

# Immunity for Humanity: A Revolutionary Endeavour towards Holistic Health Living

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**Abstract – Immunity is the human body's ability to resist toxins or organisms that cause damage to the tissues and organs, thereby demonstrating a defence mechanism for an improved quality of life. (Guyton and hall 2011)**

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## INTRODUCTION

The immune system has a varied response to a foreign antigen in the human body, an innate response being the first line of defence and an acquired or adaptive response which is more antigen-specific which develops in the process. Innate immunity stimulates a systemic reaction to avert infection, maintain homeostasis and plays a crucial role in activation and adaptation of acquired immunity. (Romo et al. 2015) Adaptive immunity hinges on receptors that are custom tailored and selected through a process of somatic (symptoms related to the body) recombination of a huge array of gene segments. (Bonilla and Oettgen 2010) There are two basic but allied types of adaptive immunity, one of which develops circulating antibodies in the form of protein-based globulin modules capable of attacking the invading antigen known as humoral immunity produced by B lymphocytes maturing in the bone marrow. The other one is cell mediated immunity. There is formation of T lymphocytes in large number, which mature in the thymus to destroy the foreign agent's lymph nodes. (Guyton and hall 2011)

## Influence of hormones

Immune cells produce and secrete and store a wide range of hormones which regulates their production, they also possess receptors for hormones and signal transduction pathways which is controlled by central nervous system the interaction of which is known as neuro-immune regulation. Receptors are influenced by hormonal imprinting during the indispensable developmental periods of target cells, influencing hormone synthesis of immune cells for life. (Csaba

2015). Hence any fluctuation in the level of hormones affects the body's defence mechanism against the invading foreign antigen. Various factors affect the hormones' levels and their secretion targeting those can therefore lead to an upgraded immune response. Sexual hormones regulate the immune responses, through their endogenous nuclear receptors so as to mediate gene expression and generate unique gender-specific cellular environments, glucocorticoids (growth hormones) regulate essential body functions, anti-inflammatory responses and immune-suppressive activity steroid hormones, such as oestrogens, prolactin, progesterone, and glucocorticoids (GCs) modulate the maturity and action of both innate and adaptive immunity. (Bereshchenko et. al. 2018) Emotions affect endocrine health and vice versa resulting in the functions of the immune defence to be regulated by signals of the endocrine system and the central nervous system (CNS). (Haas and Schauenstein 2001) Immune cells not only possess receptors for neuroendocrine peptides, but also are capable of synthesising and responding to them. This affects the central nervous system, which possesses receptors for cytokines and can also synthesise them. (Rheum 1989) Cytokines have vital and diverse roles in various immunological processes, namely regulating immune responses, maintaining immunological homeostasis and development, differentiation and functioning of macrophages, dendritic cells (DCs), and T-cell. (Yoshimura et. al. 2007) Therefore if emotions are manipulated appropriately and CNS is trained accordingly they can thereby strengthen one's immune system.

### Interconnected systems and factors affecting them

The endocrine, immune and nervous systems possess an interconnected nature, the central nervous system contact innervates the endocrine glands and thereby primary and secondary immune organsthrough direct axonal. The endocrine system influence both the nervous and immune systems by hormonal signals with differential effects based on gender and environmental factors. Immune cells signals the endocrine, and nervous systemsthrough neurotransmitter release. (Manley et.al 2018)Everyindividuals body undergoes fluctuations, some natural and some as a resultant effect, which influencethe functioning of these interrelated systems. The precise mechanism controlling the secretion of hormones is under-researched but there are multiple factors known to influence the secretion namely age, genetics, gender, presence of disease or condition, sleep, inadequate nutrition, stress, exercise, trauma, excitement, hypoglycaemia, mood and emotions.(Guyton and hall 2011) An irregular endocrine function creates a hormone imbalance characterized by excessiveor scarce hormone production. The underlying problem might be due to an endocrine gland producing hormones in abnormal amounts, or a problem in breakdownof the hormones.(Hormone health network).The gut microbiota communicates with the CNS(Central nervous system) through neural, endocrine and immune pathways thereby influencing brain function and related behaviour.The gut–brain axis provides a two-directional homeostatic communication through neural, hormonal and immunological routes, dysfunction of whichcould lead to pathophysiological consequences.Modulation of the gut–brain axis is viewed as an attractive target to prevent irritable bowel syndrome (IBS),eating disorder, erratic behaviours, anxiety and behavioural changes to stress due to its correlations. (Cryan and Dinan 2012) The state of dis-ease is initially seeded or originates in our subconscious which also translate into other personalities thereby manifesting into physical body. Therefore any alteration in hypothalamic-pituitary-adrenal can, lead to hormonal fluctuation of communication between the nervous and immune systems thereby affecting the regulation and function of these closely bounded systems.

### Effect of laughter therapy, yoga, dance and acupressure

As the endocrine neuro and immune system are inter-related any changes in one affects the others as well. Laughter induces immunoenhancement through regulation of stress chemicals (Bennett andLengacher 2007) Neural and endocrine changes occur as a resultant effect of physical and psychological stress leading to behavioural changes and affecting physical wellbeing. Negative stress, or distress, increases the secretion of stress hormones such as corticotrophin and cortisol, catecholamines, beta-endorphin, and prolactin. Conversely, research

has shown that eustress (de-stress) such as laughter and meditation can produces quantifiable changes in stress hormones.Laughter helps in pain reduction through release of endogenous opioids such as beta endorphins and stimulates activity of T-cells which kills the foreign bodies that enter the body.(Martin 2001) Psychoneuroimmunology (PNI) (study of relations between mind and immune system) has stated presence of interrelated pathways connecting the brain and immune system wherein neural innervates the lymphoid tissues and hypothalamic pituitary-adrenal glands thereby creating neuroendocrine links. The consideration of these pathways supports the hypothesis that de-stressing by means of laughter or yoga, may produce beneficial health effects thereby resulting in favourable physiological and immunological changes.(Berk and Tan 1996) Yoga acts through the cerebro-cortico-limbic pathways thereby maintaining the balance between the sympathetic and parasympathetic limbs of the autonomic nervous system, in addition to that it also alters levels ofcirculating cytokines so as to create a beneficial effect on the immune system. (Gopal et.al 2011)Slow rhythmic humming also known as Bhambri breathing gradually increases lung volume also, the rib cage movement involved stimulates the nerve receptors from thoracic cage along with proprioceptors that strengthen vagal tone through the central limbic-hypothalamic thereby influencing the sensory projections to thalamus and cortex. (Pal 2018) Bhambri breathing surges the production of nitric oxide from sinuses and nasal mucosa, nitric oxide contributes in defence against bacterial, viral, fungal, parasitic infections by improving the ventilation– perfusion ratio in the lung along with relaxation of bronchial tree smooth muscles, thus leading to an increased oxygen uptake which aids in fighting the infection in the body. It also regulates the stimulation of nor epinephrine, serotonin, dopamine, glutamate, and the other major neurotransmitters involved in the neurological process thereby creating a vast impact over mood and emotions involved. (Taneja 2016)Psychological and physical improvements have been attributed to dancing, research over the years have stated that dancing involves nonverbal creative expression for emotional expression and total self- and body-awareness thereby enhancing self-esteem , improving muscular coordination, flexibilities and releases tension in cooperating enjoyment through relaxation.(Ritter et.al 1996) Dance is also known as a way to express the unspoken emotions for many its way to relax through letting out the feeling situated deep withing thereby facilitating an outflow of emotion and imparting relief and relaxation along with physical exercise, benefitting not only mental but also physical wellbeing. Acupressure is one of the complementary therapies which is believed to modulate the flow of energy, enhance blood flow, dispel blood congestion and vitalize organs thereby improving psychological and general

health through stimulation of pressure points of the body. It also increases the production of serotonin, endorphin and regulates the serum cortisol, alteration in hormones helps reduce anxiety thus induce relaxation (Hmwe et.al 2014) Hence therapies such as laughter, yoga, dance and acupressure helps stimulating the endocrine system and regulating the flow of energy so as to obtain strengthen the vital organs, reduce stress by inducing relaxation and improve immune response.

#### **Understanding Prana: this is an excerpt taken from a very old Vedic story**

The five main faculties of our nature—the mind, breath (prana), speech, hearing, and sight—were arguing about which was the most important. To resolve the dispute they decided that each would leave the body in turn to see whose absence was missed most. First speech left, yet the body continued to flourish though it was mute. Next the eye departed, yet the body flourished though blind. Then the ear left, yet the body thrived though deaf. Finally the mind left, yet still the body lived on, though it was now unconscious. But the moment the prana started to leave, the body began to die. The other faculties were rapidly losing their life-force, so they all rushed to prana, admitted its supremacy, and begged it to stay.

'Prana is the universal sea of energy that infuses and vitalizes all matter. This sea of energy coalesces into sub-atomic particles and atoms, which become the basic building blocks of all matter manifesting the physical world. So, every atom, molecule, and cell is an extension of prana, just as waves are extensions of the sea that lies beneath them.' **(the yogic encyclopedia)**

When we speak of energy we often think of energy that we receive from the sun, or from the food we eat. However, there is another form of energy...our life giving source that revolves around the cell and travels from cell to cell creating electrical energy. Paramhansa Yogananda rightly called it the Life-source. It is this energy that the cells provide to our organs, muscles, and other parts of the body for its effective functioning...such as breathing, cleansing, elimination, fat control, and healing. All integral life processes are executed by an intuitive cleverness that the Prana possesses.

The body requires much energy to function, and half of our bodily functions are deprived of the energy it requires. The body is wise, and decides where the energy should flow. When the energy supply reduces the function of our body is affected. Circulation, digestion, absorption, assimilation, elimination, respiration becomes inefficient. Owing to lack of nourishment there is a constant feeling of being unwell. This is called degeneration.

To energize our bodies we need good wholesome food, a lot of sunlight, lots of exercises, meditation, a positive attitude to troubled circumstances in life, most of all we need lots of Prana.

'Prana is the flow of energy from which all other forms of energy emerge.' 'Pra' means first and 'na' is the smallest unit of energy. (read it in a book by Swami Jnaneshwara Bharati) It is all pervasive, permeating each individual and the universe.'

'It is a complex multidimensional energy of electrical, magnetic, photonic, and thermal energies.' (by Dr.Renu Mahatani)

All functions of the body are governed by Prana...walking, talking, thinking, respiration, pumping of the heart, excretion of the urine and feces, manufacturing of gastric juices, bile, saliva, chyle, and semen.

When the Prana withdraws from the body, the body dies. We must remember that the entire functioning of our body is supported by Prana.

The more Prana we take in the better will be our health. Prana fortifies all functions of the body and the mind. Most of all it builds our immunity, and helps in the healing process of our body.

#### **The 5 main functions of Prana**

We already know that Prana is used for various functions of the body; however, prana is active in five specific regions of the body.

**Prana Prana – forward moving air** – It is located in the head, brain and the upper body. It corresponds to the chest region. It works around the heart, and is connected to the anahata chakra, or the heart chakra, and works also around the lungs. It is this basic energy that is the driving force. It is associated with respiration, thoughts and perception. This prana is absorbed through inhalation. It is associated also with the downward movement such as swallowing. It carries with it the oxygen that is required by the cells to function thus nourishing all the tissues, the nervous system, and also the brain.

**Udana Prana – upward moving air**- Ud means upward. It controls communication, speech patterns, and memory. It is related to the head and the throat regions, thus connected to the vishudhi chakra. T helps in self-expression, to make the effort to express one's will. Udana prana regulates breath primarily exhalation, which moves gaseous waste out of the body. It is our positive energy that helps us advance in our consciousness. It awakens the spiritual aspect in us bringing joy and enthusiasm to our lives. One experiences self-transformation out of will.

**Samana Prana – balancing air** - It is located centrally in the body that is the stomach and the intestines.. It is responsible for the digestion and assimilation of the nutrients. The Samana prana functions along with agni the digestive fire, and is closely associated to the Manipur chakra. It digests the food and separates the various constituents of the foods, and supplies them to the body when required. A balanced samana prana helps our minds to remain healthy, making us make the right kind of choices. One feels contentment as the mind is balanced.

**Apana Pran** – the air that moves away. It is responsible for the function of elimination ...it governs the elimination of urine and stool, the expelling of semen, the menstrual fluid, the fetus, and the elimination of carbod dioxide through our breath. At a deeper level it helps us eliminate negative emotional and mental experiences. **Apana** has a downward movement, and we need to take in more of Prana and have less of Apana in our body. Leaving it in the body by not eliminating it regularly. Apana is closely associated with the immune system of the body. It helps build up our defenses. Apana is focused in the muladhara chakra.

**Vyana Prana** – outward moving air. Moves from the center to the periphery. It governs circulation at all levels, moving food, water. and oxygen throughout the body. It is concerned with regulating all muscular movements in the body through the nervous system. It keeps our thoughts and emotions circulating in the mind. One of its functions is to help in our emotions such as compassion, and courage. It is located at the heart chakra...the anahata.

### Some negatives when the 5 pranas are not balanced

**Prana Prana** when not in balance causes desires and cravings that can misguide us, misdirect us and keep us out of balance. Disturbed prana leads to hiccups, wheezing, and a variety of illnesses of the breath, senses, and mind.

**Udana** when not in balance causes us to become proud and arrogant. We lose touch with our roots and fly too high needlessly. You sometimes lose the power of self expression. You also suffer from illnesses that occur in the throat, neck, and the head. It is associated with vomiting.

**Samana Prana** when not in balance we become greedy and attached to materialistic goods. We become possessive of people and slowly start stagnating. Illness associated to this prana are mostly stomach related, such as digestion, and diarrhea.

**Apana** when imbalanced can cause depression. We are stuck in our negative emotions which weighs us down making us feel fearful, suppressed, and weak. We face issues with reproduction and urinary

functioning when Samana and Apana are not balanced.

**Vyana Prana** when not in balance makes you feel hatred. You begin to isolate yourself from others, nor can you remain connected with what you are doing. It creates systemic problems.

Increased Prana and reduction in Apana will help in experiencing good health, and will increase the immunity. Yoga helps in this. Some of the breathing exercises highlighted later in meditation will certainly help.

The toxic impurities are thrown out during exhalation, and we breathe in Prana during inhalation.

**By building the immunity Prana strengthens the bodily functions and helps in the healing process.**

### Balancing the 5 Pranas

**Prana Prana** – Nadi shodhana or the Brahmri can be used to balance this Prana. Nadi shodhana is Alternate Nostril Breathing. Nadi is Flow and Shodhana is Purification. It helps in purifying the subtle channels of the body. Brahmri is when you inhale deeply and then exhale making the sound of the bee. This can be done simply by closing the eyes and bringing the lips together and humming the sound of the bee. It can also be done with the Shanmukhi Mudra. It calms the mind, balances the nervous system and heightens awareness.

**Udana Prana** – can be balanced by practicing Nadi Shodhana and Ujjai Pranayama. The consumption of licorice also helps. Ujjai is breath of fire that we need to control. The glottis vocal chord and neck muscles are involved. Breath in through your nostrils with a sound where you feel the vibrations in the throat, you are actually contracting the air passage. You are controlling the intake of air by controlling the muscles. This helps in curing thyroid. After you breathe the air in through the nose you then create a lock by holding your chin down towards the throat. Hold for a bit then exhale through the left nostril blocking the right nostril with your right thumb.

**Samana Prana** – Kapalbhathi and Bhastrika are the best to balance the samana vayu. These techniques have been explained later in the document. Consumption of ginger, ajwain and hing help in digestion and bloating.

**Apana Prana** - can be balanced by drinking lots of water, consuming triphala, and Ghee (clarified butter). A lot of walking and pranayama, and yoga will help restore the balance. One of the best detoxification method used to bring balance to the apana vayu is Basti (herbal enema).



**Vyana Prana** – Nadi shodhani is a good practice to balance Vyana Prana.

### **The Three Nadis**

Nadis or an energy network, are the passages that prana uses to move to get to various parts of the body. Nadi means flow, and so nadis are a subtle flow of energy. The nadis are 72,000 in number according to the Hatha Yoga Pradipika. Among these nadis are 3 very powerful ones; the Ida, the Pingala and the Sushmana. The three nadis travel from the base of the spine to the head. They provide energy to every cell every organ in the body carrying prana in every direction.

The ida originates from the left side and reaches the left nostril. The pingala nadi rises from the right and moves upwards to the roof of the right nostril. The ida nadi is feminine in its energy and has a cooling effect. It is called the moon nadi. It controls all the mental processes. The pingala generates heat, is masculine in its energy, and is called the sun nadi. It controls all the vital processes.

When both the nadis work concurrently the third nadi which is the Sushmana Nadi gets activated. The Sushmana nadi is in the centre of the spine.

The Ida and Pingala need to be equipoised. When balance is attained in the opposite pairs of Ida and Pingala the forces move smoothly up and down the spine without hindrance.

Each Nadi is connected to the different nervous systems of the body. The Ida nadi or the moon nadi is connected to the Parasympathetic Nervous System and the Pingala Nadi or the sun nadi is connected to the Sympathetic Nervous System.

These two nadis are the two channels of the Autonomic Nervous System which governs the involuntary functions of the body.

**Once again it is the Prana that is used to maintain the balance.**

***Infections get incubated in agitated bodies,***

***Not in meditative bodies.***

***Get Mickeymized!***

### **Chakras**

Our chakras are powerful vortices of energy also called the energy nexus. The energy centers, the various organs, and glands within the body are connected. They help in the function of the various organs and parts of the body by transferring prana.

Our chakras are associated to the 5 elements that our bodies are made of. In our hurried scurried life

we have forgotten this aspect of our bodies. It was not long ago that we worshipped these elements.

We need to maintain a harmonious balance of the energy vortices, cause if a chakra is blocked the life energy that is the prana is blocked. This can cause physical, emotional and mental health issues.

The chakras influence your mental, physical, spiritual, emotional and physical aspects of your life.

The amount of energy and the activity of each chakra will determine the personality of the individual.

The chakras sit between the personality and the soul. Personality is our waking consciousness and the soul is a higher level consciousness. Our soul character is very different from the traits that our personality displays.

Our sole purpose in life is to better ourselves and raise our vibrations along the way to infuse into our personalities the soul character. A soul infused personality would be our saints and sages and rishis.

Of course there will always be a dominant chakra depending on the personality change. Our personality changes according to the circumstances in our lives and the environment we are exposed to. Our choices, our feelings, our attitude at those times will determine the change. We evolve with each experience.

### **The Seven Chakras**

**The first chakra...The Muladhara or the Root Chakra** represents instinct, security, survival. It connects us to Mother Earth and is represented by the color red. It is attached to the gland called Gonads. The Sense of smell is associated to the base chakra.

When blocked or not in balance you can feel anxious, in doubt, making decisions becomes challenging, you build negativity towards yourself and others, you are low on confidence and seek approval from others. You could suffer from lower back pain and leg pain.

To unblock or balance it you could focus on the chakra at the base of your spine. Imagine the colour red and chant the beej mantra LAM for a few minutes. Balasana is the yoga posture to practice.

The element is the Earth. You could walk bare feet on the grass and imagine the earth pulling away all the negativity from your body. Feel the cool grass. Absorb the positivity from the earth. You can talk to the plants, touch them, feel them.

Plants can take away the negative energy when the bond is established.

Eat foods rich in protein like tofu, beans, almonds, and spinach. You can have tomatoes red bell pepper, strawberries, cherries- food that are red in colour. Also you can add to your diet beets, potatoes and garlic.

**The second chakra...The Swadhisthana or Sacral Chakra** is related to emotions, sexuality, reproduction, and creativity. It is indicated by water, and is represented by the color orange. The Sacral Chakra impacts several organs and glands, including the bladder, the lymphatic system, pelvis, the large intestine and the female reproductive organs.

When blocked boredom envelops, one can get offended easily, fear of change sets in, you carry guilt from the past, you feel negative emotions like jealousy, feeling of low self-esteem, one can be addicted to drugs or alcohol, become promiscuous. Physical manifestations such as allergies, low energy, low libido, and discomfort in the bladder can be observed.

To unblock focus on the chakra above the mooladhara and chant the beej mantra VAM imagining the color orange, for a few minutes. You can practice the Dvipada Pitham asana for this chakra.

The element is water. Go for a nice relaxed swim. Connect with the water. Feel it enveloping your body. Feel the peace it offers you. Walk in the rain. Feel the droplets on your face. Connect connect. Take a cool shower, stand for a bit below the shower. Feel the negativity leaving you.

Eat oranges, seeds of any sort, coconut, and drink lots of clear vegetable soups.

**The third chakra... The Manipura or Solar Plexus Chakra** is also called the City of Jewels. It is one of the most powerful chakras as it influences our personal power. It is the mid-point where we individuals transition from the base emotions to the higher emotions. It is represented by the color yellow, and fire signifies Manipur Chakra. It is connected with our sense of sight.

When blocked you can experience low self- esteem, you carry guilt from the past, you lack direction and purpose in life, and feelings of helplessness engulf. You could suffer from digestive problems and can have memory lapses.

To unblock you can focus on the chakra, imagine the colour yellow and chant on the beej mantra RAM for a few minutes.

The element is the sun. take in as much as sunlight you can, especially during the early morning hours. You can sit in your balcony, or take a walk in the sun,

or even go for a run in the early morning hours. Go to the beach if you have that luxury close to your house. You can light candles or diyas and draw the energy from the flame.

Foods that you can eat are yellow pepper and corn. Drink lots of chamomile tea.

**The fourth chakra...The Anahata Chakra or the Heart Chakra** depicts emotions such as compassion, empathy, love, equilibrium and well-being. It is associated with the element of air. This chakra has the most profound effect on our relationships both professionally and personally.

If the chakra is weak it can destroy relations because of anger, envy, jealousy, distrust, lack of empathy, restlessness. A toxic friendship can be responsible for blocking the heart chakra. A weak heart chakra manifests its self in forms such as high blood pressure, insomnia and a low immunity system.

It is depicted by the colour green. To unblock, you can focus on the chakra, the color green, and chant YAM for a few minutes. Practice the half camel pose for the heart chakra.

Foods such as greens, spinach, green apples, green bell peppers, oranges, and strawberries as fruits, and warm healthy soups work well for the heart chakra.

Air is the element. The wind can blow in any direction. Let the wind blow away the negativity that surrounds you. Let it carry it away.

**The fifth chakra – The Vishuddhi Chakra or the Throat Chakra** symbolises our true inner voice, and our ability to listen and empathise the two large components of communication with others. It also signifies purity. When in harmony you have a beautiful voice, and find creative ways of expressing yourself. It also helps in building ones spiritual awareness. The Vishuddhi Chakra and several organs and glands, including the throat, jaws, neck vertebrae, thyroid, teeth, ears, oesophagus and the ears are closely connected.

If your throat chakra is blocked then you will face challenges in expressing yourself, your feelings and emotions, you will fall short of vocabulary, you will get the feeling that you are holding on to many secrets and the world does not know the real you. Physically you may suffer from a sore throat every now and again, or a stiff neck.

To unblock this chakra you may focus on the colour blue, and chant the beej mantra HAM for a few minutes. The bhujangasana and the ujjai pranayama are good for the vishuddhi chakra.

The element is ether. Ether is space. It is vibrational. It unites all the other elements. In our physical body, it controls the space of our body

and the space around the organs such as the cranium, chest, pelvis and joint area.

**The sixth chakra...The Ajna Chakra or the Third Eye** is the beginning to higher communication. It is the centre of intuition and wisdom. The individuals who have a balanced third eye do not fear death or troubles. They have powerful telepathic abilities. It is connected to the pituitary and the pineal gland. It is associated to the sense of thought. When the chakra is blocked you get a feeling of loss of purpose, making decisions is an issue, you are engulfed by fear. You can suffer from sinus, headaches, also migraines. The chakra is represented by the color indigo. To unblock you can focus on this chakra and the color indigo whilst chanting either OM or SHAM for a few minutes. You may practice the balasana pose or the eagle eye pose. You may eat food rich in omega 3 such as salmon, sardines, mackerel, nuts like walnuts, chia seeds, and vegetables such as eggplant, fruits like blueberries to balance this chakra.

**The Seventh chakra...The Sahasrara or the Crown Chakra** is the chakra that controls all the other chakras. It is the gateway to higher dimensions. It is the centre for pure thoughts and saintly intelligence. One is always concerned for the highest good of others. This chakra is connected with the element of light. It is also connected to other glands and organs such as the pituitary gland, the brain, the hands and of course the nervous system. If this chakra is over active, you will experience feelings of self-destruction, you can become cynical, and have feelings of apathy. If it is underactive you will be confused, you will oversleep. Physically you could experience exhaustion, and severe headaches. Drink a lot of herbal teas, consume ginger in your diet, have food that are violet in colour

#### **The Mind and Health and Disease depend on the Prana**

Around every cell is a bio magnetic field of energy created by the circulation of particles of life force called the Crystallised Prana. Tiny particles of life rotate in and around the cells, this rotation produces the bio magnetic force. It is because of this force the body stays together. If the bio magnetic energy drops it results in short supply of energy to the mind. This in turn translates into the body feeling lethargic, and also into distorted mental functions. A constant imbalance of this energy results in diseases.

This happens due to improper breathing, immense stress, affecting our minds. Stress affects our breathing. We need to be watchful of our thoughts as they produce stress. It is tough to control our thoughts and thoughts can become muddled, confused, leading to stress. This in turn affects our breathing which in turn results in physical illness

#### **The Sun and Moon Effect**

Make Hormones while the Sun shines

The sun is a star that is at the heart of the Solar System. It is a hot ball of glowing gases. It is an important source of energy. It is described also as the yellow dwarf.

Roughly three quarters of the Sun's mass consists of hydrogen (73%); the rest is mostly helium (25%), with much smaller quantities of heavier elements, including oxygen, carbon, neon, and iron. (Wikipedia)

'Sunlight at the top of Earth's atmosphere is composed (by total energy) of about 50% infrared light, 40% visible light, and 10% ultraviolet light.' (Wikipedia)

'The energy of the sunlight supports all life on earth by photosynthesis. It drives the earth's climate and weather.' As the height increases the density of the sun decreases.

We hear a lot being said that the sun's energy is dangerous for the skin just as much it is good also for the skin. However the sun has also another usage.

Sunlight and darkness trigger hormones in your brain. Sunlight increases serotonin. Serotonin boosts mood and helps one to feel calm and focused.

At night dark light triggers another hormone called melatonin. This hormone helps you to sleep.

Less exposure to the sun results in a dip in the serotonin level. Low level of serotonin is related to severe depression with seasonal pattern. It is called SAD. This depression is brought on by changing seasons. This depression could be triggered during the winter season.

Soaking in a lot of sunlight has a lot of benefits. Sunlight therapy dates back to the Greeks and is called the Heliotherapy. Some of the main benefits have been highlighted.

- If you are lacking in Vitamin D all you need to do is soak in some sunlight. When your Vitamin D level is where it has to be you will have avoided the risks that go with low Vitamin D. Vitamin D is required to absorb calcium. Vitamin D and calcium are required for healthy bones. Hence regular sunlight can help prevent osteoporosis and rickets.
- It can help prevent rheumatoid arthritis, multiple sclerosis, diabetes, liver problems, cholesterol problems, and help

avert diseases such as Parkinson's, and Alzeihmers.

- 30 minutes of being exposed to the sun say 3 times a week should be good to energize
- Shorter durations of 15 minutes a day will also do
- The best time to spend time in the sun is 11 a.m. to 1 p.m. it is the time when the UVB rays are at 290-320 nanometer (nm), and help produce Vitamin D. However, let the duration be short, say 15 to 30 minutes Another time slot would be 7 a.m. to 9 a.m.
- It is antimicrobial. The sun can treat blood against fungi, bacteria and viruses.
- It increases CD8 cells that are a type of white cells which kills cancer. It helps in increasing the immunity.
- Sunlight increases blood circulation. It also increases the red blood cells which in turn increase the amount of oxygen generated to send to the cells thus increasing your stamina
- It is a mood enhancer as it increases Beta Endorphins.
- It relaxes and calms the mind, and help in sleeping better.
- Sunlight contains infrared which has a lot of benefits
- Contains full spectrum light which increases dopamine and serotonin thus helping you fight depression
- Increases Nitric Oxide which helps improve blood flow
- Increases metabolism
- Breaks down estrogen, adrenal, cortisol, prolactin, progesterone, testosterone
- A few harmful effects of the sun:

It can damage the eye due to overexposure to the ultraviolet rays. The sun can damage the retina.

We lose a lot of water and salt due to excessive sweating from exposure to too much sunlight leading to heat exhaustion.

If heat exhaustion is not treated in time it can lead to heat stroke.

Exposure to too much of sunlight can cause sunburn.

Heat rash is a rash one gets when sweat ducts get trapped under the skin.

The older you get and after much exposure to sunlight over the years one can develop skin cancer.

A Cleansing Wheel, the Full Moon will Heal

Logic and the Spiritual World

Logic and the Spiritual world – do they go together? There is something called the Spiritual Logic.

Human logic enforces and imposes limitation that are self-induced.

Spiritual logic knows no limitation, no boundaries. It contains infinite possibilities and no judgement. It is unconditional unlike human logic that is bound by condition.

We have been given the right of free will, or choice. It is through your choice that you will exercise your free will, which determines what you manifest in the physical world. It can be your greatest gift or your biggest hindrance.

How does this free will or choice, or logic help you with the waning and the waxing of the moon?

The moon is referred to as lunar. It is also known that the moon is responsible for mood swings and emotional imbalances, and so the term lunatic. Luna means moon, but it also means you have moved away from logic. It can lead to insanity, if the body and mind are not strong and well established. Moon light and mysticism have always been associated world over. Shiva wore a moon over his head. It is very symbolic of the waning and the waxing of the moon. As you traverse the path of the yogic world, the initial few rungs of the ladder is 100% logic. As you climb the rungs higher it becomes illogical. It is the world of mysticism. In this process the moon becomes very important. The scientists also today are talking totally like the mystics. Creation holds a lot of mystery for us

### The Planet Earth and the Moon

The planet earth is in a certain position with the moon. When there is a full moon the vibrations felt are stronger than the vibrations felt when the moon is in other states. When the earth is exposed to the full moon there is a strong magnetic force that the planet experiences. Since our spine is erect/vertical you feel that surge of upward movement in the energy as there is a surge in the pull. The blood and the prana, which is your life force flows in a different way as the vibrations have changed.

The gravitational pull of the Moon causes high and low tides that we call tidal force. A tidal force



causes a bulge in the ocean on the side closest to the Moon and the side that is the farthest from the moon. The sun also causes ocean tides; however the Moon plays the largest role as it is closer to the earth than the Sun. We all know that the tide rises on a full moon night because of the gravitational pull, and so the circulation of the blood also increases.

At this point in time what-ever is the quality you are experiencing will get enhanced. If you feel love then love will get enhanced. If you feel anger then this emotion will get enhanced. If you feel fear, fear will increase. If you feel meditative on a full moon night, it is very good to meditate. Let there be more love and compassion growing in each one of us at this time so the blissful emotions will enhance. If you are aware of the cycles of the moon and its effects on you, you can by your free will of choice decide how you want to be on a full moon day, and make that quality a part of you and your personality. You must start building your awareness now and enjoy the energy the full moon night brings you. Every once a month we experience every phase of the moon – the new moon, the first quarter, the full moon and the last quarter. The distance between the sun and the moon decides the phase.

It is said you may set your intention when the Moon is new. It is an auspicious start for any new project, or to initiate a new relationship. One must then nurture the project, or the relationship for the next six months. Let go of all that you don't want and manifest that which you want. As the moon grows bigger i.e. the waxing of the moon, one must start acting on the intention placed. The waxing of the moon takes place two weeks from the new moon. Our desires start to manifest during the full moon phase; that is six months after the new moon. During the waning phase of the moon we need to get rid of all that is negative in our lives. Make all the necessary changes we would want to initiate during the waxing phase. The moon has both spiritual and religious significance in various cultures. In some cultures it symbolizes the rhythm of time. Our food is converted into 2 parts ...mind energy and prana. The mind energy is present in the pineal gland where vital hormones are secreted. It is a belief that 'The moon enters this gland and takes control of our activities- from night till dawn.'

### **Connection to the Nervous System**

Our Nervous system is a collection of nerves and specialized cells called neurons. This network of nerves and cells are responsible for the communication within the body. The Nervous System transmits signals to all parts of the body. It is the centre of activities such as learning, thought, and memory. It is made of the brain, the spinal cord, and the network of nerves.

The nervous system is divided into 2 parts:- The Somatic Nervous System controls the voluntary

actions of the body such as walking, writing, typing. The nerves connect to the skin, sensory organs, and all skeletal muscles. The Autonomic Nervous System regulates the involuntary functions of the body such as digestion, excretion, sweating, heart rate, respiratory rate, pupillary response, urination and sexual arousal. The autonomic nervous system regulates the heart, the lungs, the stomach, the intestine, the liver, the kidneys, the bladder, the genitals, the sweat, the salivary and the digestive glands.

Autonomic Nervous System (ANS) functions via its two branches – the Sympathetic Nervous System (SNS) and the Parasympathetic Nervous System (PNS). As we know the nerves of both the systems control various functions of the organs of the body.

The Sympathetic System gets the body ready for the fight or flight response. The responses can be blood pressure, a cardiac output, heart rate increased, bronchial dilation in the lungs, release of stress hormones, and metabolic changes such as increased blood sugar levels, . The body gears up to cope with any stressful situation.

The Parasympathetic System stops the body from overworking and restores calm and composure to the body. It helps to balance the effects of stress. Normalcy is restored to the body by conserving and restoring energy.

In our everyday life one cannot always flee from stressful situations. The fight and flight response needn't be the best or the most appropriate one at times. Often we suppress our negative feelings and stressors during the day, and every day. This leads to a negative effect in our body eventually manifesting as chronic stress resulting in diseases in our body.

### **Difference in approach (based on gender, sports)**

The functioning and secretion of neuro-endocrine system connecting the immune system is affected based on the gender and level of activity of an individual, females and male undergo different hormonal changes through the course of life also, athletes or recreational sports players have differently functioning body systems due their increased exertional level and training due to which the body demand to achieve optimal immune functioning also differs. It is known that exercise at moderate intensity is beneficial for the immune system but, the level and duration of exercise to achieve moderate intensity differs based on individuals lifestyle gender and age, sports player have increase repetition and duration than one with a sedentary lifestyle also, females train at an different intensity than males. With females factors such as menarche and

menopause are also taken into consideration as they play a vital role in secretion of hormones thereby influencing the endocrine and immune system. (Romeo et.al 2009. Nieman and Wentz (2018) did a review on the linkage between incidence of risk of illness and intense training and suggested that in order to avoid injuries or illness the players needs to take certain cautions. Firstly a detailed, individualized training and competition plan that also provides for sufficient recovery using sleep, nutrition, hydration, injury prevention and psychological strategies needs to be developed and implemented. The level and intensity needs to be increased or decreased progressively at times of near competition or breaks relatively. Early signs of fatigue or over-training should not be neglected and last but not the least a clear, logical and stress free mindset should be maintained. These can be achieved through training alongside a multidisciplinary team of coach, physiotherapist and nutritionist, absence in any one side of the loop could lead to negative consequences. Pervious researchers have observed that females have enhanced capability of producing antibodies thus reducing their susceptibility to viral infections, which is also one of the reasons for increased male- foetus mortality rate, on the other hand hyper immune responses in females could also lead to development of immune-pathogenic effects thereby predisposing them to autoimmune disorders. Women also tend to produce increased antibodies than men proving them efficient protection however, this could also result in worse side effects than men due to heightened immune reactivity. (Taneja 2018) As the production of hormones and functioning of immune system differs with gender so should their training and exercise regime so as to obtain maximal function and improved immune response.

### Exercise, respiration and immunity

Respiratory capacity of an individual is important in determining one's fitness level . The lobes of the lungs are essentially targeted so as to obtain improved respiratory function of the lungs. The right lung has three lobes (superior, middle, and inferior) whereas the left lung has two (superior, and inferior), also right lung is five centimetres shorter than the left lung so as to accommodate the diaphragm, which is broader and rises higher on the right side over the liver.(Arakawa et.al 2000) Resistive breathing (diaphragmatic or segmental) initiates an inflammatory response leading to activation of lymphocytes and elevation of plasma cytokines which are not originated from monocytes, instead are produced within the diaphragm, secondary to the increased muscle activation.(Vassilakopoulos et.al 2004). The energy expenditure during a bout of exercise determines ones fitness, VO<sub>2</sub> max (maximum oxygen consumption i.e. maximum amount of oxygen consumed per minute when individual has reached maximum effort ) is one of the measure to determines the bodies capacity to use oxygen. As a response to exercises the gaseous exchange (O<sub>2</sub>-

CO<sub>2</sub>) across alveolar and capillary membrane increases resulting in increased extraction of O<sub>2</sub> from arterial blood and excretion of CO<sub>2</sub> leading to increased body temperature. Increase in blood volume , haemoglobin, lung volumes and its diffusion capacities are all a resultant long term effect of chest physiotherapy also, positively affecting one's immunity.(Kisner and Colby 2013) Hence it is essential to adapt an approach which includes a combination of routines targeting various attributes of physical and mental health so as obtain holistic effect on the immune system. **Becoming aware of the 6 important chemical elements present in our body; proper consumption of which leaves the body healthy.**

Oxygen, Carbon, Nitrogen, Calcium, and Phosphorus are the 6 chemical elements that make up 99% of the mass of human body.

65% of the body is made up of oxygen. Oxygen together with hydrogen forms water. 60% of our body is made up of water. Oxygen is an oxidizing agent. Large amounts of oxygen are found in the lungs and in the blood stream. Oxygen that is inhaled from the air is bound in the hemoglobin in the blood. It is this oxygen in the cells that help produce the energy that the cells require to function and repair.

Carbon dioxide is present in every single molecule of the body. After oxygen carbon is present in large amounts in the body. Carbon is thrown out as waste product when you breathe. It accounts for a lot of our metabolic reactions in the body.

Oxygen and hydrogen are bound together to form water. Hydrogen is found in every molecule of the body. Hydrogen acts as a positive ion in chemical reactions.

An atom is made up of neutrons, protons and electrons. Ions are charged atoms or molecules. When an atom is said to be a negative ion when it has more electrons than protons as its composition. And if it has more protons than electrons it is a positive ion.

It is natural that nitrogen gas should be found in our lungs as the air has nitrogen present in it. Nitrogen in our body is a component of amino acids. Peptides and proteins are built by amino acids. Nitrogen is also an important component of our DNA and RNA

Calcium without which or less of it results in teeth problems, bone issues. However, it is not the most important function. It is used in muscle contraction and protein regulation. If any of the functions has less calcium the body then draws the calcium out of the bones and teeth. Hence it becomes necessary for us to keep our diet such that the

body gets enough of calcium. Lack of it could lead to osteoporosis.

Phosphorous is needed to keep the teeth and bones strong. It helps in the making of proteins that we require for our growth, and in the maintenance and repair of the cells.

### **Breathe Correct, to Resurrect**

Our mind and our breath are linked. The breath is influenced by the mind. The fluctuations, or variations in our breath takes place depending on our state of mind. If we are excited, or angry the breath quickens. When we are scared we feel choked or suffocated. When we are calm the breathing flows effortlessly. Pranayama helps to control the flow of breath. Through pranayama we manage the distribution of energy, or prana to the body and mind.

Breath is life. The way we breathe tells us of the way we live. Our personality depends on our breath. Breath affects our sleep, our concentration, our memory and energy levels.

Our breathing normally is faulty; at times our breathing is rapid, sometimes our breathing is erratic. We do not breathe in enough of oxygen, nor do we exhale carbon dioxide completely. We need to develop the habit of conscious breathing as this breathing will help us not only to control our bodily functions well but also our mind.

We have 75 trillion cells in our body. These cells absorb the oxygen we breathe in and produce the carbon dioxide we breathe out. The oxygen that we breathe in purifies the blood stream, it burns out the toxins and recharges our body.

### **Conscious Breathing**

We breathe naturally. We are not even conscious of our breathing. It is like the heart that beats away. It is only when we are emotionally troubled do we notice that our breathing becomes faulty. Stress affects our breathing. However, through training our-selves to breathe slow and easy we can do wonders. This is called conscious breathing.

We can use conscious breathing to lead a healthier life style; to better our bodily functions such as blood pressure, pulse rate, metabolism, balancing the hormones, digestion etc. as stated earlier mind and breath are linked.

Breathing is the best tool for healing. It not only energizes the body, it also influences our emotional state.

However, we must become aware of our breath by paying closer attention to our breathing. We can change our state of mind through breathing.

There are many factors responsible that help change our connection to life through breathing. The pace that we maintain when breathing, how many times we breathe, the amount of breath that we take in, and most of all the posture we maintain when breathing. We must keep ourselves open to experiencing the vibrations that we feel in our body, and the effect the breath has on the mind and body.

### **The Respiratory Muscles**

There are muscles that aid the continuous process of breathing. They manage the expansion and contraction of the chest cavity. They are the intercostal muscles, and the diaphragm. The intercostal muscles are groups of muscles that run between the ribs. They form the chest wall as well as move it. They help in the mechanical aspect of breathing. In order to facilitate breathing they expand and shrink the size of the chest. The diaphragm is a dome shaped thin skeletal muscle that is at the base of the chest, and separates the chest from the abdomen. It is located below the lungs. It is the major muscle for respiration. The muscle contracts rhythmically and continually when you breathe in and out. This action is done involuntarily. During inhalation the thin membrane contracts and flattens. A vacuum is created and air is pulled in. When we exhale the diaphragm relaxes. Once again it goes back to its dome like shape, and the air is pushed out.

### **Respiratory Cleanse, Your Best Defense**

Breathing affects the Parasympathetic and the Sympathetic system of our body- the two branches of the Autonomic Nervous System. When we breathe slowly and deeply we slow down the heart rate, our blood pressure lowers and eventually our thoughts become clearer. Deep breathing quietens our emotions by giving space to our thoughts. We are able to understand our situations much better.

The mind and body are connected by the flow of breath or air through our system. This air is what keeps us alive.

Pranayama or breathing technique a yogic science was given to us by Rishi Patanjali. Pranayama is the skillfull regulation of breath flowing in and breath flowing out. Below are some breathing techniques that you can follow. They have been spread over 4 weeks. You can practice one technique per week so that you can thorough the technique. Once you have become comfortable in the techniques suggested below you could practice them every day. The best time to practice these techniques would be by 6 am in the morning. If you could wake up at sunrise and practice the techniques even better. Any form of Pranayama should be done on an empty stomach.

### Breathing Techniques for cleansing your nasal passage and the lungs

Kapalabhati and Bhastrika are breathing techniques used for cleansing. The mucous from the air passage is cleaned. The chest is cleansed of a sensation of tightness. The lungs are cleaned of carbon dioxide. The heaviness in the mind and the blockages present are also wiped away. And this cleansing takes place as both the techniques are based on exhalation of breath.

These breathing techniques stimulate the brain cells by throwing out the carbon dioxide from the brain cells and supplying oxygen to the brain cells.

### THE FIRST WEEK PLEASE FOCUS ON THIS TECHNIQUE

#### Kapalabhati:

Means that which shines and brings a glow to the forehead-kapal. Bhati means shining or luminosity. It means that kapalabhati brings clarity or luminosity in the mind, and to the body by cleansing the passage way and removing the carbon dioxide, and generating oxygen to the cells.

#### The Technique:

Sit in a comfortable pose with the back erect so that the spine is erect. Push your shoulders back. The belly muscle should be relaxed. Place your palms on thighs or knees. Relax the face.

Take a deep breath that is soundless, expanding the chest. Exhale through the nose pushing the air out whilst drawing the abdomen muscles inward. This technique consists of explosive exhales and slightly longer passive inhales. As you exhale the lower belly contracts, which pushes the air out of the lungs. You then inhale which sucks air into the lungs and the stomach expands.

The rate: Do ten to twenty expulsions per round, one second for exhalation and two three seconds for the inhalation. Rest for a bit after every round. The speed can be gradually increased and so also the number of expulsions. You can do 60 expulsions per round...one expulsion per round. With regular and sustained practice one can achieve a speed of 100 to 120 expulsions per minute. After every round take a pause and observe the body and the mind. You will experience peace.

#### The Benefits of Kapalabhati

- It boosts your immunity
- 8 to 10 minutes of Kapalabhati can cure lung problems

- It cleanses the lungs and increases the lung and respiratory capacity
- It helps in clearing up your sinus
- It helps in improving asthma
- It relieves stress and anxiety
- It rejuvenates the cells in the body dispelling lethargy and drowsiness
- It helps with kidney problems such as stone in the kidney
- It cures insomnia
- It cures acidity and constipation
- Mental agility is improved
- It enhances beauty
- It increases circulation of blood with higher oxygen concentration thus improving cellular functioning
- It increases the heart rate
- As it increases metabolism it is beneficial for diabetics and obese people

Pregnant mothers should refrain from doing this exercise, so also women who are menstruating.

### THE SECOND WEEK PLEASE FOCUS ON THIS TECHNIQUE

#### Bhastrika:

Bhastrika consists of forced, rapid, deep breathing. It is a chest breathing. We use our chest for active inhalations and exhalations. Air is forced both in and out. Importance is given to the expulsion of air. This technique helps to increase the lung capacity, it helps in blood circulation, clearing of the nasal tract and increases thinking capacity. It is also called the yogic breath of fire. This pranayama pumps more oxygen into the body which keeps you energized for long.

#### The Technique: 1

Sit in a comfortable position with back erect so as the spine is erect and the stomach relaxed.

Breathe by expanding and contracting the compressing the chest like bellows. The inhalation and the exhalation are active in rapid succession. This is unlike kapalabhati which uses the abdominal muscle while exhaling wherein the abdomen is drawn in.



One who is suffering from hyper tension, or heart problems, or back problems may take this pranayama slowly. Do not breathe rapidly.

After the final exhalation inhale deeply. This ends one round of Bhastrika. You will experience a calmness that is called Kewal Kumbhaka.

Rest for a while when the round is over. Take a few normal breaths before you start the second round. Each round can be done for 30 secs, or more say a minute. Those who are healthy sturdy can certainly do this for a minute.

### **The Technique: 2**

This Bhastrika is done with using your hands also. It is called the Purna Bhastrika. Every time you breathe in your hands are raised. With every exhalation you bring your hands down. You exhale with a little bit of force.

You can do 10 to 20 strokes in the beginning like Kapalabhati and then increase it slowly.

Both the excersies Kapalabhati and Bhastrika help to get rid of the diseases of the nose and the chest.

### **Benefits of Bhastrika:**

- Builds immunity thus protecting the body from disease attacking bacteria and viruses.
- It is great for lungs and for people suffering from respiratory problems, breathlessness, colds, flu, and allergies.
- Bhastrika supports the motor system- a part of the central nervous system which is responsible for movements.
- This pranayama balances and harmonizes the three doshas of the body – Vata, Pitta, and Kapha.
- Bastrika balances also the autonomic nervous system – regulating stress and promotes better organ functioning as oxygen is pumped into the body which helps in better cellular activity.
- The forceful breathing technique energises and recharges the body. Practice it when you feel low on energy.
- Bhastrika Pranayam works best for depression and anxiety.
- Bhastrika Pranayam is also effective in treating fibrosis.
- This pranayama works effectively for sleep apnea. Sleep apnea is when you snore

loudly when sleeping, you feel tired even after a full night's sleep, and your breathing is irregular when sleeping.

## **WEEK THREE PLEASE FOCUS ON THE PRANAYAMA EXPLAINED BELOW**

### **Nadi Shuddhi Pranayama or Alternate Nostril Breathing**

This pranayama acts as the Energy Channel Cleanser. The breath is passed alternately through one nostril and the other. This balances the flow of energy or prana in the process unblocking and purifying the energy channels in our body. This technique brings in equilibrium in our breathing and helps calm the mind

### **The Technique:**

Be comfortably seated. Rest the left hand on the lap. Now use the thumb and the little finger for the process.

You first need to exhale completely. Let the thumb rest lightly on the right nostril pressing it slightly to close the passage. Inhale from the left nostril slowly, without making any sound.

Gently close the left nostril with the right finger and hold the breath for a bit say 4 counts, and then exhale through the right nostril. Now take in breath through the right nostril, hold your breath and breathe out through the left nostril.

Continue this practice for 2 to 3 minutes. You can gradually increase the duration. Say about 15 minutes.

You need to end the process by exhaling through the left nostril. It has a much cooling effect. There are some who advise to exhale last from the right.

This alternate breathing is a little different from the one I am going to explain now below. In the above technique we hold our breath for a bit. It is called Bahaya Kumbhak.

### **Anlom Vilom which is again Alternate Nostril Breathing**

### **The Technique:**

So sit in a relaxed position. Left hand on your lap. Use the thumb and the little finger to press lightly against the nostrils.

Exhale! Then breathe in through the left nostril. Exhale through the right nostril. Once again take a deep breath through the right nostril and exhale till the last bit of breath is out. The last exhalation is

through the left nostril. There is no holding of breath here.

You can do this for 2 to 3 minutes initially. Then gradually 5 minutes until you can do this for at least 15 minutes.

### The Benefits of Nadi Shodhana/Anlom vilom

- the body is filled with oxygen
- The toxins are released
- Stress and anxiety are lessened
- A calmness engulfs you which aids in rejuvenating the nervous system
- Hormones are balanced
- Clears and balances respiratory tract
- Allergies that cause hay fever, sneezing, or wheezing become a thing of the past
- It balances the Ida and Pingala...i.e. the solar and lunar energies. Fosters mental clarity and an alert mind
- High Blood Pressure is reduced
- The body becomes light, radiant and lean when the nadis are purified. The mind and body become calm and digestion is better.

### Practice this pranayama in the 4<sup>th</sup> week

Ujjayi means the Victorious one in Sanskrit ...the one that gains victory over oneself. It is also called the Ocean Breath, or the Snakes Voice. This pranayama helps to build awareness. Unlike other pranayams this exercise can be done while walking or standing, and can be used in combination with other pranayams.

The inhalation and the exhalation is slow and done via the voice box area. You need to contract the throat whilst breathing in and out. The voice box area of the larynx and glottis are partially closed. This restricts the flow of air. This results in a low hissing sound.

### The Technique:

Sit in a comfortable posture. Spine erect. Relax the facial muscles.

Bring your awareness to the throat. Contract the glottis or partially tighten the larynx so that the air passes slowly through the gap.

Take in breath slowly through the throat. This produces a slight hissing sound. At the time of

inhalation the chest is raised and the abdomen then contracts.

The sound should have a low pitch. There should be no friction of air in the nose so as there is no noise produced by the nose.

The exhalation should be longer than the inhalation. This is one round of the Ujjai pranayama. You need at least 9 rounds of this.

Those who have been practicing yoga for long hold their breath after inhalation sometimes even after exhalation.

### The Benefits of Ujjai

- Helps to cure sinus and migraine
- It is very effective for respiratory problems
- Ujjai is good for cold, cough, asthma, and tonsillitis
- Ujjai strengthens the epiglottis thus helps in reducing snoring
- It also helps the voice where one can modulate with ease when singing
- This pranayama has a healing effect on the thyroid gland
- Ujjai pranayama soothes the nervous system and calms the mind
- It regulates cholesterol and clears blocked arteries thus lowering the risk of a heart attack
- Ujjai pranayama is the best for arousing the kundalini
- It makes you more aware of your surrounding

Ujjai may not be the best pranayama to be practiced by those who suffer from high blood pressure or heart problems.

### Mindfulness Meditation

This can be practiced at any time. All you need is a few minutes of your time and a comfortable place to sit at. This meditation can be done when you feel your thoughts becoming intrusive, and affecting your state of mind.

Alternatively you could fix a specific time during the day to do this meditation.

You can also set an alarm to determine the time you wish to do this meditation.

### **The Technique**

- After finding a comfortable area to be seated at you may sit in a comfortable posture.
- Focus on your breathing with eyes shut.
- Feel the air you are breathing in; feel it travel through the nostrils into the lungs, and to the stomach.
- Feel the air you are exhaling; as you exhale feel the air leaving the nostrils. Alternatively you could exhale through the mouth.
- Feel the air going down to the stomach. Feel the rise and fall in the belly.
- If your thoughts are travelling fast at the start; do not become anxious. Come back to your breathing.
- The whole practice is about controlling your thoughts. So once they travel, just come back to your breathing.
- This will help calm the mind and body.
- Once you master this practice you can bring mindfulness to your daily activities.

We have focused on four different techniques. You can practice one every week to become thorough. In a month you would have learnt the four different pranayama's which will aid in building your immunity.

### **The Pineal Gland**

A lot of us wonder at the term the 'third eye'. It is also called Shiva's third eye. Shiva opened his third eye and destroyed or burnt Kama; is how the story goes. Kama is lust. Lust not just in the physical sense but a burning desire for anything without which you do not feel complete. This is symbolic of Shiva destroying any desire within himself thus becoming desire less, not attached to anything.

It is the pineal gland that our yogis knew of, and knew how to use its characteristics for advancing their yogic practices.

Our pineal gland along with the pituitary gland, in tandem with the thalamus and the hypothalamus play a large role in meditation and in bringing about transformation in us and our lives.

All systems have one common function...that is the input where information comes into the system, the process where the information is analysed, and the output where you get a response to the input after it

being analysed. This is a pattern that is present in our nervous system. To explain let's get an example of the neurons in our body.

The dendrites which look like antlers are the receptors, and are placed on top of the neurons. It is through the antlers the neurons receive information. This is the input. The dendrites then transfer the information to the cell where the information is processed. After analysis we have the output through the axon. Axons are thread-like formations through which impulses are carried from cell to cell.

### **The pineal gland or the third eye.**

The pineal gland gets its name as it is in the shape of a pine cone. I would like to simply explain a functioning of the brain that involves the pineal gland and the pituitary gland which is the master gland.

There is a section in the brain called the ventricle. At the top of this ventricle is the pineal gland and at the bottom of this ventricle is situated the pituitary gland. It is the output ...one of the 3 system functions. It is the motor neurons equivalent. The pineal gland is the input while the pituitary gland is the output. The pineal gland is influenced by the information from the thalamus and the hypothalamus which alters the signal. The process takes place. The pituitary gland then sends the information throughout the body.

Long ago we were able to hear the radio because of crystals that were touched at a particular point that created those waves and produced energy that got converted into sound. There were no receptors, no capacitors, no resistors, just a crystal that when you touched it the energy of the radio frequency turned into sound.

In the old days of television when we did not have LCDs, there was a picture tube, which had a gun (a structure so called) at one end and a screen at the other end. The gun would shoot electrons at the screen. This would light up the screen. Between the gun and the screen were magnets on the neck of the picture tube. The information in these magnets would alter the beam before it hit the screen. It is this information in the magnets that would give shape to the final picture on the screen.

Similarly the pineal gland has crystals on it. They are equivalent to the gun in the tube. The thalamus and the hypothalamus generate electromagnetic fields that influence the information coming from the pineal gland. This hits the pituitary gland which is akin to the screen on the picture tube, where the final image takes place. The pituitary gland then sends this image to the body.

The input the process and the output.

When meditating we are always asked to turn our gaze to the third eye...the Christ Consciousness...the pineal gland.

The pineal gland receives the information that we send. It is processed and then sent throughout the body.

## **SUBCONSCIOUS PERCEIVES; BODY BELIEVES**

### **Attitude**

Not many of us understand that attitude is our state of mind. This state of mind is built on our beliefs and values that we inculcate. A negative state of mind is a risk factor for major illnesses. Our thoughts, emotions, feelings, passions, likes, and dislikes, beliefs, and attitude create major changes in our body. Illnesses show up in the mind first and then in the body...we call them psychosomatic illnesses.

We are responsible for our health conditions. We need to work on our breath, mind, and body to remain healthy. Healing goes beyond just the body. We can say we have been healed completely when we find our inner peace of mind, when we have a better understanding of ourselves, and can learn to live in harmony with ourselves and others. A good attitude to life is an important aspect in healing; however, healing requires for us to work with the cosmic energy...Prana. This prana, this energy, this life giving force is what we require to bring a balance in our fast paced life, which in turn will bring in more awareness and mental clarity.

We need to balance our mental physical and spiritual aspects so that we may become competent in handling our health. It is important for us to understand that the rising of the chakras depend also on our attitude to life and our thoughts that go with our attitude. As mentioned earlier Attitude is our state of mind. Thoughts, feelings, and attitude cannot be isolated one from the other. This is what determines our personality.

### **Affirmations**

An affirmation is a sentence/statement that has been constructed in the present tense or the past. It can also be constructed in the present continuous tense. It needs to be said repeatedly with emotion and feelings for it to get absorbed eventually in to the subconscious. These conscious affirmations work on the mind and the body through the subconscious.

Affirmations are statements that are positive in nature. They help in overcoming negative thoughts. When said with belief you can see the changes take place. There should be no element of doubt or distrust when saying the affirmation. It should be said

with faith and devotion a few times a day. We should be convinced that the affirmation is working for us. Affirmations are a proven method of self-improvement. They help in rewiring the neurons in our brains.

"Every day in every way I am getting better and better" is an affirmation introduced by Emile Coue a French psychologist. His world famous affirmation has healed many people with diseases.

Whilst affirming we must have an attitude of Surrender to the Divine Cosmic. Healing is a gift given by the Divine and self-effort alone does not help, the attitude of surrender accelerates the process.

### **Creative Visualisation**

Creative Visualisation is a tool that we can use to manifest good health.

Our physical health, emotional health and mental health are inter connected, we cannot separate one from the other. Holistic healing is about connecting the three. Understanding ourselves at these 3 levels. The state of 'dis-ease' is the conflict we suffer, or the disharmony we go through because of the levels of well-being on other levels.

When we are unwell physically it is necessary that we look at ourselves closely and try to understand the message our body is sending. Look at the emotional state you are in, the attitude you are carrying which in turn is responsible for our thoughts (this is interlinked). Work on bringing harmony and balance to all these aspects.

When you visualize you are communicating with your mind to your body.

Create images and thoughts of a healthy you in your minds and transmit them to the body. Imagine your problem to be healed completely.

It is important that we look into our feelings and our beliefs to heal completely. You can certainly do this with external support of medicines.

### **Meditate to Levitate**

To maintain Peace within and without- A simple meditation yet very effective. This can be done in the morning for some time and in the evening, or at night before sleeping.

Each one of us is a soul, joyous and eternal. Attaining inner peace is everyone's goal. It is not always that we live in a harmonious society. You have the outer environment which is the physical environment ...sometimes noisy. The inner



environment is of primary importance ...it is one's state of mind.

You may not be in a harmonious environment all the time. Your mind may be cluttered with not so very nice thoughts. You could be stressed, or anxious. But one can live in harmony with one's inner-self by meditating, or spending a few minutes a day in silence.

The choice of how you want to feel and be is in your hands.

Focus your attention within. Breathe in deeply and exhale till the last of the breath leaves you, without making a noise. Do this thrice or even more times. As you are breathing in and exhaling feel the peace travelling to all parts of your body. Every cell in your body is feeling lighter. You will feel the tiredness leaving you.

Once you feel at peace we can meditate!

Sit in a posture appropriate for meditation. You may sit on a chair with your feet firmly planted on the floor, or you could sit cross legged. Your palms can rest open on your lap, or right hand over your left.

Breathe in deeply, make your body muscles go tense, hold the breath for about 10 to 20 seconds, and exhale pushing the air out with a huh huh. Do this 3 to 6 times.

Relax and feel your breath and the tingling sensation in your body.

Close your eyes, fix the attention to the point between your eyebrows. This is the Christ Consciousness Centre (Kutastha Chaitanya).

Dismiss all worldly thoughts. Let go of all restlessness. Go within. Concentrate on the thought of peace and joy. Say to yourself:

***'God is peace. I am his child. I am peace. God and I are one.***

***Peace fills my heart, my body, my soul.***

***There is peace within and without.*** (part of the affirmation is taken from the affirmations by Yogananda Satsang)

10 to 15 minutes of pranayama (lom/vilom) done in the morning and in the evening also has a calming effect. Breathe in the positivity and exhale the negativity.

When the body and mind is at rest, when you can feel the peace in every part of your body, the feeling is magical. It elevates the soul, bringing clarity of thoughts to the mind. All confusion is lost. Your vision, your goal becomes clear. You feel a surge of

happiness and this happiness releases the feel good hormones.

OXYTOCIN is a hormone that is released on feelings of happiness and compassion. This feeling of goodness naturally makes you feel confident. Your creativity starts flowing. In such a state of mind that is pure bliss you can be more productive in all that you are doing. There is focus and no confusion. The mind is clear.

This process automatically adds to the personality of the individual. Stress and anxiety affects the personality of the individual. Under duress he or she may resort to actions that he or she may regret later.

Calming the mind calms the thoughts and helps you function better. It alleviates stress! Because the hormones released are feel good hormones. This in turn keeps you healthy and away from diseases.

**Mediation helps release hormones such as Melatonin, Serotonin, GABA, DHEA, Endorphins, Growth Hormone and many more. The benefits are many.**

**Melatonin** also called the Sleep Molecule helps in sleeping. It ends Insomnia.

**Serotonin** The Happy Neurotransmitter regulates our mood contributing to a happier state of mind. It helps in overcoming Depression. When fewer brain cells are formed, depression takes over. Serotonin helps in forming new brain cells.

**GABA** the calm chemical- lack of this chemical can affect the body and create a lot of problems. The primary problem being anxiety and nervousness which of-course leads to racing thoughts and sleepless nights. Imagine the consequences. Addiction to alcohol, drugs, caffeine, and tobacco results in the lack of GABA.

**DHEA** is called the Longevity Molecule as it slows down aging. It also counters stress. As we grow older this hormone decreases, which is the onset of our aging and exposure to diseases. Meditation helps increase this hormone. Hence meditation is also called the 'fountain of youth'

**Endorphins** the Natural High hormone. Leaves you feeling happy and blissful. Runners, people who exercise regularly may be an hour a day always feel marvelous later. Runner's High is the coinage to describe how the runners feel after a good run.

**CORTISOL** is a stress hormone. It is released when one is stressed. Chronic stress can destroy healthy muscles and bone, it stops the secretion of good hormones that lead to anxiety and

depression, high blood pressure, insomnia and of course the list can go.

Lucky thing is we can meditation and mindfulness help reduce cortisol. Done regularly one needn't encounter any of the above stress related diseases.

**Mindfulness** is about the NOW. Focusing on the NOW. We get caught up in various thoughts during the day. Sometimes they become intrusive, leading to fatigue. Sometimes they are very judgmental leaving us with a feeling of negativity which in turn can leave you feeling fatigued.

In mindfulness meditation you work on focusing on the now, stopping all thoughts that could leave you with a feeling of negativity. It helps you to accept your thoughts without judging them. By slowing down your thoughts you become calm and thus begin to feel more energized.

### Physiotherapy Markers and targets

Moderate exercise has been linked to an improved immune response and a boost in the production of macrophages, the cells that engulf attacking antigens. Post exercise, the immune system generally returns to normal within a span of few hours, but it is supposed that regular, consistent physiotherapy can lead to substantial benefits in immune system health in the long-term. (Ahmed 2012). Exercise immunology is considered a relatively new area of scientific endeavour due to the immune system being vastly reactive to physical therapy, with the level and duration reflecting the degree of physiological stress imposed by the workload. (Nieman and Wentz 2018). The extent of aerobic activity essential to target an improved immune response is quite subjective as it depends on one's endurance, strength, and ability. Also external factors (psychological and social) which are known to create alterations in one's neuro-endocrine functioning which in-turn could affect the immune system due to the interconnected nature and its non-local correlated activities. Research shows that training at moderate-to-vigorous intensity, is an important to stimulate the exchange of distinct and highly active immune cell subtypes between the circulation and tissues. Regular exercises are known to have an inverse relation with URTI's (upper respiratory tract infections). (Ahmed 2012) Studies have observed decreased levels of inflammatory biomarkers in adults with higher levels of physical activity and fitness, also improved fitness is noted through potential marker such as BMI (body mass index), improved vital capacity, muscle mass and endurance. There is also increasing evidence upon the effect of regular training on innate immunity, its anti-inflammatory and antioxidant effect thereby leading to an improved circulatory system. Daily exercise facilitates the antipathogen activity of macrophages and enhances the recirculation of immunoglobulins, anti-inflammatory cytokines, neutrophils, NK cells, cytotoxic T cells, and immature B cells with each

bout. These acute changes produce a summation effect to enhance immune defence activity and metabolic health. On contrary to this high intensity of daily vigorous exertion could lead to physiological, metabolic, and psychological stress leading to transient immune perturbations, inflammation, oxidative stress, muscle damage and decreased immune response. (Nieman and Wentz 2018). There is also the prevalence of fear associated with movement evident, based on age and level of associated physical activity the cause of fear differs. Fear could prevail due to falls, risk of injury or inability to showcase maximal potential. Brodmann areas and the right fusiform gyrus are known to show activation with regards to fear. The effect of performing exercise renders contrasting effects on the body systems based on performing intensity, proper composition of training regime allows the individuals body to actively overcome challenges if not leads to a compromised immune function. Evidence regarding changes induced by exercise is debatable effects of which could be observed through different exercise paradigms. Evidence emphasizes on the importance of exercise at moderate intensity determined by professional to obtain optimal function of immune system. (Sa'nchez et.al 2019) The primary system of elimination of metabolic wastes during exercise through the musculature is essentially the same as during any other activity of the body. Furthermore there are three different ways of elimination of this waste namely essential aerobic elimination which generates maximal power functioning during intermediate races, glycolytic acid system eliminates through anaerobic glycolysis during short to moderate period of muscle contraction and phospho-creatine system which functions during maximal short burst of muscle power through ATP (adenosine triphosphate) release (energy molecule release). (Guyton and Hall 2011) Hence it is essential for any kind of CNS or aerobic training to be done under the influence of qualified and knowledgeable authority to avoid ill effects, facilitate appropriate of toxic elimination process and obtain optimal benefit as the outcome.

### Fatigue threshold and recovery

Fatigue threshold also addressed as "the failure point" is the state at which at which the muscle is no longer able to sustain any contraction or required force for work output level. (Moritani 1993). It is noted as the length of time a contraction can be maintained or number of repetition performed prior to exhaustion. Various environmental factors can influence the same based on the external atmosphere such as temperature, ventilation, music and internal characteristics such as physical capability, mood, stress, recovery time. The body needs to cool down and restore to initial state post exhaustive exercises, this time taken by the body which is usually 3-4 mins is known as recovery time.

Oxygen and energy are replenished within minutes of cool down where as toxic elimination takes about an hour wherein lactic acid is replaced by glycogen over a period of time thereby improving performance. (Kisner and Colby 2013) Studies have proven that light movement such as breathing exercises or yoga when performed during the cool down phase result in rapid recovery over total rest. Also a balanced regime adequate with adequate recovery time leads to improved performance overtime whereas insufficient recovery or overtraining leads to muscle exhaustion and plateaued or detreating performance, thereby making fatigue and recovery time an important marker for physiotherapy.

### **Principle of training**

#### **SAID (specific adaptation to imposed demands)**

The SAID principle of training follows the wolf law which states that the body over the course of time adapts to the stresses placed over it, there it helps physiotherapist to appropriately design a program to target the required parameters so as to achieve the required functional goals.

There are two basic principles of training flowed so as to achieve the desired functional goals namely SPORT and FITT which are acronym used for the principles explained below.

**Specificity-** Sport specific or purpose specific training should be provided so as to achieve desirable results. Exercises mimicking functions should be in co-operated to build muscle memory. Individualized programs taking in consideration the needs would provide better results than generalised programs.

**Progression –** A gradual progression in exercises should be incorporated rather than a rapid increase or decide in the intensity or type of training. This helps built muscle memory, improve performance and prevents fatigue and injury.

**Overload –** In simpler terms, the limits of trainee should be tested, spare amount of additional pressure should be added pushing the individual to the level of exhaustion but at the same time precaution should be taken to avoid strain. The push is only till the level of fatigue is reached and not beyond so as to obtain a maximal benefit in the outcome.

**Reversibility –** Although rest is important for recovery the amount of time devoted should be calculated in order to avoid lethargy to rest in. Even during periods of de-training gradual exercises should be continued to avoid losing the gained progress of the body.

**Tedium –** This is a parameter the trainer or the physiotherapist needed to work on the most in order to keep the player motivated towards the training.

Strategies and regimes need to be kept interesting to captivate the interest of the training individual and avoid boredom.

The following FITT principle should be incorporated with the above-mentioned SPORT principle for attaining the appropriate desired effects. Frequency – The number of times the exercises are done per week, intensity – the level of difficulty added during exercise which could focus on resistance or number of sets based on the type of training, Time – The duration of sustained contractions, repetition and in general duration of each exercise, Type- the type of training targeted based on the specificity of the training.

Adequate amount of warm up, cool down, rest and recovery combined with an appropriately designed training program keeping in mind the individualist need is thus the key to achieve desired functional goals and stay fit.

### **NUTRITION**

**“Let food be thy medicine and medicine be thy food.” – Hippocrates**

Diet is passe – Nutrition is in; Food could be a blessing or a sin

Vegetables cleanse you, Fruits heal you,

Nuts and dry fruits fortify you, Herbs regulate you

The food should be appropriately cleansing, healing fortifying and rejuvenating in nature

A healthy mixture of vitamins, proteins, carbohydrates, fats, minerals etc have organoleptic properties, that are beneficial for healing process resulting into sound health

They function as signaling molecules by making important contributions to immune homeostasis. The metabolites have a role in the differentiation and function of B and T cell subsets and influence their hormonal regulations

A comprehensive nutritional plan should include an appropriate mixture of the following nutrients

- Fresh food
- Seasonal and regional foods
- Fundamentally vegetarian or vegan in nature

An appropriate knowledge about the above resources along with coconut water, nuts soup when included in our dietary plan helps with

proper digestion, toxic elimination, lowers the risk of diseases and improves fitness levels

Nutritional guidelines would include

- Eat only when hungry
- Eat sub maximally
- Have last meal by sunset
- Morning to noon seasonal fruits and herbal concoctions

Intermittent Fasting

- The ancient Ayurveda promoted autophagy
- During fasting, pathways that enhance intrinsic defenses against oxidative and metabolic stress and those that remove or repair damaged molecules are activated
- Intermittent fasting elicits evolutionarily conserved, adaptive cellular responses that are integrated between and within organs in a manner that improves glucose regulation, increases stress resistance, and suppresses inflammation.

“Jo ek bar khaye woh yogi, do bhar khaye woh bhogi aur bar bar khaye woh rogi”

### Relation to ongoing pandemic of COVID -19 (prevention and effects)

The current situation of COVID-19 despite being a world crisis is also a self-limiting infection which can be tackled with enhanced immune and respiratory system, hence using physiotherapeutic measures to train the respiratory system and increasing endurance could play a vital role in the fight against the world pandemic. (Mohamed and Alawna 2018) The infection is a competition between the viral replication and its elimination by the immune system underlies disease progression so, strengthening the immune system or limiting its ability to spread across the pulmonary tissue may be favourable to fight against it. Current research states some recommendations to combat the current situation, which includes, following appropriate hygiene precautions, staying hydrated, adequate distancing from any contact, deep breathing exercises, staying warm and moderate-intensity aerobic exercises. (Elias et.al 2018) A combination of adequate nutrition, physical activity and sleep are key components to overcome the current strenuous situation. A review by Mohamed and Alawna (2018) summarised that increasing the aerobic capacity has the potential of improving immune and respiratory functions, thereby decreasing the risk factors and allowing better body functions against COVID-19. Hence it is suggested to perform a routine of 10-30 mins of mild to moderate aerobic exercises by all

people during lock down. Therefore a possible solution to combat the current situation is to maintain a balance between physical activity, breathing exercises, nutrition, and sleep maintain adequate hygiene.

### CONCLUSION

To conclude with it is essential to maintain a strengthened immune system so as to tackle any unwanted harmful antigen. The Neuro-endocrine system plays an important influence over the immune system and therefore any factors affect them would indirectly affect the functioning of the immune system as well. Strengthening and aerobic exercise is done at appropriate intensity could obtain desired effects over the immune system also, intensity and type of training differs based on individuals gender, age and involvement in sports. To sum it up a combination of appropriate nutrition, sleep, physical therapy and psychological support would not only strengthen the immune system but also lead to an improved quality of life of an individual.

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