications

- Some medications may worsen breathing and tend to induce some of the symptoms common in hyperventilation, such as lightheadness, dizziness, a sense of unrealisty, aleteration in consciousness, and various strange sensations - all also common in prolonged anxiety and panic disorder

- It is important therefore to consider side effects or main effects of any prescription medications with clients as many can involve breathing.

- These can include some antihistamines, diuretics, anxiolytics, andidepressants, anti-inflammatories, calcium channel blockers, analgesics, antibiotics. In particular, Benadryl, Bumex, Buspar, Cardixem, Empirin with Codeine, Primaxin, Prozac, Voltaren, Xanax

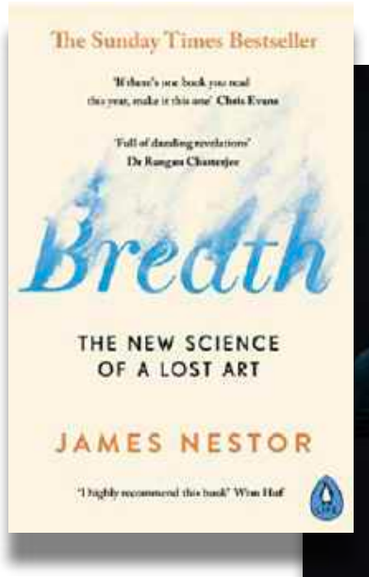
- *Breathe Well, Be Well* - Robert Fried, PhD

Right v Left Nostril

- The **right nostril** is a gas pedal. When you are inhaling primarily through this channel, circulation speeds up, your body gets hotter, and cortisol levels, blood pressure and heart rate all increase. This happens because breathing through the right nostril activates the sympathetic nervous system. It will also feed more blood to the opposite hemisphere of the brain, specifically to the prefrontal cortex, which has been associated with logical decisions, language and computing.
- Inhaling through the **left nostril** has the opposite effect. It works as a kind of brake system to the right nostril accelerator. It is more connected to the PSNS that lowers temperature and blood pressure, cools the body and reduces anxiety. Left nostril breathing shifts blood flow to the opposite side of the prefrontal cortex, the right area that plays a role in creative thought, emotions, formation of mental abstractions and negative emotions.

From Breathe by James Nestor

James Nestor



There is nothing more essential to our health and well-being than breathing: take air in, let it out, repeat 25,000 times a day. Yet, as a species, humans have lost the ability to breathe correctly, with grave consequences - James Nestor, Breathe

- Journalist James Nestor travels the world to figure out what went wrong and how to fix it. The answers aren't found in pulmonology labs, as we might expect, but in the muddy digs of ancient burial sites, secret Soviet facilities, New Jersey choir schools, and the smoggy streets of Sao Paulo. Nestor tracks down men and women exploring the hidden science behind ancient breathing practices like Pranayama, Sudarshan Kriya, and Tummo and teams up with pulmonary tinkerers to scientifically test long-held beliefs about how we breathe.

- Modern research is showing us that making even slight adjustments to the way we inhale and exhale can jump-start athletic performance, rejuvenate internal organs, halt snoring, allergies, asthma, and autoimmune disease, and even straighten scoliotic spines. None of this should be possible, and yet it is.

- Drawing on thousands of years of medical texts and recent cutting-edge studies in pulmonology, psychology, biochemistry, and human physiology, *Breath* turns the conventional wisdom of what we thought we knew about our most basic biological function on its head. You will never breathe the same again.

The Wim Hof Method

- Wim Hof (also known as The Iceman), is a Dutch motivational speaker and extreme athlete noted for his ability to withstand low temperatures - *Wikipedia.*

- His method is combination of frequent cold exposure, breathing techniques and meditation.

- Hof has set the world record for longest time in direct, full-body contact with ice, 44 minutes in January 2010 and claims to have acquired a total of 26 world records.

- *"Hof states that his method can reduce symptoms of several diseases including, rheumatoid arthritis, MS, coronavirus, and Parkinson's disease. However, while hyperventilation might temporarily reduce inflammatory response to an injection of endotoxins. Hof's claims have not been scientifically proven. At least 9 people have died while attempting the Wim Hof Method - Wikipedia"*

- Hyperventilation is something that in Buteyko Breathing we are trying to correct as so many of our clients hyperventilate. Hyperventilation activates the sympathetic nervous system - fight or flight

The Wim Hof Method

- Hof has different breathing exercises - most seem to be the opposite Buteyko Breathing (hyperventilation) while some have similarities. He is usiing breathing in a different way however, to increase metabolism.

- In his own words from his book, The Wom Hof Method, he says that his first method activates the sympathetic nervous system (fight and flight), and followers are therefore instructed not to do breathing after a meal.

- "This method ignites the body into an alert state, awakening the nervous system and preparing the body for performance".

- He advises to start breathing through the nose, then with more experience through the nose or mouth, it doesn't matter. He prefers to breathe through the mouth.

- His technique involves breathing deeply for 30 times until you feel lightheaded with a tingling sensation in your arms and hands (these are symptoms of lack of oxygen, the symptoms we look for in a mouth breather). Then take it up 10 more times to 40 breaths. He says to do this in a safe place in case of fainting.

- He says that this reaction is because carbon dioxide is leaving the body and oxygen is replacing it, making your body more alkaline in the process. However, remember the emergency services previously actually carrying carbon dioxide to resicitate people - we actually need the carbon dioxide to dilate our blood vessels and to let the oxygenated blood flow.

- *It is known that hyperventilation can lead to low low carbon dioxide levels in the blood (hypocapnea) which can subsequently lead to disburbances of the acid-base balance of in the blood and lower tissue oxygen levels. - Wikipedia*

The Wim Hof Method

- For altitude sickness he advises holding the breath for 5 seconds (after 10 exhalations). This would be similar to the many breath holds in Buteyko. This increases carbon dioxide and nitric oxide, dilating the airways and allowing more blood blow and oxygen to the brain.

- He does the fast breathing before an ice bath because he says that the breathing generates heat through the intercostal muscles and increases pain tolerance. This makes sense because when adrenaline is triggered, we have more pain tolerance (think of the sodier in the war, running to safety with an arm blown off and not noticing it, or great feats of strengh and heroice performed when adrenaline is flowing).

- Hof advises incrementally increasing the length of cold showers daily - which is what we recommend in Hydrotherapy, however in hydrotherapy it is following a hot shower - alternating hot and cold so that the blood and lymph move back and forth.

- My take on the rappid breathing method is that for those who are in adrenal exhaustion, this rapid mouth breathing will make them feel better because it likely has the same stimulating effect as a cup of coffee, sugar, or adrenaline fuelled activity which many with AF seek to try and keep the adrenals going. However, repeatedly taking a worn out racecar around the tracks will eventually wear it out completely.

- Hof recommends the fast breathing method for a hangover headache, which makes sense because a hangover headache is due to low blood sugar and the fast breathing will activate the SNF and convert glycogen back to glucose. However, fast breathing will slow the flow of the cerebral spinal fluid.

- With all of the breathing methods available, doing your own research and trials and being open minded is always a good approach

Hyperventilation

The following is from a fascinating article from the New Scientist in 1988. Here is a direct link to the article but most is in the following slides https://buteykoclinic.com/the-hazards-of-heavy-breathing/

You have to breathe to live, but if you breathe too much you may end up in a psychiatric clinic suffering from panic attacks or agoraphobia, or being rushed to hospital with a suspected heart attack. You may even find yourself referred to some other medical specialist-a gastroenterologist or possibly an allergist.

Most doctors recognise the effects of acute hyperventilation or "overbreathing" – a hysterical fit often accompanied by muscle spasm or even coma. But chronic hyperventilation at low levels can produce a wide range of physical and mental symptoms that may be either misdiagnosed as something serious or dismissed as hypochondria.

New Scientist December 3rd 1988 - Judith Perera

Hyperventilation

Hyperventilation is a normal response to stress. It is the basis of the primitive "fight and flight" mechanism. Rapid shallow breathing cannot increase the amount of oxygen in the blood because red blood cells normally leave the lungs with their haemoglobin almost entirely saturated with oxygen. But it can increase the amount of carbon dioxide that is blown out, disturbing the body's acid balance and producing various physiological changes.

These changes lead to the altitude sickness experienced by mountaineers and, in the past, pilots. Here, it is not so much lack of oxygen that leads to difficulties but low levels of carbon dioxide caused by overbreathing to compensate for the "thin" air at high altitudes.

After several days, however, most people acclimatise to the new environment, as their bodies establish a new equilibrium. Mountain dwellers have lower levels of carbon dioxide in their blood than people living at sea level, but they do not become ill. This suggests that it is changes in the level of carbon dioxide, rather than the absolute level, that is the problem.

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People have exploited controlled hyperventilation for centuries to achieve certain physical and mental states. Some religious sects use it combined with yoga to produce the "spaced out" feeling experienced in transcendental meditation. The Pocomaniacs, a fundamentalist Christian sect in Jamaica, use it in religious ceremonies to bring about a similar mental state in which they can "see the Lord". Many of them have an orgasm at the same. time hardly surprising as an orgasm is impossible without a degree of "panting" to destabilise the autonomic nervous system.

Participants in war dances hyperventilate to generate feelings of invulnerability. Physically it can cause numbness of the limbs, producing an anaesthetic effect and altering the pain threshold. Dervish rituals are designed to achieve this effect so that self-wounding becomes possible. But uncontrolled hyperventilation is a different matter; it can be crippling and sometimes life-threatening. It can affect the cardiovascular system causing palpitations, missing heart beats, chest pain and Raynaud's disease, a deadening of the fingers and toes. It can destabilise the central nervous system to cause dizziness, disturbances of vision, and tingling sensations or numbness.

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Effects on the gut include wind, pain, diarrhoea and constipation. It can cause muscle pains, tremors and spasms of the limbs, as well as fatigue, exhaustion, general weakness and sleep disturbances. These symptoms are frequently accompanied by tension and anxiety, which in some people may lead to panic attacks or agoraphobia.

Claude Lum, a chest physician at Papworth Hospital in Cambridge who was one of the first doctors to recognise this syndrome, says it has replaced syphilis as “the great mimic”. He estimates that up to 10 per cent of all patients referred to specialist clinics are suffering primarily from hyperventilation.

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Hyperventilation

Twelve regular breaths a minute, each containing around 600 cubic centimetres of air, are all you need to supply your blood oxygen. Anything more, especially if your breathing is shallow and erratic, and you could be in trouble. But apart from the distressed panting seen in cases of acute hyperventilation, it is not easy to spot. The breathing rate can increase to 20 breaths per minute, and the volume of each breath to 900 cubic centimetres, and breathing will still appear normal, although the intake of air will have doubled.

There are a few give-away signs. Hyperventilators use only their chest when they breathe, whereas normal breathing is mainly abdominal, and their breathing is often interspersed with sighs or yawns. Many people can be treated by being taught how to breathe properly once they understand that their problems are caused by bad breathing habits.

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Nixon, a cardiologist at Charing Cross Hospital in London, believes that hyperventilation not only produces symptoms that mimic heart disease but may trigger a heart attack in some situations. Because of this, he believes cardiologists should test their patients for hyperventilation. Nixon says that 80 per cent of people with angina are suffering mainly from hyperventilation. No more than 15 per cent have a narrowing of the coronary arteries serious enough to require surgery or medication, and another 15 per cent have completely normal arteries. The rest have some narrowing, which is dangerous only if they become badly stressed or exhausted and begin to hyperventilate.

The physiological changes produced by this include constriction of the blood vessels the production of large amounts of adrenaline and increased activity of the sympathetic nervous system. It also increased the ability of the blood to clot and destabilises the rhythm of the heart. "This is a recipe for sudden death in some circumstances," he says.

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Heart surgery is useless, according to Nixon, unless patients recognise the effect that stress is having and learn to control their hyperventilation. In some cases, surgery can be avoided altogether and remission induced just by removing these dynamic factors. "A heart attack," he says, "needs hyperventilation and primed body chemistry."

Everyone hyperventilates in response to acute stress, but some people continue to do so even after the cause of stress is removed, and often the symptoms brought about by overbreathing then become a new source of stress, beginning a vicious cycle.

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Hyperventilation

Hyperventilation is more common in young women and in middle-aged men. A particular personality type seems more prone to this disorder-the ambitious perfectionists who stress themselves to cater to this. "People who suffer from hyperventilation are tough," he insists. "They are not no-hopers but are successful achievers who have mistaken the load they can carry."

Hyperventilation is also much more common among patients with allergies, although it is not yet clear which is the cause and which the effect. It is known that low levels of carbon dioxide in the blood will alter the activity of mast cells, causing them to release histamine which can in turn produce various allergic symptoms. On the other hand, McEwen has found that many people with food allergies will hyperventilate after eating something to which they are sensitive.

One of his patients is an opera singer who loses her voice on stage as a result of a bout of hyperventilation every time she eats wheat.

New Scientist December 3rd 1988 - Judith Perera

Hyperventilation

Hyperventilation triggers a wide range of physiological changes, many of which are not fully understood. It affects the activity of many cells within the body, especially those in the nervous system.

Even a slight fall in overall levels of carbon dioxide will stimulate nerve cells, which then prime the body for action. Muscle tension is increased, sensitivity and perception heightened, the pain threshold lowered and adrenaline released into the blood-the “fight or flight” mechanism is in action.

But as carbon dioxide levels fall even further, cells begin to produce lactic acid to reduce alkalinity, and metabolism begins to suffer. Fatigue, exhaustion and coma may result. The initial stimulation of nerve cells brought about by hyperventilation can cause tingling sensations, numbness, anaesthesia and, in some instances, convulsions.

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The cells making smooth muscle are also kicked into action by low levels of carbon dioxide. The effect is to constrict blood vessels, including those serving the heart and brain. The heart may begin to pound, miss a few beats, produce palpitations or angina pains. The brain may receive up to 50% less oxygen because the kidneys have to ensure the than normal, leading to dizziness, faintness, flashing lights, tunnel vision as well as a feeling of unreality.

Low levels of carbon dioxide can also cause chemical changes in the membranes of mast cells, a type of white blood cell that plays a part in the immune system. This stimulates the cells to release histamine and other chemicals, which may reinforce changes already under way, such as the constriction of the blood vessels.

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Carbon dioxide also helps to maintain the correct pH -7.4- within the body. But if the level of carbon dioxide falls in the blood and other body fluids, molecules of carbon dioxide diffuse out of cells to replace it. The cells then become more alkaline than normal, and may be spurred into frantic activity.

McEwan reports that he has found low levels of magnesium within cells in all his patients who hyperventilate, and claims that he can cure some by just giving them magnesium supplements.

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Hyperventilation

- This over-breathing (hyperventilation) does not add any more oxygen to the blood but causes a loss of carbon dioxide which is needed to oxygenate the blood. The heavier you breathe, the less oxygen is delivered to tissues and organs.

- *"A primary response to hyperventilation can reduce the oxygen available to the brain by **one half**" – Timmonds BH, Ley R. Behavioural and Psychological Approaches to Breathing Disorders*

- Hyperventilation can be a habit learnt in childhood as a result of psychological stress or physical illness. Or it may be a more recently acquired habit-the aftermath of two or three years of marital or financial pressures. For some people, it may be an occupational hazard. Singers, actors and public speakers are especially at risk. "Stage fright" is often a panic attack which may cause or be caused by hyperventilation. Most theatres in London's West End recognise the phenomenon and keep paper bags handy so that those who need to can breathe into them-this puts carbon dioxide back into the blood. Then there is the "designer jeans syndrome". Jeans that are too tight can restrict abdominal breathing so that shallow, rapid thoracic breathing becomes a habit

- Dysfunctional breathing/hyperventilation syndrome (DB/HVS) is a respiratory disorder, psychologically or physiologically based, involving breathing too deeply and/or too rapidly (hyperventilation) or erratic breathing interspersed with breath-holding or sighing.

Control Pause

- In Buteyko Breathing, we take a control pause (CP) with clients.
- Take a normal breathe in and out through the nose
- Pinch the nose with fingers to hold the breath.
- Time the number of seconds until you feel the first definite desire to breathe, or the first involuntary movmenets of your breathig muscles
- Following the Control Pause, tghew first breath should be same as prior to the measurement
- The number of seconds is the Control Pause, which gives an indication of the sensitivity to carbon dioxide. The aim is to increase the number of the Control Pause to over 20 seconds over time, after the person is given specific exercises, appropriate to them, to practise at home. CP is also a way of monitoring progress.

Breathing

- The number of breaths per minute during normal breathing is about 10 to 12 and each breath takes in approximately 500ml of air. In modern Western society, many factors are causing us to over-breathe.

- When we breathe in too much or take a big breath, it doesn't actually increase the oxygen saturation in the blood, it disturbs the blood gasses.

- The scientists that study breathing discovered that 90% of us are breathing incorrectly and that this failure is likely contributing to many chronic diseases. How this over-breathing affects each individual depends on genetic predispositions.

- Not all oxygen is healthy which is why we have antioxidants, breathing too much reduces oxygen to the brain.

- Not all carbon dioxide is bad as normal bodily functions are very dependent on this gas, we need to have the correct balance of both.

TWO MINUTES OF OVERBREATHING CAN REDUCE OXYGEN CONTENT OF THE BRAIN BY 40%

Science News *from research organizations*

Dietary nitrate -- found in beetroot juice -- significantly increases muscle force during exercise

A new study has found that consuming dietary nitrate -- the active molecule in beetroot juice -- significantly increased muscle force while exercising.

Dietary nitrate - found in beetroot juice - significantly increases muscle power. This study provides the first direct evidence that muscle nitrate levels are important for exercise performance, presumably by acting as a source of nitric oxide. Thse results have significant implications not only for the exercise field but possibly for other medical areas such as those targeting neuromuscular and metabolic diseases related to nitric oxide deficiency. https://www.sciencedaily.com/releases/2023/01/230123083441.htm

etary nitrate enhances exercise, both boosting endurance and enhancing high-intensity exercise, researchers still have much to learn about why this effect occurs, and how our bodies convert dietary nitrate that we ingest into the nitric oxide that can be used by our cells. To help close this gap, researchers at the University of Exeter and the U.S. National Institutes of Health traced the distribution of ingested nitrate in the saliva, blood, muscle and urine of ten healthy volunteers, who were then asked to perform maximal leg exercise. The team wanted to discover where in the body the dietary nitrate was active, to give clues on the mechanisms at work.

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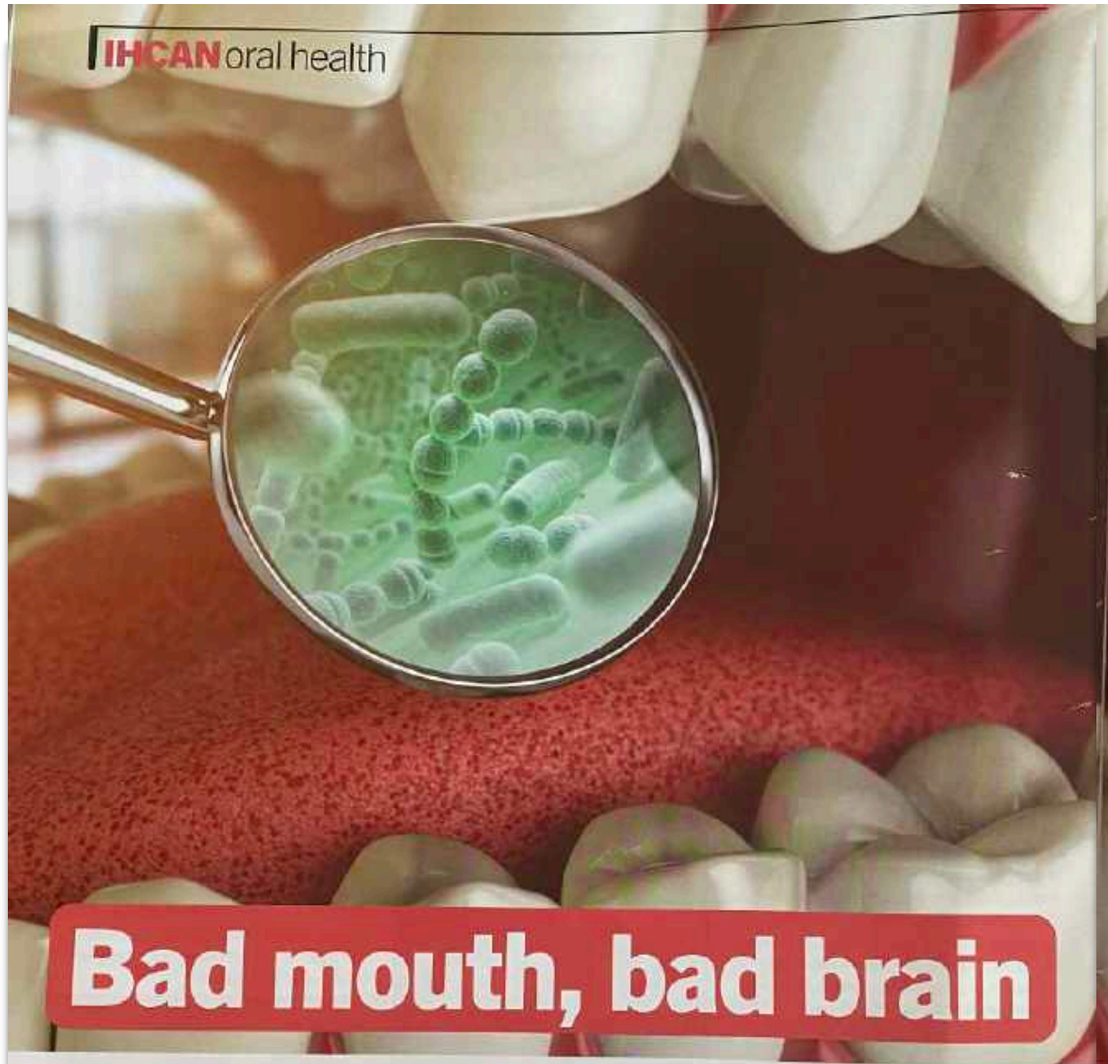

Bad mouth, bad brain

Delighted to be given the opportunity to speak at *IHCAN's* Brain Health Conference fronted by Dr Dale Bredesen, MD, in September, Functional Medicine practitioner **PETE WILLIAMS** stepped up for us when another speaker had to cancel at the last minute. Pete frames that as "a stroke of luck" that he was then able to present for nearly two hours! It turned out to be one of our most popular presentations. Pete talked about his own experience of gum disease and how it led him to a deep exploration of its local and systemic effects on the body. He focused specifically on the link between poor oral health and increased risk of Alzheimer's disease. Here he explains the key ideas and his clinical experiences in a narrative review.

So, going back eight or so years, the term Periodontal Disease meant very little to me. A visit to my dentist to investigate a troublesome back tooth changed all of that, though. I was a routine visitor to my dentist and hygienist and by all accounts had never had an issue with my mouth, teeth or oral health in general. During this visit however, my dentist informed me that the troublesome tooth in question would need to be extracted due to periodontal disease. I can still remember the sheer embarrassment at my complete ignorance of this so called "periodontal" disease. Yep, that's right, me, the guy who had been in the Functional Medicine arena for nearly 20 years had absolutely no idea that periodontal disease was more commonly known as "gum disease", and more shockingly, that I had it!

This revelation led me on a journey over the next eight years to delve deep into the research, initially to understand more about gum disease, but it also led me to get a much deeper understanding about how such a "local" disease can have significant consequences on the whole body. I quickly came to understand the implications of periodontal disease and its relevance when treating all other chronic diseases. In short, its associated effects and causative influences are huge.

I strongly believe that it should therefore be standard practice for all integrative practitioners to at least ask their patients about their oral health history.

I will expand on the oral and systemic disease relationships later, but suffice to say that the way you look after the health of your mouth, your gums and your oral microbiome must be an important part of your overall health plan. The richness of research in this area, my ability to apply this research to patients and my keen pursuit of knowledge in this area led me eventually to develop DNA Smile, which I will discuss later. I often reflect on past patients, and despite having achieved good outcomes with them, in hindsight these results could have been so much better if I had only investigated their oral health.

"It should be standard practice for all integrative practitioners to at least ask their patients about their oral health history".

1 in 2 patients

Recent research has shown that periodontal disease exists in over 40% of adults in high-income Western populations. In older adults this goes up to 50%. Interestingly poorer countries fair better, and there are no prizes for guessing why. These figures suggests that one in two of my patients will (either knowingly or unknowingly) have some degree of periodontal disease and this could be a major player not only in their current disease process but, importantly, in their recovery process.

One of the research articles highlighted in my talk was the 2019 *Nature Medicine* paper on how all chronic lifestyle diseases are linked fundamentally by inflammation. (1) I also discussed how looking to treat the underlying mechanisms of disease (such as inflammation) meant that you could, in effect treat two diseases with one strategy. This was one of many key concepts I wanted to get over to the attendees in the lecture.

A case study: rheumatoid arthritis

To outline this concept in more detail and illustrate its relationship with oral and systemic disease, I presented a case study of a rheumatoid arthritis patient who had previously been with a functional medicine clinician for more than a year. Despite what looked like a good treatment plan, she was not getting any better and in fact appeared to be getting worse.

After a thorough examination of her file, it became clear to me that the red flag that had been missed was her significant periodontal disease. This was through no fault of the previous clinician; I recognised that going back several years I too would not have made the link between her oral health and her systemic health. Armed with the knowledge and the importance of this link I knew that treating her oral health was going to be key; in fact it would be the main part of her treatment plan with me.

To effectively treat her chronic periodontal disease, this patient required a collaborative care model. This involved not only a Functional Medicine Practitioner but a Functional Dentist – yes, that's right, Functional Medicine thinking is moving into the world of dentistry. We were so successful in treating her RA that in 16 weeks she was in remission and no longer using any medications. We did use some additional novel testing such as DNA Smile to give very personalised data, but in effect we understood that treating one disease could help to treat another seemingly unrelated disease.

The scientific literature shows that RA and Periodontal Disease are very similar in their underlying mechanisms and the gene variations associated with them. In short, pathogenic oral bacteria can, in some cases, be at the heart of RA. We presented this case study at the IFM Annual International Conference in 2021. I am still in touch with this patient and spoke very recently with her. The good news is that her RA is still in remission, she has no pain, takes no medication and her periodontal disease is very much under control.

Underlying concepts in a systems thinking approach

I dedicated a whole section of my lecture to some underlying concepts in medicine that we really need to take note of; it's a "systems thinking" approach to medicine which I will outline below.

- Humans are superorganisms; we consist of slightly more bacteria than human cells, but all are working for the greater good of having a nice home (the human body). And as a reward for providing a nice home your bacteria will do a great job of helping to keep you healthy. But there is a caveat to this – we need to give our bacteria the things that make them thrive and therefore make us thrive.
- Given that (by cell number) we are more bacteria than human, then it makes sense that we should spend at least 50% of our time investigating the health of this bacteria, whether in the mouth, digestive tract or any other mucosal surface.
- When our immune system responds to invaders it can also damage surrounding structures and, in particular, the borders that protect us from the outside world.
- When these borders are compromised

Train Your Brain to Remember Anything You Learn With This Simple, 20-Minute Habit

- Ebbinghaus's 100 year old formula calls for you to spend 10 minutes reviewing the material within 24 hours of having received it (that will raise the curve back up to almost 100 percent retained again).
- Seven days later, spend five minutes to "reactivate" the same material and raise the curve up again.
- By day 30, your brain needs only two to four minutes to completely “reactivate” the same material, again raising the curve back up.
- Thus, a total of 20 minutes invested in review at specific intervals and, voila, a month later you have fantastic retention of that interesting seminar. After that, monthly brush-ups of just a few minutes will help you keep the material fresh.

https://getpocket.com/explore/item/train-your-brain-to-remember-anything-you-learn-with-this-simple-20-minute-habit?utm_source=pocket_reader

I have a Breathing Fact Sheet for clients on my website Fact Sheet page for more information with Buteyko exercises - link here. https://www.gutfeelings.uk/FactSheets

www.gutfeelings.uk